

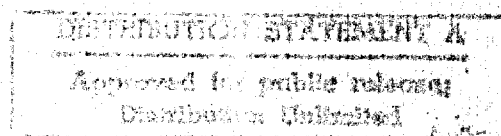
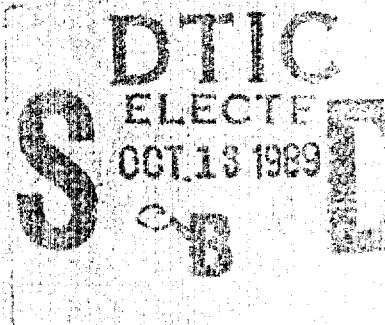
AD A213 280

R-3680-AF

Airpower in Peripheral Conflict

The French Experience in Africa

Mark A. Lorell



RAND

PROJECT AIR FORCE

The research reported here was sponsored by the United States Air Force under Contract F49(70) 30 O-0008. Further information may be obtained from the Long Range Planning and Doctrine Division, Directorate of Plans, Hq USAF.

ISBN: 0-8330-0937-0

The RAND Publication Series: The Report is the principal publication documenting and transmitting RAND's major research findings and final research results. The RAND Note reports other outputs of sponsored research for general distribution. Publications of The RAND Corporation do not necessarily reflect the opinions or policies of the sponsors of RAND research.

BEST AVAILABLE COPY

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER R-3660-AF	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Airpower In Peripheral Conflict The French Experience in Africa		5. TYPE OF REPORT & PERIOD COVERED interim
		6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Mark A. Lorell		8. CONTRACT OR GRANT NUMBER(s) F49620-86-C-0008
9. PERFORMING ORGANIZATION NAME AND ADDRESS The RAND Corporation 1700 Main Street Santa Monica, CA 90406		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Requirements, Programs & Studies Group (AF/RDOM) Ofc, DSC/R&D and Acquisition Washington, D. C. 20030		12. REPORT DATE January 1989
		13. NUMBER OF PAGES 79
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) unclassified
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16. DISTRIBUTION STATEMENT (of this Report) Approved for Public Release; Distribution Unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) No Restrictions		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Air Power Africa Military Forces(Foreign) Saharan Africa France		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) see reverse side		

This report reviews French Air Force (FAF) involvement in military operations outside of Europe since the early 1960s and then more closely examines FAF operations in Chad from 1978 through mid 1987. Part of a larger RAND research effort aimed at enhancing the future effectiveness of U.S. Air Force air power in peripheral conflicts, this study assesses (1) the relative effectiveness of air power in French overseas operations; (2) the constraints placed on the use of air power and how they influenced its effectiveness; and (3) the unique aspects of FAF force structure, equipment, organization, doctrine employment concepts, and training designed specifically for peripheral operations. The author concludes that, in response to growing military capabilities of Third World opponents, air power has become an increasingly critical component of French overseas projection forces. However, French experience confirms that air power can make a decisive contribution in peripheral conflicts only when it is combined with aggressive joint land operations.

R-3660-AF

Airpower in Peripheral Conflict

The French Experience in Africa

Mark A. Lorell

January 1989

A Project AIR FORCE report
prepared for the
United States Air Force

RAND

PREFACE

RAND has undertaken an examination of the recent experiences of the West's major air forces in peripheral or "out-of-area" conflicts as part of a project entitled "The Uses of Air Power in Peripheral Conflicts" conducted under the auspices of the National Security Strategies Program of Project AIR FORCE, and sponsored by the Strategy Division, Directorate of Plans, DCS/Plans and Operations, Headquarters U.S. Air Force. The purpose of this research effort is to assist in developing a basis for enhancing the future effectiveness of U.S. Air Force air power in peripheral conflicts. The report presents the project's findings on the experiences of the French Air Force in overseas operations since 1962. It is based entirely on unclassified published sources. Other reports on French Air Force activities in Indochina and Algeria, Royal Air Force experience in peripheral conflict, as well as a project overview, are forthcoming.

This report should be of interest to analysts concerned with the development of air doctrine, air operations in limited conflicts, French policy toward Africa, and the French Air Force.

Accession For	
NTIS GRA&I	☒
DTIC TAB	☐
Unannounced	☐
Justification	
By	
Distribution/	
Availability Codes	
Dist	Avail and/or Special
A-1	

SUMMARY

This report reviews French Air Force (FAF) involvement in military operations outside of Europe since the early 1960s and then more closely examines recent FAF operations in Chad. It supports a larger RAND research effort aimed at enhancing the future effectiveness of U.S. Air Force air power in peripheral conflicts. The objective is to determine how appropriate the present U.S. Air Force force structure, equipment, organization, doctrine, employment concepts, and training are to participation in such conflicts in the future, and to propose and evaluate means of improving that potential.

A key component of the research is to document and evaluate past cases of the use of air power in peripheral conflict. The central questions this research set out to answer included:

- How effective was the use of air power? Why?
- What sorts of constraints, of all types, were placed on the use of air power, and how did these influence its effectiveness?
- How did peripheral operations affect force structure, equipment, organization, doctrine, employment concepts, and training?

Recent overseas experiences of the French Air Force have lessons that may apply to U.S. Air Force operations in future peripheral conflict. The FAF is an excellent candidate for study because of its extensive experience in peripheral operations. Indeed FAF combat units have been deployed in such operations somewhere outside of metropolitan France almost without interruption since shortly before the outbreak of World War I. In the course of these many operations the FAF has accumulated a wealth of experience that far surpasses that of most other Western air forces.

Following the bitter experience of the Algerian War, French security planners devised a new strategic concept for the protection of the country's remaining overseas interests. **This strategy called for garrisoning small forces at strategic regional reception bases, backed by a larger force of highly specialized, rapidly deployable units based "over-the-horizon" in France.** In the period under review, the Air Force components of the joint intervention forces played only a secondary and supporting combat role. The primary FAF missions during this period were:

- Rapid loading, transit, and delivery of designated army formations of the Joint Intervention Force and their equipment from metropolitan France or French overseas bases to reception bases in the zone of operations; and
- Strategic and tactical resupply of deployed forces, and intra-theater liaison.

A tertiary role was the provision of reconnaissance, air defense, and close air support in support of deployed land forces. FAF airlift capabilities remained extremely modest during this period but for the most part proved adequate to support the small-scale overseas operations typical of this period.

In the mid-1970s, under the leadership of conservative President Valéry Giscard d'Estaing (1974-1981), France adopted a far more active interventionist policy in response to the growth in influence of the Soviet Union and its surrogates in Africa. Airlift remained a critical FAF mission in support of overseas projection forces. Yet France was unable to match the buildup in ground forces, both in quantity and quality, available to potential opponents in Africa.

Consequently, as the decade of the 1970s progressed, the FAF role of providing direct fire support and reconnaissance grew rapidly in importance. The French government upgraded the fire-projection capabilities of the FAF components of the intervention forces through equipment modernization programs and reorganization. These programs provided first-line high performance fighter-attack aircraft to the intervention forces, organized into specialized rapid-reacting long-range deployment cells. Other programs improved FAF long-range airlift and aerial refueling capabilities.

Numerous French overseas interventions in the late 1970s encouraged the development and provided the initial tests of the specialized equipment, organization, and operational concepts developed during Giscard's tenure. The more active interventionist policy soon demonstrated that French land intervention forces were being stretched dangerously thin and that even upon completion of the planned expansion in transport capability, the FAF's airlift assets would remain woefully inadequate. Yet FAF tactical combat aviation had acquitted itself well, even in the face of multiple commitments, as in the spring of 1978 when its airlift capabilities had been stretched to the breaking point. **Operations in Mauritania and Chad showed that modern fighter-attack aircraft can be employed with devastating effect against irregular forces in a desert environment, raising hopes in some quarters that air power could ultimately serve as a substitute for large land force deployments.**

FAF operational experience in Chad from 1983 through mid-1987, the largest French overseas deployment since Algeria, demonstrates that although the role of offensive air power in overseas operations expanded throughout this period, the hope that tactical combat aviation could provide an inexpensive substitute, in terms of economic and political costs, for large-scale land force deployments, proved illusory. **By the mid-1980s, Libya's offensive air capabilities—the primary air threat to French forces in Africa—had grown to the point that the primary mission of the Air Force component of the French intervention forces had evolved toward more passive or reactive missions, such as defensive counter air (DCA), rather than offensive ground attack, as originally envisioned.**

On the operational level, the French have found that specialization is the key to the development of effective overseas intervention capabilities with limited resources. The concept of specialization applies to doctrine and organization as well as equipment and training. Thus,

- The French adhere to a three-tiered strategy designed explicitly to protect its overseas interests in the demanding political-strategic environment of the post-colonial world.
- France has organized several highly specialized Army and Air Force units primarily for use in peripheral conflicts and other overseas contingencies.
- The problem of inappropriate or overly complex equipment remains a difficult one for overseas deployment forces. Nonetheless, the French have found that simple, more easily supported Counter Insurgency (COIN) aircraft may no longer be appropriate for many peripheral conflict situations. Air forces must be prepared to deploy and support their most modern and capable aircraft and support assets to extremely austere locations, if effective air support is to be ensured in the increasingly high-threat environment now typical in many peripheral operations.
- Secure regional reception and support facilities must be made available to forward deployed aircraft. Without such facilities, it is extremely difficult to support sustained operations with high-performance fighter-attack aircraft.

- Finally, the French excel at providing specialized training to their overseas deployment forces and believe it is a key component of their effectiveness.

The FAF is convinced that there will be an increasing reliance on the air force to project firepower in French overseas combat operations. At the same time, FAF experience cautions against overly optimistic assessments of the effectiveness and utility of air power, for many reasons. Perhaps the most important lessons to emerge from recent French experience, particularly for policymakers who may be seeking a "cheap" and decisive method of intervening in a peripheral conflict, include the following:

- Air power cannot substitute for effective, aggressive ground operations. It is not a panacea that on its own can provide decisive results at low cost.
- Air power is most effective when used aggressively and in the context of carefully coordinated joint operations. Although it can be used effectively against conventionally configured enemy ground forces, losses must be expected.
- The widespread proliferation of modern offensive and defensive air capabilities among Third World armies and irregular military forces has increased the costs and reduced the effectiveness of air power in peripheral operations and required a shift in emphasis toward DCA.

FAF experience also has important strategic as well as operational lessons for U.S. Air Force planners. These might be summarized as follows:

- The effectiveness of air power in peripheral conflicts is inevitably reduced by the political, economic, and diplomatic constraints that typify such conflicts. These constraints include restrictive rules of engagement, politically controlled targeting, enemy sanctuaries, the requirement of reducing pilot and aircraft losses to the absolute minimum, and so forth. Such constraints must be anticipated to avoid corrosive effects on service morale and generating unrealistic expectations as to the effectiveness of air power.

CONTENTS

PREFACE	iii
SUMMARY	v
FIGURES	xi
Section	
I. INTRODUCTION	1
Research Objective and Approach	1
Background, Formation, and Early History of the Joint Intervention Forces, 1962-1975	2
II. THE NEW INTERVENTIONISM AND THE MODERNIZATION OF THE PROJECTION FORCES	12
Giscard Shifts Priorities	12
Modernizing FAF Fighter-Attack Intervention Forces	12
Modernizing FAF Tanker, Transport, and C3I Assets	17
III. FAF OPERATIONAL EXPERIENCE OVERSEAS, 1976-1980	22
Introduction	22
Continuing Airlift Limitations on Land Force Deployments	22
The Triumph of the Fighter-Bomber	27
Some Lessons Learned and Ignored	35
IV. AIR POWER AND THE STRUGGLE FOR CHAD, 1980-1984	37
Introduction	37
Libyan Combat Involvement in Chad, 1980-1981	37
Operation Manta, 1983-1984: Too Passive, Too Costly, and Too Cumbersome	40
V. OPERATION ÉPERVIER: AIR POWER ASCENDANT IN CHAD	51
Introduction	51
The Attack on Ouadi Doum and the Commencement of Operation Épervier, 1986	52
The Libyan Debacle, 1987	56
Operation Épervier: An Interim Assessment	62
VI. LESSONS FROM THE FRENCH EXPERIENCE	64
Operational Lessons: The Importance of Specialization	64
Utility, Effectiveness, and Limitations of Air Power in Peripheral Conflict	67
BIBLIOGRAPHY	73

FIGURES

1. French assistance forces in Africa, mid 1980s	5
2. Major French operations in Africa since 1976	23
3. Zaire	25
4. Mauritania	28
5. Chad	33

I. INTRODUCTION

RESEARCH OBJECTIVE AND APPROACH

This report reviews French Air Force¹ (FAF) involvement in military operations outside of Europe since the early 1960s, and then more closely examines recent FAF operations in Chad, in support of a RAND research effort aimed at enhancing the future effectiveness of U.S. Air Force air power in peripheral conflict. As used in this research project, the term "peripheral conflict" is meant to refer to the whole range of conflict lower on the scale of violence than all-out central nonnuclear war. The scale extends from small-scale anti-guerrilla operations in which the U.S. involvement might be limited to arms transfers and advisory and training roles, to large-scale conventional conflicts where air power plays a major role, such as in Indo-China from 1945-54 and 1964-73.² The objective is to determine how appropriate the present U.S. Air Force force structure, equipment, organization, doctrine, employment concepts, and training are to participation in such conflicts in the future, and to propose and evaluate means of improving that potential.

A key component of the research approach is to document and evaluate past cases of the use of air power in peripheral conflict. To this end, the relevant experiences of the U.S., British, French, and Soviet air forces are being examined. The central questions this research set out to answer included:

- How effective was the use of air power? Why?
- What sorts of constraints, of all types, were placed on the use of air power, and how did these influence its effectiveness?
- How did peripheral operations affect force structure, equipment, organization, doctrine, employment concepts, and training?

Recent overseas experiences of the French Air Force have lessons that may be applicable to U.S. Air Force operations in future peripheral conflict. The FAF is an excellent candidate for study because of its extensive experience in peripheral operations. FAF combat units have been deployed in such operations somewhere outside of metropolitan France almost without interruption since shortly before the outbreak of World War I. Between the two world wars FAF combat units operated from numerous locations in Equatorial Africa, West Africa, Somalia and Djibouti, North Africa, the Middle East, Indochina, Madagascar, and elsewhere in defense of France's far-flung colonial interests. Immediately following World War II—during which extensive operations in North Africa and the Middle East had been undertaken—the FAF became heavily and continuously involved in large-scale peripheral conflicts in Indo-China and Algeria, which together lasted for nearly two decades. Algeria was a particularly large-scale operation that drew off a substantial percentage of total FAF assets. For example, in 1960, at the height of the conflict, the FAF deployed over 30 operational squadrons and

¹In French, *l'Armée de l'Air*.

²The term "peripheral conflict" is used here instead of "low intensity conflict" because the latter term is generally seen as applying only or primarily to small-scale insurrections or guerrilla activity.

other units in Algeria for a total of approximately 800 fixed wing aircraft, plus an additional 100 helicopters.³

By the close of the Algerian War in 1962, the majority of French colonies had gained their independence; however, several small overseas Departments and Territories—the last vestiges of the colonial empire—remained under direct French control. In addition, France retained very close security relationships with most of her former colonies. As a result, the FAF continued to maintain units in Third World countries and has been called on numerous times over the past 25 years to participate in peripheral operations in support of Third World client states, primarily in Africa.

The Indochina and Algerian Wars were of course large-scale conventional conflicts. Most of the peripheral operations in which the French have been engaged since these two wars have involved activities on a much smaller scale, but not necessarily all on the lower end of the spectrum of violence. In the course of these many operations the FAF has accumulated a wealth of experience far surpassing that of most other Western air forces. That experience spans the entire spectrum from advisory and logistics assistance and counterinsurgency operations, to sophisticated offensive counterair operations against modern air forces. Many of the lessons FAF learned during their numerous peripheral operations should be of interest to other Western air forces.

BACKGROUND, FORMATION, AND EARLY HISTORY OF THE JOINT INTERVENTION FORCES, 1962–1975

The Development of a New Strategic Concept

The collapse of the Fourth Republic in May 1958 and the establishment of the Fifth Republic under the leadership of President Charles de Gaulle (1958–1969) led to fundamental changes in French military strategy, doctrine, and force structure. Absolute budgetary and doctrinal priority was placed on the development of strategic nuclear forces—the *force de frappe*. De Gaulle turned his efforts to reorienting conventional force doctrine and restructuring their force posture away from colonial warfare toward large-scale armored/mechanized European operations in a nuclearized environment.

With the conclusion of the Algerian War in 1962 and the achievement of independence by most French colonies, de Gaulle began liquidating the massive French overseas military presence. Between 1962 and 1964, over 300,000 French soldiers garrisoned in Africa⁴ were brought home. Most of these troops, of course, had been stationed in Algeria. Yet even in Sub-Sahara francophone Africa and Madagascar de Gaulle reduced the French presence from over 60,000, based at more than 90 bases in 1960, to about 23,000 located at about 40 bases in 1964. Throughout the rest of the 1960s this number was further reduced until, by the end of the decade, it had fallen to below 7000 men based in six African countries.⁵

This radical reduction in the French overseas presence was determined far more by harsh political and budgetary realities than by strategic preference. The increasingly anticolonial political trends in the Third World and the enormous demands placed on the defense budget

³For published historical overviews of FAF overseas activities, see Christienne et al., 1980; and Jackson, 1979.

⁴Since the French withdrawal from Indo-China in 1954, the majority of French overseas forces and military operations have been concentrated in Africa.

⁵Among the best general discussions of the post-colonial military role of France in Africa are Alexandre, 1969; Chaigneau, 1984; Chipman, 1985; Lellouche and Moisi, 1979; and Pons, 1981.

by the effort to develop a full-blown strategic and tactical nuclear triad combined in the early 1960s to eliminate a large-scale permanent overseas military presence as a viable option for the French. Yet de Gaulle's dream of elevating France to the level of a legitimate "third force" in world affairs as an alternative to the Superpowers rested not only on the development of an independent *force de frappe*, but also on the ability to protect global French interests, ensure the security of the remaining vestiges of the French empire, and assist former colonies and client states in the Third World.

Unlike most other European powers in the era of decolonization, France retained major formal military commitments both to various overseas territories and to the majority of its former colonies in Africa. The most explicit commitments were to the Overseas Departments and Territories (DOM/TOM)⁶ of Polynesia, Guyana, Guadeloupe, Martinique, Mayotte, Réunion, Saint-Pierre-et-Miquelon, and New Caledonia that remained under direct French sovereignty. Yet France also retained far-reaching responsibilities for external and internal security of most of her former black African colonies: Between 1960 and 1963, immediately following independence, 13 former French colonies in Africa signed military assistance and security agreements with France.⁷ In many instances, these agreements ceded virtually all responsibility for external security to France.

De Gaulle directed the armed forces to develop a strategy and force posture in harmony with his new strategic and budgetary priorities that could still credibly protect French overseas interests. In response to the President's wishes, the armed forces were reorganized into four major components—nuclear forces, maneuver forces, territorial defense forces, and intervention forces—with a very heavy emphasis placed on the nuclear component.

The French military soon developed a three-tiered strategy and force posture for the intervention forces designed to be low-cost and low-profile, yet still effective for the protection of French overseas interests. Routine internal security and minor external threats in the DOM/TOM and the former colonies would be handled by small indigenous armed forces trained, equipped, and largely financed by France.⁸ However, any serious threats would be countered directly by French forces, divided into two echelons. The first echelon was composed of small groups of French forces garrisoned in the Overseas Territories and Departments, as well as at a few key permanent and temporary strategic bases in former colonies. The French configured these forces for very rapid deployment for immediate support of the host or neighboring country indigenous forces. The second echelon, which included the vast bulk of the French assistance forces, was based "over the horizon" in metropolitan France, deploying overseas only when the indigenous troops and the small, first echelon overseas garrison forces appeared insufficient to counter the threat.

The French intervention strategy called for the maintenance of a small number of permanent strategic bases in Africa, supplemented when necessary by other temporary bases.⁹ With only a few French soldiers garrisoned in Africa, strategically located bases were critical for the reception and staging of the second echelon reinforcements from metropolitan France to the zone of operations. Several secondary and transit bases backed up the principal reception bases. In the early 1960s, the French established four such bases: Djibouti, Dakar in

⁶*Departments d'Outre Mer (DOM) and Territoires d'Outre Mer (TOM).*

⁷These countries were the Central African Republic (CAR), Congo-Brazzaville, Gabon, Chad, Madagascar, Senegal, Ivory Coast, Dahomey (later renamed Benin), Upper Volta (later renamed Burkina Faso), Niger, Cameroon, Togo, and Mauritania.

⁸A detailed examination of this tier of the strategy is outside the scope of this study.

⁹See Guillemin, 1981a.

Senegal, Fort Lamy (later renamed N'Djamena) in Chad, and Ivato-Diego-Suarez in Madagascar.¹⁰ Besides providing a first echelon of French shock troops for African contingencies, the small forces stationed in Africa also played the important role of protecting and maintaining these reception facilities.

This overall strategic approach to protecting French overseas interests has persisted more or less unchanged to the present day.¹¹ As of late 1986, France continued to maintain active military technical assistance accords with no less than 39 nations outside of Europe (22 in black Africa, the rest in North Africa, the Middle East, and Latin America). Within the context of these accords, France still trains and equips the military forces of most of its and some other European countries' former colonies.

At the close of 1986, France had permanently stationed joint forces of 8426 men (16 percent of whom were FAF personnel) in six strategic former colonies: at Dakar in Senegal and at Djibouti, both still serving as principal reception bases in Africa; at Abidjan (Port-Bouet) in the Ivory Coast, and Libreville in Gabon, serving as intermediate or transit bases in Africa; and at Papeete and Noumea in the Pacific. A further 20,970 men, of whom only 6 percent are FAF personnel, continue to maintain security in overseas Departments and Territories. A recently reorganized and expanded joint Rapid Action Force (FAR)¹² numbering 47,000 men is stationed in metropolitan France, with various units always ready for deployment to overseas trouble spots. Components of the FAR are almost always rotated or temporarily stationed overseas; at the end of 1986, 4723 men (19 percent FAF) were garrisoned in Chad,¹³ the Central Africa Republic, and Lebanon.¹⁴

With the exception of small contingents attached to UN observer forces in Lebanon and the Sinai Peninsula, and on the Pacific islands of Papeete and Noumea, all French forces stationed overseas assisting foreign governments are located on the continent of Africa. Figure 1 indicates the numbers and locations of these forces as of 1984 and shows those states that continue to maintain formal defense accords with France.

Evolution of the Joint Intervention Force Structure: Army and Navy Forces, 1962-1975

The French engaged in numerous foreign interventions throughout the mid-1960s and into the 1970s that validated the new overall strategic approach and helped shape the evolution of the structure of the joint intervention forces. Throughout this time French forces directly intervened, or were at least a major factor, in some 15 occurrences in nine African countries:

- Cameroon, 1959-64;
- Chad, 1960-63, 1968-75;

¹⁰By the mid-1970s, changing political circumstances resulted in the loss of the latter two locations as permanent principal bases. Various alternative or temporary arrangements compensated for these losses. In 1973 French forces pulled out of Madagascar, redeploying primarily to the Indian Ocean islands of Réunion and Mayotte. In 1975 most French forces based in Chad also withdrew. However, since 1978, N'Djamena has often played the role of a major temporary reception base, along with Bangui in the Central African Republic.

¹¹See Bontoux, 1986; and Charollais and de Ribes, 1983. For general discussions of the French presence and military assistance programs in Africa, see Alexandre, 1969; Kolodziej and Lokulutu, 1983; Lenox and Dickey, 1983.

¹²*Force d'Action Rapide*.

¹³In the first half of 1987, French forces in Chad were augmented by approximately 1000 reinforcements, most of whom are army personnel.

¹⁴French forces stationed overseas are often referred to as belonging to one of three categories depending on the nature of the relationship between the host country and France. Troops garrisoned in Departments or Territories are called "Sovereign Forces" (*Forces de Souveraineté*); those at permanent bases in sovereign countries are called "Presence Forces" (*Forces de Presence*); and those at temporary locations are labeled "Temporary Forces" (*Forces Temporaires*).

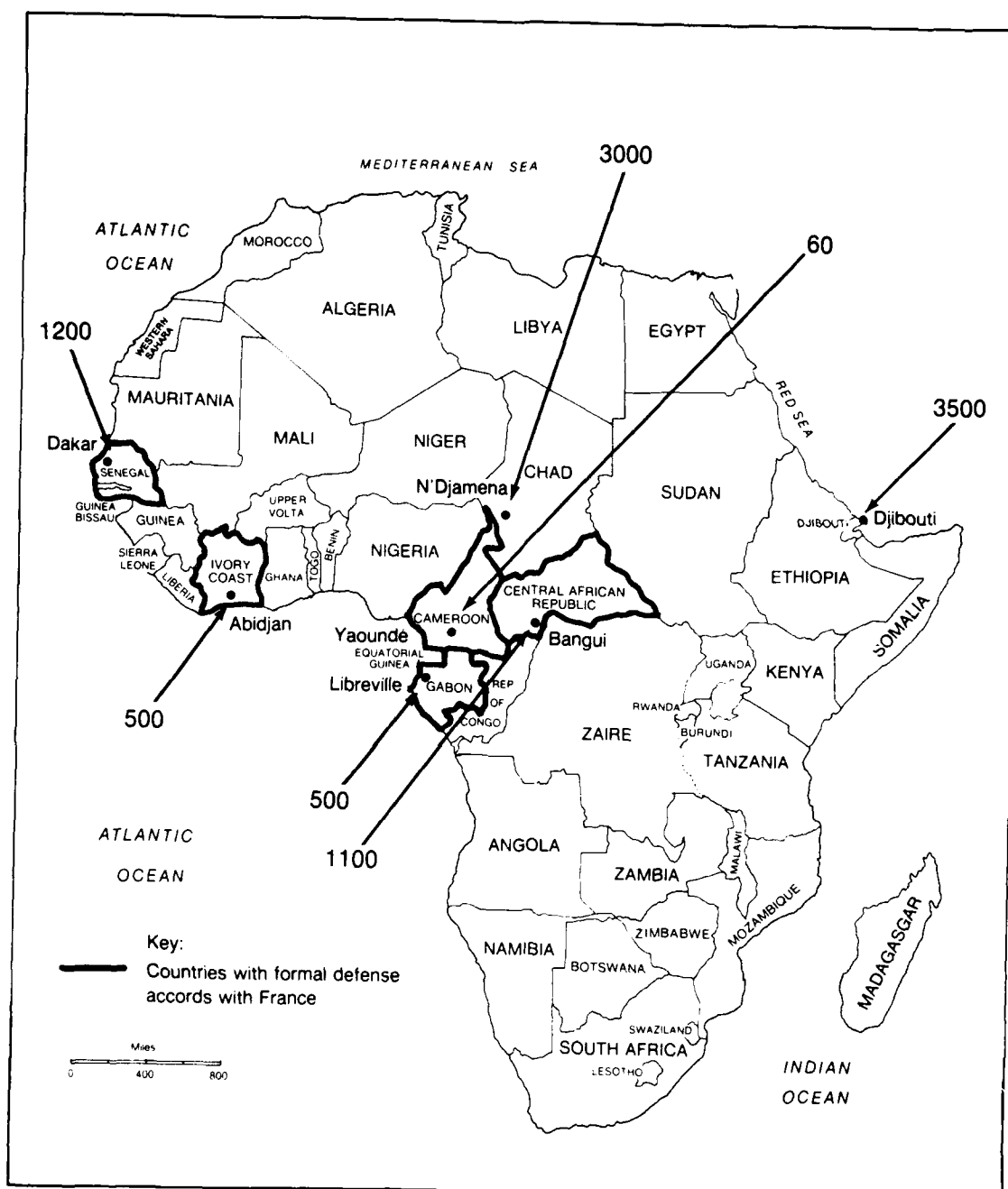


Fig. 1—French assistance forces in Africa, mid 1980s

- Congo Brazzaville, 1960 and 1962;
- Djibouti, 1967, and 1974;
- Gabon, 1960, 1962, and 1964;
- Ivory Coast, 1970;
- Mauritania, 1956-63;
- Niger, 1973;
- Senegal, 1959-60, and 1962.

The list would be longer if indirect or covert interventions were included. Yet the vast majority of the cases listed here entailed at most a show of force, suppression of civilian riots, or other internal quasi-police actions.¹⁵ Such cases did not require air fire support or other sophisticated air force combat capabilities.

To carry out these interventions, the government established the first large-scale joint intervention formation in 1962, called the *Force Interarmées d'Intervention*, or Joint Intervention Force.¹⁶ In theory all units from the three armed services and the national *Gendarmerie* other than the strategic nuclear forces were to be deployable overseas. However, selected FAF and army formations, constituted into mobile deployment "cells," were to be trained and organized specifically for overseas employment, and placed under a special joint command. *Thus, from the very beginning, forces for use outside of Europe were conceived of as being highly specialized, dedicated units assembled into a unique joint intervention formation.*

Certain implicit assumptions about overseas contingencies determined the original configuration of the intervention forces. The most basic of these assumptions were that the threat would remain modest, particularly in the air, and thus could be countered primarily with small forces of lightly equipped specialized infantry rapidly deployed overseas for only brief periods of time. In short, French overseas forces were tailored for brief, low-intensity confrontations. After Algeria the French did not intend, and had not configured their forces, to become involved in large-scale, long-term peripheral conflicts.

The original *Force Interarmées d'Intervention* was built around a core of highly mobile, light, air-portable infantry shock troops. Initially the government had envisioned the formation of two special infantry divisions assembled from units returning from Algeria; budgetary shortfalls permitted only one Light Intervention Division. Throughout the 1960s, this division, redesignated the 11th Infantry Division in December 1963, and later the 11th Airborne Division (*Division Parachutiste* or DP) in the early 1970s, was composed of three brigades: one airborne, one air-mobile, and one amphibious. Light armor, artillery, engineers, communications, and support units were attached at the divisional level for a total of 25,000 men. In 1971 the army detached and beefed up the amphibious brigade to form a second overseas division, the 9th Marine Infantry Division (DIMa). The army then concentrated the remaining 16,000 men of the restructured 11th DP into two airborne regiments and one airborne marine infantry regiment, adding some combat support elements, and spreading the 7600 men of the 9th DIMa among three marine infantry regiments, and artillery, light armor, and other small combat support regiments. Only a small percentage of these forces could be deployed and supported by air, however, given the shortcomings of FAF airlift assets.

The Joint Intervention Force also continued a long French tradition of relying heavily on Foreign Legion units for overseas employment. King Louis-Philippe established the French Foreign Legion in 1831 exclusively for the purpose of conquering and defending the French

¹⁵See Bon and Mingst, 1980, pp. 5-20; Chaigneau, 1984, p. 93; Lellouche, 1979, p. 117; Luckham, 1982, p. 61.

¹⁶A brief history of the intervention forces is available in Guillemin, 1981b.

overseas empire. Indeed, originally its charter forbade the employment of its units in metropolitan France. After the independence of Algeria (where the Legion had been headquartered since its earliest years), and the abortive coup led by the "paras" against President de Gaulle, many units were demobilized; total effectives shrank in the decade after 1962 from over 20,000 to about 8000. The 1st Foreign Legion Cavalry Regiment (*Régiment Étranger de Cavalerie*—REC) and the 2nd Foreign Legion Airborne Regiment (*Régiment Étranger de Parachutistes*—REP) deployed back to metropolitan France in 1967 and thereafter became available to the Joint Intervention Force. The French government used these two units extensively—particularly the 2nd REP—for overseas combat operations, most notably in Chad and Zaire. Elements of these two units, as well as such other units as the 13th Foreign Legion Demi-Brigade (*Demi-Brigade de Légion Étrangère*—DBLE), and the 3rd and 5th Foreign Legion Infantry Regiments (*Régiment Étranger d'Infanterie*—REI) were also employed as garrison troops in Djibouti, Polynesia, Diego-Saurez, and Guyana. These forces proved so useful that two other Foreign Legion units disbanded in the 1960s—the 2nd and 4th REI—were reconstituted in 1972 and 1980 respectively, making them available for operations outside France.¹⁷

Finally, French military planners designated all French navy forces, excepting SSBNs and their support units, as technically available to the overseas intervention forces. The navy's two carrier battle groups, built around the 23,700 ton *Foch* and *Clemenceau* carriers and their approximately 50 fighter-attack aircraft, were assigned a key role in the protection of sea lines of communication and for fire projection. Maritime patrol aircraft and naval commandos also figured prominently in French planning for overseas operations.¹⁸

Evolution of the Joint Intervention Force Structure: The Air Force Component and Its Role and Missions, 1962–1975

Air Force Roles and Objectives. The Joint Intervention Forces employed fairly modest forces as first and second echelon FAF combat units. This can be explained by the roles and missions originally assigned to the FAF in the overall French overseas strategy in the early 1960s. The FAF's three major roles were, in decreasing order of importance:

- Rapid loading, transit, and delivery of designated army formations of the Joint Intervention Force and their equipment from metropolitan France or French overseas bases to reception bases in the zone of operations;
- Strategic and tactical resupply of deployed forces, and intra-theater liaison;
- Provision of reconnaissance, air defense, and close air support in support of deployed land forces.

Before the mid-1970s, joint defense planners responsible for overseas operations assigned overwhelming priority to the first role, high priority to the second, and relatively low priority to the third. This prioritization resulted mainly from the nature of the threat, the role of the army intervention forces, and the requirements of the original intervention strategy developed in the early 1960s.

Perhaps the single most important role of the Joint Intervention Force, as originally conceived, was to be able to rapidly reinforce the French military presence in any allied

¹⁷See Blond et al., 1981.

¹⁸See for example "Marine et Relations Extérieures," *Armées d'Aujourd'hui*, No. 106, December 1985.

francophone state, for the purpose of stabilizing a crisis situation by deterring internal or external threats to the regime. Most such operations were expected to be, in fact, little more than large-scale police actions. If deterrence failed and combat operations proved necessary, they would normally be of low intensity. The most likely threats the Joint Intervention Force expected to have to counter throughout the first decade and a half of its existence were small, lightly armed irregular guerrilla formations possessing little or no armor, artillery, or offensive air capability, that could be effectively neutralized by a few highly trained professional units equipped with light, mobile, wheeled armor and artillery.

The critical element of the French intervention strategy, then, was deployment of a small but effective French army intervention force to the zone of operations as quickly as possible to stabilize or control a deteriorating political situation before it got out of hand. It was not expected that most situations would require a substantial application of direct air fire support. No substantial enemy offensive or defensive air capabilities were envisioned. Rather, the most important contribution the FAF could make to successful operations was to provide the means for rapid deployment of army forces.

This assessment of the threat in French areas of interest turned out to be fairly accurate for the period through the mid-1970s. The only interventions that involved large military operations against organized armed opposition include Cameroon, 1959-64; Chad, 1968-75; and to some extent, Djibouti. The Cameroon struggle against the UPC (*Union des Populations du Cameroun*) pre-dates the operational establishment of the FAF joint intervention forces; the counterinsurgency operations against FROLINAT (National Liberation Front) in Chad were supported by *Skyriders* in EAA 22, while operations in Djibouti against Somali-backed forces had the support of FAF F-100s. But for the most part, FAF fighter-attack combat forces played no role at all—or at most, only a very minor role—throughout the first decade and a half of overseas operations following the formation of the Joint Intervention Force. For these reasons, the small number of first-echelon combat aircraft stationed overseas after the end of the Algerian War continued to decline, until by 1976 EC 4/11's aging F-100s remained the only French fighter-attack aircraft permanently based overseas.

Overseas Fighter/Attack Assets. As in the case of the army forces, the French military designated two echelons of FAF units for overseas employment by the Joint Intervention Force. Initially, the FAF assembled a small force of Douglas AD4 (later designated A-1D) *Skyriders* as its first echelon attack force based in Africa, drawn from the 20th Fighter Wing (EC 20),¹⁹ which had fought in Algeria from February 1960 through March 1962.²⁰ Two squadrons formerly attached to EC 20, each with seven to eight *Skyriders*, were reassigned to the newly formed 21st Air Support Wing (EAA 21).²¹ The First Air Support Squadron (EAA 1/21)²² of the 21st Wing officially began operations out of Djibouti in October 1963. The second *Skyraider* squadron, EAA 2/21, formed in Chateaudun in April 1964, then transferred to a principal reception base, Ivato-Diego-Suarez in Madagascar. In 1968 the FAF detached a flight of four *Skyriders* from EAA 2/21 and based them temporarily at Fort Lamy, Chad, to assist in French supported operations against antigovernment guerrillas. In March 1969 these aircraft were replaced by a new squadron of AD4s, organized as the only squadron attached to the newly designated 22nd Air Support Wing (EAA 22).

¹⁹*Escadre de Chasse.*

²⁰See Guhl, 1979.

²¹*Escadre D'Appui Aérien.*

²²In FAF nomenclature, all squadrons are designated by an abbreviation standing for the type of squadron, followed by the squadron and wing numbers separated by a slash mark.

Never large to begin with, this small first echelon FAF attack force shrank considerably in the early 1970s. Following the French departure from Madagascar in 1973, EAA 2/21 redeployed to St. Denis, Ile de Réunion; shortly thereafter it disbanded. Two years later, when most French forces left Chad, EAA 22 also disappeared, leaving a single attack squadron in Djibouti as the only remaining first echelon FAF combat unit still active in Africa.²³

The Djibouti squadron was modernized, beginning in 1973. At the end of the previous year, the FAF disbanded EAA 1/21, replacing it on 1 January with the newly reconstituted *Jura* EC 4/11²⁴ squadron—at first only designated as a flight because of its small size—equipped with North American F-100D/F *Super Sabres*, made available in anticipation of the upgrading of the 11th Wing in France with the first operational *Jaguar* attack aircraft.²⁵ Initially seven F-100Ds and one F-100F were included in the Djibouti squadron, with four equipped for reconnaissance missions. As additional FAF attack squadrons in France began converting to *Jaguars*, more surplus F-100s became available. Thus, in 1975, a second flight of four F-100Ds was added to EC 4/11's Djibouti complement.²⁶

The FAF also provided a wide variety of various small transport and helicopter units overseas to support first echelon FAF and army combat units. The most important of these were the 88th Overseas Transport Squadron (ETOM 88)²⁷ equipped first with Douglas C-47s and later with Nord N.2501 *Noratlases* and sundry other small support transports and *Alouette* II helicopters, and the similarly equipped ETOM 55 at Dakar in Senegal²⁸ and ETOM 82 in Polynesia. Also of importance was the 59th Chad Support Group (GMT)²⁹ whose *Noratlases* and *Alouette* IIs supported EAA 1/22's *Skyraiders* and French army units deployed in Chad from the late 1960s through 1975. The FAF permanently based other small transport support units at Noumea, Guyana, and Réunion.³⁰

As with the army and navy, all FAF units based in France other than those belonging to the Strategic Air Command (FAS) were technically available as second echelon forces for the Joint Intervention Force.³¹ However, initially only one formation was specially designated and configured for rapid overseas deployment as a second echelon force, the 92nd Bomber Wing (EB 92)³² equipped with two squadrons of Sud-Ouest *Vautour* IIB, II.1B, and IIN medium bombers. This unit was permanently attached to the 2nd Tactical Air Command (2 CATAC).³³ The FAF had established 2 CATAC as the air component of the Joint Intervention

²³The French handed over *Skyraiders* from EAA 2/21 and EAA 22 after refurbishment to the Chadian government, which in turn hired French contract pilots to fly the aircraft.

²⁴*Escadron de Chasse.*

²⁵See Sec. II for more details on the *Jaguar* modernization program.

²⁶For a detailed unit history of the 11th Fighter Wing, see Croci, 1983.

²⁷*Escadron de Transport d'Outre Mer—CoTAM.*

²⁸For a squadron history, see Crosnier, 1985.

²⁹*Groupe de Marche du Tchad.*

³⁰See Crosnier, 1984.

³¹De Gaulle's new defense priorities led to a reorganization of the FAF in the early 1960s into seven main operational commands: the Strategic Air Command (*Commandement des forces aériennes stratégiques—FAS*); the Tactical Air Command (*Commandement des forces aériennes tactiques—FATac*); the Air Defense Command (*Commandement 'air' des forces de défense aérienne—CAFDA*); the Military Airlift Command (*Commandement du transport aérien—CoTAM*); the Training Command (*Commandement des écoles de l'Armée de l'Air—CEAA*); the Signals Command (*Commandement des transmissions de l'Armée de l'Air—CTAA*); and the Air Engineers Command (*Commandement du génie de l'Air—CGA*).

³²*Escadre de Bombardement.*

³³*Commandement aérien tactique.*

Forces; any second echelon forces in addition to EB 92 deemed necessary for overseas deployment would be attached temporarily to 2 CATAC during overseas operations.³⁴

Especially when compared with the land component, the air units permanently assigned to the Joint Intervention Forces were modest in both size and capabilities through the mid-1970s. As detailed above, throughout most of the 1960s, only a handful of prop-driven *Skyraiders*³⁵ were deployed in Africa. In the early 1970s the FAF disbanded two out of the three small African based *Skyraider* squadrons, upgrading the remaining squadron at Djibouti with hand-me-down F-100s. The two squadrons of aging *Vautours* soldiered on in the only unit permanently assigned to the Joint Intervention Forces under 2 CATAC until the late 1970s.

Military Airlift Assets. By far the most important FAF mission during this period was the rapid projection of army forces forward from France to the zone of operations in Africa or elsewhere. Initially it was easy for the FAF to meet the very modest requirements of the Joint Intervention Force for combat forces to support overseas operations. Yet from the very inception of De Gaulle's new overseas strategy, the FAF's airlift capabilities proved highly unsatisfactory. FAF air staff studies undertaken during the first half of the 1960s, confirmed by the experience of several early exercises and actual operations, demonstrated that the FAF's capability to rapidly project the necessary army forces over considerable distances was wholly inadequate.

In 1962 the FAF Military Transport Command (CoTAM—*Commandement du Transport Aérien Militaire*) consisted of 253 transport aircraft. The Nord N.2501 *Noratlans*, the most capable transport in CoTAM's inventory, was a medium two-engined transport similar to the U.S. C-119 and severely limited in range-payload capability, particularly compared with transports available in, or about to enter the U.S. Air Force inventory in the early 1960s.³⁶ Other aircraft in CoTAM's inventory included even less capable World War II vintage U.S. C-47s and German designed Junkers Ju-52s.

FAF Air Staff studies in the early 1960s determined that the entire CoTAM fleet could realistically transport only about 400 tons in 48 hours to a theater of operations 5000 km from metropolitan France. The inadequacy of this capability was brought home forcefully during exercise *Alligator III* conducted in September 1967. *Alligator III* called for the rapid deployment to the Ivory Coast of several army units attached to the Joint Intervention Force. Yet CoTAM's severe airlift limitations necessitated the deployment by ship of much of the combat equipment and support assets of the army units for the exercise.

Despite the clear recognition of the importance of the airlift problem in the 1960s, the shortage of sufficient airlift assets to support overseas deployments was to remain one of the FAF's most enduring problems of the postwar era. This problem arose in part from budgetary constraints and in part from political and industrial policies that determined FAF acquisition policy.

³⁴Before 1967, most FAF ground attack aircraft plus several air defense squadrons had been permanently assigned to 1 CATAC, which came under NATO's 4ATAF (Fourth Allied Tactical Air Force) operational control in time of war. At this time FATAc existed primarily as a support organization for FAF tactical assets normally under the direct operational control of other commands. After French withdrawal from the unified NATO military command structure in 1967, 1 and 2 CATAC became the two subordinate commands of FATAc and included all of the FAF's primary ground attack assets. CAFDA, which already included all FAF air defense assets based in France, took control of 1 CATAC's primary air defense squadrons that had been deployed in the Federal Republic of Germany (FRG).

³⁵The *Skyraider* of course was an extremely effective counterinsurgency aircraft as confirmed by U.S. and South Vietnamese experience during the Vietnam War.

³⁶The *Noratlans* (first flight, November 1950) could carry 36 paratroops or a maximum payload of 12,125 lb a distance of 2500 km. In comparison, the USAF Lockheed C-130H *Hercules*, a slightly improved version of the C-130E first flown in August 1961 (first flight of YC-130A, August 1954), could carry a maximum payload of 64 paratroops or 43,400 lb a distance of 4000 km. The jet powered Lockheed C-141A *StarLifter*, which first entered U.S. Air Force service in 1964, could transport 123 paratroops or 70,800 lb over 6500 km.

As early as August 1954, in the wake of the experience of the Indo-China War, the FAF had already developed a requirement for a long-range heavy strategic transport to replace the *Noratlans* in order to increase CoTAM's limited lift capabilities. The outbreak of the Algerian War at the end of the year made the acquisition of such a transport even more pressing. Originally the requirement was to be met through the acquisition of a modified civilian transport, the Breguet *Sahara*. However, procurement of this four-engine heavy transport had to be canceled in 1957 because of budgetary constraints. Subsequently the FAF turned to international collaboration with the FRG to fulfill its need for a more capable long-range lifter.

In 1959 a joint Franco-German compromise requirement was issued for the codevelopment of a tactical long-range transport in the same class as the C-130 with a 2300 km range and a 32,000 lb payload, or twice the range with half the payload.³⁷ The FAF hoped to procure up to 100 of these aircraft. However, the development program soon became enmeshed in the vagaries of Franco-German politics, leading to development delays and cost overruns. The first prototype of the new transport, dubbed the *Transall* (*Transport Allianz*), flew in early 1963, but initial production deliveries to the FAF did not commence until April 1968, with production stretched out through mid-1972. Further, budget problems forced a slash in FAF procurement by half to only 50 examples (plus two pre-production versions).³⁸ CoTAM's acquisition of three DC-8Fs after 1965, in part to compensate for schedule delays in the *Transall* program, did little to alleviate heavy lift shortfalls.

Thus, by the mid-1970s, FAF airlift assets had been modernized, but overall capabilities remained limited. The *Transall*, while considerably more capable than the *Noratlans*, still fell short of the U.S. Lockheed C-130H *Hercules* tactical transport, to say nothing of the far more capable U.S. strategic airlifters such as the Lockheed C-141 *Starlifter* and the enormous C-5A *Galaxy*. At the same time, the FAF's first echelon combat forces deployed overseas, which had always been rather modest, had continued to decline until, by the mid-1970s, only one squadron of aging F-100s remained in Djibouti. No urgent requirement was foreseen for substantially upgrading FAF airlift and power-projection capabilities, however, because no overseas situation had yet arisen that had severely stressed them.

This situation would change radically in the second half of the 1970s. President Giscard d'Estaing's new activist policies in Africa led to a marked intensification of French involvement in overseas military operations. At the same time, the capabilities of France's potential Third World opponents rapidly grew. With Warsaw Pact assistance, even the poorest and most primitive of guerrilla groups acquired sophisticated offensive and defensive capabilities. These and other factors combined to greatly increase the relative importance of overseas air power fire projection, requiring the FAF to change the existing mission emphases and priorities of its intervention forces. The expansion of missions and upgrading of capabilities of the combat intervention units became an urgent necessity, while the shortcomings in airlift became an increasingly unacceptable yet unresolved problem.

³⁷The *Transall* was based on a French design and was configured primarily to meet FAF force projection requirements. Even today, German Air Force planners have difficulty envisioning a wartime combat-support mission for their *Transalls* in the Central Region.

³⁸For a full account of the *Transall* program, see Lorell, 1980.

II. THE NEW INTERVENTIONISM AND THE MODERNIZATION OF THE PROJECTION FORCES

GISCARD SHIFTS PRIORITIES

De Gaulle and his successor as President, Georges Pompidou (1969-1974), pursued a policy toward the former French colonies that can be characterized as one of slow disengagement. Both attempted to reorient French security planning and policies primarily toward the European arena, endeavoring to reduce the commitment of French forces overseas. De Gaulle in particular placed overwhelming priority on the development and deployment of strategic and tactical nuclear strike forces at the expense of conventional forces designed for European and overseas contingencies.

Under the leadership of conservative President Valéry Giscard d'Estaing (1974-1981), French conventional forces and nonnuclear missions began receiving much more attention. The government undertook an ambitious program to upgrade the long-neglected conventional maneuver forces for use in Europe. Outside of Europe, France returned to a more active interventionist policy, in direct response to a perceived growth in Soviet involvement in the Third World, especially in Africa. Soviet-Cuban activities in Angola, the Horn, and southern Africa were increasingly seen as posing a serious potential threat to the stability of francophone African regimes. Concern grew as Cuba surpassed France in the mid-1970s as the foreign country with the largest military presence in Africa, following a large-scale injection of Cuban troops into Angola and elsewhere. Even more worrisome, hostile Soviet/Cuban client states such as Libya and Somalia, and various guerrilla movements—some in direct conflict with francophone regimes—began receiving large quantities of sophisticated modern combat equipment.

Enlarging the permanent French overseas presence to meet this new threat was politically and financially infeasible. Indeed, the first echelon French forces stationed overseas had steadily declined since the early 1960s, largely in response to both political and financial necessity. Instead, Giscard advocated the reorganization and modernization of the home-based Exterior Intervention Forces, placing the emphasis on increasing the firepower and mobility of the second echelon forces based in France.

Plans for upgrading the force projection assets of the air force contained the following second-echelon components:

- Fighter-attack aircraft and support,
- Strategic airlift,
- Aerial tankers and airborne refueling capability, and
- Command, control, communications, and intelligence (C3I).

MODERNIZING FAF FIGHTER-ATTACK INTERVENTION FORCES

Airlift remained a critical FAF mission in support of overseas projection forces. Nonetheless, in the decade of the 1970s, the role of providing direct fire support and reconnaissance grew rapidly in importance. France was unable to match the buildup in ground forces, both in quantity and quality, available to potential opponents in Africa. France could not afford overseas bases for the heavier and larger ground forces required to counter this threat, nor could

she reasonably expect to acquire all the airlift assets necessary to deploy such forces rapidly from France in an emergency. Consequently, highly mobile and capable first-line attack aircraft based in France appeared to be an increasingly attractive option for dealing with the new ground threat. Further reduction in first echelon forces based overseas would save money; in addition, second echelon forces based in France could be dual tasked for European contingencies if necessary. The most important components of this new strategy were that second echelon fighters had to be:

- Modern, highly capable, first-line fighter-attack aircraft, equivalent to the best assets available in the FAF inventory;
- Rapidly deployable over long distances, which meant that they must be organized into specially trained and equipped units, possess in-flight refueling capability, and be provided with the necessary aerial tanker support;
- Supportable in very harsh and austere environments.

The FAF was engaged in two major fighter-attack aircraft modernization programs in the early 1970s. CAFDA home air defense squadrons began transitioning to the *Mirage F.1C* interceptor in 1973. Introduction of the *Jaguar* strike-attack aircraft into the FATac inventory began the same year. Ultimately both types would be used to upgrade the intervention forces. The development histories of these aircraft—particularly the *Jaguar*—indicate that the French were willing to sacrifice capabilities for the European theater to enhance overseas deployability and maintainability.

The FAF requirements drawn up for both aircraft were originally generated with an eye to the demands of overseas employment. Initially, however, the emphasis was on the *Jaguar*, because it was not thought that the probable overseas threat necessitated deployment of first-line air defense interceptors. Until the latter half of the decade, planners generally assumed that nothing other than ground-based air defenses were likely to be encountered in overseas contingencies. Given Giscard's new priorities and the perceived need to enhance the aerial fire-projection capabilities of the Exterior Intervention Forces, the new *Jaguar* early on became a prime candidate for beefing up the ground-attack capabilities of the second echelon FAF forces based in Europe.

The *Jaguar* strike-attack fighter emerged from an international collaborative development program. France and the United Kingdom had originally agreed to jointly develop an advanced trainer-attack aircraft based on the Breguet 121 design concept, and an advanced variable-geometry fighter dubbed the AFVG (Anglo-French Variable Geometry fighter), in a Memorandum of Understanding (MoU) signed in May 1965. Subsequently France withdrew from the AFVG project, forcing its cancellation. Development of the trainer-attack aircraft, by then called the *Jaguar*, continued under the auspices of an international industrial consortium established by Breguet and British Aircraft Corporation called SEPECAT.¹ Throughout development the aircraft's cost and capabilities grew, making its use as a trainer impractical. First flight of the initial *Jaguar* prototype took place in September 1968 at the French test facility at Istres. In January of that year, the two nations signed a production agreement calling for the procurement of 200 *Jaguars* each.²

The *Jaguar*, particularly the single seat "A" and the two-seat "E" versions that entered FAF service, exhibited numerous special attributes and features that were especially suited for

¹*Société Européenne de Production de l'Action Ecole de Combat et d'Appui Tactique*, or European Company for the Production of the Trainer and Tactical Support Aircraft.

²See Reed, 1982.

overseas operations. The FAF insisted on an aircraft that was small, light, simple, rugged, and reliable, for three reasons: (1) to hold down R&D, acquisition, and life-cycle costs; (2) to facilitate rapid dispersal from Main Operating Bases (MOBS) to less well equipped and supported Dispersed Operating Bases (DOBS) in France during a European crisis; and (3) to reduce deployment and support problems for overseas operations conducted out of austere or primitive facilities. For these reasons, the *Jaguar* airframe and its *Ardour* engine were of simple design and manufactured from conventional materials. Rapid turnaround and ease of support with an absolute minimum of special handling and support equipment were critical FAF requirements. Industry also had to provide the *Jaguar* with a capability to operate from short, semi-prepared, rough, or grass surfaces.

Particularly regarding avionics, the differences between the FAF *Jaguar* A and E versions and the Royal Air Force (RAF) S single seat and B two-seat versions are striking. The RAF equipped *both* of its versions with a complex sophisticated inertial navigation system, projected moving map display, head-up display, and laser range-finder. The FAF *Jaguar* A is equipped with a much simpler, more reliable, off-the-shelf navigation-attack system based on a twin gyro platform and Doppler radar originally developed for and used in the *Mirage* IVA strategic bomber. Laser range-finders were retrofitted on only about one-half of the FAF's *Jaguars* (those used for conventional attack). Further, the FAF E two-seater has no automatic navigation-attack system whatsoever; yet unlike the British two-seat B, the FAF E does boast in-flight refueling capability and has a better range-load carrying capability. In short, the FAF versions are much less suited than those fielded by the RAF for the high-threat, poor weather conditions characteristic of Western Europe. However, they are easier to deploy and support for overseas operations; they trade off navigation-attack equipment unnecessary in the clear weather conditions of equatorial Africa and the Middle East in favor of greater range-payload capability.

The FATac squadrons selected for modernization with the *Jaguar*, and the order in which they received the aircraft, reflected first and foremost the traditional Gaullist defense priority of nuclear deterrence but also demonstrated the strong influence of Giscard's new emphasis on overseas operations. As squadrons began phasing out their *Mystère* IVs and F-100 *Super Sabres* in favor of the *Jaguar*, it became clear that tactical nuclear strike and strike support squadrons (EW and SEAD)⁵ initially were being awarded almost exclusive priority. The *Jaguar* first entered FAF operational service in June 1973 with FATac squadron EC 1/7 *Provence* based at Nancy-Ochey, replacing that squadron's aging Dassault *Mystère* IVs (the latter roughly equivalent to the U.S. North American F-100).⁴ This squadron was tasked with the primary mission of nuclear strike. Of the total of nine *Jaguar* squadrons eventually formed by the close of the 1970s, only one (EC 1/11 *Roussillon*) was assigned a primary mission of direct conventional support of French Army forces in Europe. All other FAF squadrons with this primary mission remained equipped with aging *Mirage* IIIEs or, even worse, with the even less capable *Mirage* 5F.⁵

Electronic Warfare and Suppression of Enemy Air Defenses. Like that of the U.S. Air Force, FAF doctrine for European nuclear strike operations calls for the packaging together of large numbers of penetrating strike aircraft with escorts, EW, and SEAD aircraft to punch holes through the enemy's dense first echelon air defenses.

⁴FATac wings contain three or four squadrons of 15 aircraft each. Squadrons are all named and designated by a two digit number; the first identifies the squadron, the second indicates the wing.

⁵Ironically, like the *Jaguar* E, the *Mirage* 5F was reasonably well suited for attack missions in clear weather peripheral regions such as the Middle East and North Africa, but not Europe. Indeed, the latter fighter had been developed from the more sophisticated *Mirage* IIIE explicitly to meet Israel Air Force specifications for a *Mirage* stripped of the *Mirage* IIIE radar and other avionics unnecessary for the Middle East environment, in order to make room for additional fuel or munitions to achieve better range payload capabilities. On the eve of the 1967 Six Day War, De Gaulle

This emphasis on nuclear strike squadrons was merely a continuation of the priorities first established by De Gaulle in the early 1960s. Much more surprising, however, was the high priority accorded in the *Jaguar* modernization program to the second echelon intervention forces. In a dramatic reaffirmation of Giscard's determination to upgrade intervention capabilities, the FAF assigned the first of the two conventional attack squadrons to receive *Jaguars*—EC 3/11 *Corse*, which began receiving the new aircraft in early 1976—the dual primary role of overseas fire projection and aerial refueling training for rapid FATac deployments outside France.⁶ To support both roles, eight of EC 3/11's *Jaguars* were E models—those configured as two-seat versions. As noted above, the *Jaguar* E is not well suited for the European environment because it lacked sophisticated navigation equipment and other avionics required to operate in poor weather conditions and high threat environment, but it is at least as capable as the *Mirage* 5F in clear-weather desert climates.⁷ Most important of all, the *Jaguar* was the only FAF tactical fighter (other than F-100s, which were being phased out) that was air refuelable; the two-seat E version was ideal for training the pilots of EC 3/11 and other squadrons for the in-flight refueling necessary for rapid overseas deployment.

Initial FAF plans had also called for using the *Jaguar* to upgrade the original second echelon FAF intervention component based in France—the *Vautour*-equipped 92nd Bomber Wing (EB 92)—and the one remaining first echelon squadron still based overseas—FATac's EC 4/11 *Jura* located in Djibouti. A combination of budgetary shortfalls that reduced *Jaguar* procurements and the perceived need for air defense interceptors to counter Soviet-Cuban involvement in the Horn of Africa, caused a change in plans.

In 1978 the FAF decided to disband EC 4/11, retire its F-100s, and replace it at Djibouti with an entirely new CAFDA air defense squadron, EC 3/10 *Vexin*, equipped with the *Mirage* IIIC interceptor.⁸ Soon thereafter, EB 92 was also dissolved and its *Vautours* mothballed. On 1 January 1979, the FAF formally designated EC 4/11 *Jura*, now equipped with *Jaguars* and based at Bordeaux, as a full-time dedicated unit on permanent alert status for the Exterior Action Forces. *Jura* was permanently assigned to the 2nd Tactical Air Command (2 CATAc), the FATac command element established exclusively for managing overseas tactical air deployments. Thus, the reconstituted EC 4/11 formally joined its sister squadron, EC 3/11 *Corse*, to form the core of the newly modernized FAF second echelon overseas deployment force.⁹ The other two squadrons of the 11th Wing, EC 1/11 *Roussillon* and EC 2/11 *Vosges*, while primarily tasked for conventional attack and SEAD, were also assigned a secondary overseas support mission after reequipment with the *Jaguar*. By the end of the 1970s, then, the four squadrons of the 11th Wing provided the Exterior Intervention Forces with a large pool of rapidly deployable, specially trained, modern ground attack assets. At least one squadron, EC 4/11, remained on constant alert for overseas deployment.

bowed to Arab pressure and embargoed the aircraft. Placed in storage for several years, the *Mirage* 5F finally entered FAF service in the early 1970s in EC 1/13 *Artois* and EC 2/13 *Alpes*, thus constituting the backbone of FAF assets dedicated primarily to direct fire support of the French army in European contingencies well into the 1980s. Despite its relative unsuitability for the central European theater, it was not considered appropriate for overseas contingencies because, among other things, it lacked aerial refueling capabilities. See Jackson, 1985.

⁶Before the mid-1970s, aerial refueling in the FAF was limited almost entirely to the strategic bomber force.

Unlike the *Jaguars* assigned to nuclear strike squadrons, all *Jaguar* As (single-seat versions) delivered to this and all subsequent conventional attack squadrons were equipped with laser range finders for more accurate conventional weapons delivery. Apparently FAF planners assumed nuclear weapons did not require as high a level of delivery accuracy.

⁷See Croci, 1983; and Bombeau, 1986.

⁹See "Cent Mille Heures de Vol sur Jaguar à la 11e E.C.," *Air et Cosmos*, No. 1007, 23 June 1984; and Bigel and Guhl, 1984.

In part as a response to experience in Mauritania and Chad, the FAF further expanded full-time second echelon alert-status assets in 1980. On April 1 of that year, the FAF formally dedicated a second *Jaguar* squadron, EC 4/7 *Limousin*, based at Istre-Le Tube in southern France, to permanent overseas alert status. 2 CATAC received exclusive control of this squadron, in addition to EC 4/11.¹⁰

Thus, by the summer of 1980, when EC 4/7 achieved operational status, fully one-third of the FAF's final total of nine first-line *Jaguar* squadrons were dedicated to overseas contingencies as their primary mission, while at least two and possibly three additional squadrons were assigned this task as their second primary mission (the bulk of the rest being dedicated to nuclear strike or strike support). This represented an enormous increase in offensive air attack capabilities for the intervention forces compared with the situation five years earlier at the beginning of the Giscard presidency when only a couple of squadrons of aging F-100s and *Vautours* were immediately available for such operations.

By the late 1970s, the increasing sophistication of the fixed-wing offensive air attack assets possessed by such potential opponents as Libya led to the realization that, in addition to ground attack assets, modern air defense fighters also had to be provided for the intervention forces.¹¹ As mentioned earlier, in 1977 the FAF replaced the EC 4/11 attack squadron based at Djibouti with an air defense squadron, EC 3/10, equipped with dated but reasonably effective *Mirage* IIIC interceptors. This was the first time that the FAF had assigned a squadron with air defense as its primary mission to the intervention forces (although it remained officially under the operational control of CAFDA).¹² FAF plans originally called for updating this squadron with *Mirage* F1.Cs. Cost considerations, however, prevented the planned upgrade of EC 3/10.

Like the *Jaguar*, the *Mirage* F1.C had been designed from its inception with overseas deployment in mind. Pugged-wheel landing gear equipped with medium-pressure tires and a low landing speed (125 kt), provide short, semi-prepared runway capability. Dassault equipped the aircraft with a self-starting system and other autonomous features that required a minimum of ground handling equipment, all of which is easily air transportable.

Some years after receiving the first *Mirage* F1.C production aircraft, the FAF launched an important upgrade program designed to increase the F1.C's utility to the second echelon intervention forces. In 1977 the French government signed contracts with Dassault for the provision of internal and external plumbing in the *Mirage* F1.C necessary to provide it with aerial refueling capability, so that it too, along with the *Jaguar*, could be assigned to the second echelon intervention forces.¹³ In mid-1977 the FAF assigned the first operational air-refuelable *Mirage* F1.Cs, designated F1.C-200s, to CAFDA squadron EC 2/5 *Ile de France* based at Orange. Ultimately about one-half (83) of the F1.Cs received by the FAF were equipped with in-flight refueling probes. All but one of CAFDA's *Mirage* F1.C squadrons received at least some of the -200 versions. Initially, however, the Fifth Wing was assigned primary responsi-

¹⁰See Guhl, 1983.

¹¹In theory, all FAF tactical fighters, including the *Jaguar*, are dual tasked for both air-to-air and air-to-ground operations. All fighter pilots receive at least some multirole training, and all squadrons stock munitions for both roles. Nonetheless, even the FAF recognizes that the air-to-air capability of the *Jaguar* is, to put it charitably, rather limited.

¹²In June 1985 the FAF reassigned operational control of this squadron to FAFac, redesignating the squadron EC 4/13.

¹³It will be recalled that the first batch of 83 standard *Mirage* F1.Cs delivered to the FAF, which were not air refuelable, first began entering squadron service with CAFDA late in 1973.

bility for overseas deployment. Later the elite ECTT 30¹⁴ all-weather interceptor wing based at Reims formed a four aircraft cell for overseas activities. The FAF first demonstrated the *Mirage* F1.C-200's long-range deployment capability in January 1980 when four aircraft attached to the 5th Wing flew 5000 km nonstop from Solenzara on Corsica to Djibouti.

By the end of the decade, then, a formidable second echelon force composed of *Jaguars* from FATAc's 7th and 11th Wings and *Mirage* F1.C-200s from CAFDA's 5th Wing and 30th Wing had been made available to the Exterior Intervention Forces. Further, this force included two highly specialized elite *Jaguar* squadrons, EC 4/7 *Limousin* and EC 4/11 *Jura*, which had been placed under permanent operational control of the air command and planning component of the Exterior Intervention Forces, the 2nd Tactical Air Command (2 CATAC).

To increase responsiveness and effectiveness, the FAF organized *Jaguars* attached to these two squadrons into rapid reaction cells of four aircraft each, some of which were kept on constant alert. These cells were always prepared to deploy overseas with tanker and transport support within six hours of notification and be prepared for combat operations in no more than 48 hours.¹⁵ *Jaguars* from these squadrons also began routinely deploying to reception bases in Africa to take part in exercises with host-government forces; in the late 1970s these temporary visits began turning into such extended stays that they amounted to de facto permanent basing of *Jaguar* detachments in Africa.¹⁶

MODERNIZING FAF TANKER, TRANSPORT, AND C3I ASSETS

The greater emphasis in the decade of the 1970s placed on the projection of aerial fire support, which led to the modernization and expansion of the second echelon FAF fighter-attack force, enormously increased the demands placed on the FAF's already overextended aerial tanker resources. In addition, the heavier and larger second echelon forces required to counter the growing overseas threat on the ground made the FAF's inadequacies in airlift appear increasingly unacceptable. Both problems led the FAF toward clever, though not entirely adequate fixes.

In the early 1960s FAS—the FAF's Strategic Air Command—ordered 12 Boeing KC-135F aerial tankers to support its planned deployment of three *Mirage* IVA strategic bomber wings.¹⁷ The Kennedy administration blocked acquisition of the tankers. However, following the death of President John Kennedy in November of 1963, the new administration of President Lyndon Johnson agreed to supply the tankers necessary to permit the range-limited *Mirage* IVA to reach targets in the Soviet Union. Originally the tankers were grouped into three small squadrons each attached to one of the strategic bomber wings.

Initially it had been thought that as the *Mirage* IVA force was phased out of the inventory in the late 1970s, the KC-135Fs could be made available in larger numbers for supporting tactical fighter operations in Europe and overseas. However, funding shortfalls affecting strategic modernization programs forced the retention of the *Mirage* IVA in the FAS inventory much longer than originally expected. Consequently, in June 1976 the FAF reorganized FAS

¹⁴*Escadre de Chasse Tous Temps.*

¹⁵See for example Pissochet, 1979.

¹⁶See Sec. III.

¹⁷FAS was established in 1964 as the initial component for the implementation of President de Gaulle's new strategy of proportional nuclear deterrence. First flight of the initial Dassault *Mirage* IVA prototype, derived from a scaled up *Mirage* IIIC, took place in June 1959. The government ordered three pre-production test aircraft in September 1959. In the early 1960s a total of 62 production models were ordered. In October 1964 the first squadron of *Mirage* IVAs became operational in the 91st Bomber Wing.

to better facilitate access to FAS KC-135Fs by the tactical air commands. Three bomber squadrons and two FAS basing facilities were deactivated. The FAF regrouped the remaining bomber squadrons into two wings (EB 91 and 94), detaching the KC-135F squadrons and concentrating the remaining 11 aircraft into a single new Aerial Refueling Wing, ERV 93.¹⁸ In 1979 revised plans called for a further reduction of the *Mirage* IVA force to only 18 aircraft. These would be upgraded once again (with the redesignation *Mirage* IVP for *Penetration*) and modified to carry the ASMP, a medium-range nuclear standoff missile.

Even with the reduced number of *Mirage* IVA/Ps in the inventory, at least four or five KC-135Fs had to be withheld to support strategic operations, leaving only six or seven to support tactical operations in Europe, and overseas deployment of a FAF intervention force that was in the process of being expanded considerably in line with Giscard's new priorities.

The seriousness of the shortfall in aerial tankers can best be illustrated by the actual and projected usage rates calculated in one sample year, 1979. In that year, aerial refuelings by KC-135Fs were allocated as follows: 55 percent to the small force of under 40 *Mirage* IVA bombers, 35 percent to FATAc *Jaguars*, and 10 percent to CAFDA *Mirage* F1.C-200s. Yet the air-refuelable tactical fighter force would grow substantially in the following years, while the number of KC-135Fs remained constant. In 1979, only about 25 air-refuelable *Mirage* F1.C-200s had been delivered. These, when added to the *Jaguar* force, produced a grand total of under 140 air-refuelable tactical aircraft in the FAF inventory.

With the completion of the *Mirage* F1.C-200 buy, however, and the projected procurement of the new *Mirage* 2000C air defense fighter, the FAF expected that by the mid-1980s it would deploy over 250 air-refuelable tactical fighters, nearly an 80 percent increase.¹⁹ This force clearly could not be adequately serviced by 11 KC-135Fs, particularly after it became clear that the *Mirage* IV would remain in the inventory beyond 1985. Furthermore, even more serious shortfalls would arise if aerial refueling was required to support long-range offensive operations launched from overseas bases, thus necessitating the basing of scarce tanker assets outside of France.

Furthermore, the need for greater aerial tanker capability arose at the same time as the requirement for additional air lift capacity grew even more pressing. FAF strategic airlift capacity had always fallen far short of what was required. In part to compensate for this shortfall, French defense planners in the 1970s had come to rely more heavily than in the past on a larger force of rapidly deployable fighter-attack aircraft. Yet, given the quantity and quality of the armor and other combat equipment that the Soviets and Cubans were operating or supplying their clients in Africa, the French had no choice but to heavy up some of their second echelon army intervention forces and try to provide some additional airlift assets to increase the size of the rapid air deployable second echelon cells based in France drawn from 9 DIMa and 11 DP.

By the late 1970s, a core force of two infantry regiments attached to 9 DIMa, and two para regiments plus the Second Foreign Legion Parachute Regiment (2nd REP) based in Corsica, all attached to 11 DP, had been made available for rapid deployment overseas on short notice. These units of very light specialized professional infantry totaling about 5000 men had been organized along with their support into two cells. Yet even after the delivery of all 52

¹⁸*Escadre de Ravitaillement en Vol*. At this time French industry modernized the remaining *Mirage* IVs to prolong their operational life and modified them for their new low-altitude penetration mission. These modifications included structural reinforcement, camouflage, new navigation and ECM avionics, and, in the case of some of the bombers, added CT-52 camera and sensor packages for strategic reconnaissance. FAS also continued to operate one strategic missile brigade with two flights of IRBMs.

¹⁹See PC, "Ravitaillement en Vol et Interventions Extérieures," *Aviation Magazine*, No. 774, 1 March 1980.

Transalls originally ordered in the 1960s, the range-payload capabilities of the total CoTAM force remained insufficient for rapid deployment overseas and support of this force. To make matters worse, the Army intended not only to beef up the regiments traditionally employed overseas but also to reactivate the 31st Light Armored Demi Brigade for use in overseas operations. This newly reformed unit would include a regiment of AMX-10RC wheeled tanks, very lightly armored but heavily armed (105mm main gun) fighting vehicles.²⁰ It soon became evident that the heavier elements of this new unit would have to be deployed by sealift.

Severe budget limitations and shortfalls during Giscard's tenure forced French planners to devise a clever compromise program to at least partially mitigate the severe air refueling and airlift shortfalls that plagued the expanding second echelon air and land components of the rapid assistance forces. A French version of the U.S. Civilian Reserve Aircraft Fleet program was instituted whereby on short notice the FAF could lease large cargo aircraft such as Boeing 747s from Air France and Air Inter in times of emergency. In 1977 CoTAM acquired two more DC-8Fs to increase its fleet of these long-range aircraft to five.

That same year also witnessed the launching of a far more ambitious modernization program: In 1977 the government authorized a new production run of 25 upgraded *Transalls* designated C-160NGs (*Nouvelle Generation*)²¹ for operational deployment in 1981. Besides new avionics and navigational equipment, the NGs were equipped with increased internal fuel capacity and, most important, internal plumbing and an external probe for in-flight refueling, giving them the capability to fly nonstop to any French overseas staging base. A new center fuselage reserve tank raised internal fuel capacity by over one-third, extending maximum range (with a reduced payload) from 5500 km to 7500 km. Further, ten of the NGs would be designed for easy conversion to aerial tankers, thus providing the potential for a considerable expansion in the limited tanker assets available to the FAF.

The FAF calculated that the NG's aerial refueling capability would enormously increase CoTAM's productivity for a typical overseas deployment. Studies showed that deployment of a nominal army intervention cell requiring the transport of 70 tons of material to a reception base 2500 nautical miles (4630 km) distant would require ten *Transall* C-160NGs and 105 hours of flight time, or a total of 210 hours when flights returning to home base were included. However, using three NG tankers to refuel the transports 800 nm (1481 km) out from home base, only six *Transalls* and 148 total flight hours would be required to deliver the same load, for a gain of nearly 30 percent in productivity. Two other benefits would accrue from this capability. First of all, the three *Transall* tankers could be made quickly available for other transport needs upon returning to base. Second, aerial refueling would greatly reduce the gap between the number of aircraft needed to support the initial deployment and those necessary to sustain it in theater, thus lessening the inefficiencies caused by surge demand at the start of a deployment.²²

Furthermore, the buy of *Transall* C-160NG tankers would double the number of tankers in the FAF inventory, thus substantially reducing the excessive and unrealistic demands placed

²⁰Formally established on 1 July 1981 at Aubagne, the 31st Demi-Brigade was composed of the 2 REI (Foreign Legion Infantry Regiment) reconstituted in 1980, a motorized airborne infantry regiment, the 21st RIMA (Marine Infantry Regiment), and a mixed mechanized regiment consisting of two infantry companies mounted on VAB (*Vehicule d'Avant Blinde*) APCs, and two armored reconnaissance companies equipped with AMX-10RCs. Later this unit was incorporated into the 6th DLB (*Division Legere Blindee*--Light Armored Division) as part of the Rapid Action Force organized in 1983.

²¹In 1982 four more aircraft were added to the production run for a total of 29. It has been alleged that for the cost of restarting the *Transall* production line and procuring 25 C-160NGs, the FAF could have bought 60 Lockheed C-130 *Hercules* with greater range-payload performance.

²²See "CoTAM: Quand Viendront les Nouveaux *Transall*," *Aviation Magazine*, No. 773, 1 March 1981.

on the 11 KC-135F tankers of the Strategic Air Command to support both strategic and tactical operations in Europe, as well as overseas deployments. Although possessing only 40 percent of the air-refueling capacity of the KC-135Fs, the *Transall* tankers would be capable of refueling both *Jaguars* and *Mirage F1.C-200s* at low altitude. As a further bonus, the *Transall* tanker could operate from short or semi-prepared airfields. Nonetheless, even with the follow-on *Transall* buy, FAF airlift capacity would remain woefully inadequate.

Finally, during the Giscard years the FAF also sought to modernize capabilities in three additional areas: strategic communications, in order to facilitate control of overseas operations from Paris; aerial warning, control, and reconnaissance, to improve air defense and assist offensive attack operations in austere locations outside of Europe; and tactical reconnaissance.

In the mid-1970s FAF planners began examining the option of specially outfitting two *Transall* C-160NGs as airborne command posts, with the dual role of assuring communications through VLF equipment with nuclear ballistic missile submarines (SSBNs), and linking the Joint Operations Center in Paris to overseas land and air forces. Ultimately this solution was adopted, but no action was taken during Giscard's tenure because of budgetary problems.²³

France (along with the United Kingdom) did not participate in the NATO program begun in the early 1970s for the joint NATO acquisition and operation of Boeing E-3A AWACS.²⁴ The FAF hoped eventually to acquire a French-developed dedicated AWACS based on the *Transall* or Airbus Industries A-300B *Airbus* civilian wide-body transport, but funds sufficient to support such a development were not forthcoming in the 1970s. As an interim solution, the FAF experimented with using the Dassault-Breguet *Atlantic* ASW (Anti-Submarine Warfare) maritime patrol aircraft operated by the French Navy.²⁵ Subsequently, *Atlantics* of the 21 and 22 *Flottilles* based in southern France at Nîmes/Garons and normally assigned to ASW tasks in the Mediterranean, were made available for over-land operations in Africa and elsewhere.²⁶

The *Atlantic* was found acceptable in certain circumstances as an airborne tactical command post for fighter operations, communications relay station, and ELINT (Electronic Intelligence) platform, but its radar and avionics were far better suited for ASW operations. These shortcomings affected requirements under consideration for some time for a follow-on production run of the upgraded *Atlantic*.

The original *Atlantic* production run ended in 1974 with the completion of all French Navy and foreign orders.²⁷ As the end of the original production run grew near, Dassault-Breguet launched a series of studies for a follow-on; in 1974 the company began modifying the original 04 prototype for flight testing. Three years later the government authorized development and procurement of 42 improved *Atlantic* NGs (also variously designated Mark 2s or

²³The first of two *Transall* C-160 NG ASTARTE (*Avion Station Relais de Transmissions Exceptionnelles*) aircraft, part of the hardened strategic communications network called RAMSES (*Reseau Amont Maille Stratégique et de Survie*), is scheduled to enter service in 1988.

²⁴Airborne Early Warning and Control System. For a discussion of this and other joint NATO efforts, see Wendt and Brown, 1986. After years of negotiation and debate, France finalized an agreement for the purchase of four Boeing E-3A AWACS in 1987. See Trichet, 1987.

²⁵The French navy operates over 200 combat aircraft and helicopters based on two *Clemenceau* class fixed-wing carriers, one helicopter carrier, at 11 land naval air stations. The principal fixed-wing combat aircraft are the Dassault-Breguet *Étendard* IVP and *Super Étendard* strike-attack aircraft, the Vought F-8E (FN) *Crusader* fighter-interceptor, the Dassault-Breguet Br.1050 *Alize* carrier-based ASW aircraft, and the land-based *Atlantic*. The French Navy took delivery of a total of 41 *Atlantics* from 1966 through 1972, organizing them into four *Flottilles* or naval air squadrons, two for Atlantic and two for Mediterranean operations. For an overview of French Naval Aviation, see Guhl, 1985. A detailed history of the *Atlantic* development program can be found in Lorell, 1980.

²⁶See Guhl, 1980.

²⁷Conceived as a NATO collaborative procurement effort, the *Atlantic* program initially included only France and the FRG. Later the Dutch and Italian governments joined the industrial consortium and purchased the aircraft for their navies. See Lorell, 1980.

ATL 2s) for the French Navy. Unlike the old version, the New Generation *Atlantics* would be configured specifically for ELINT and for detection of surface targets, as well as for the ASW mission. Further, the new version would be made adaptable for Aerial Early Warning tasks and could be air refuelable. In this way, it was hoped that the new *Atlantics* could more effectively carry out their dual roles as Maritime Patrol Aircraft and as mini-AWACS deployed overseas.²⁸

Last but not least, plans were drawn up in the late 1970s to modernize FATAc's tactical reconnaissance wing, ER 33 based at Strasbourg, with the air refuelable *Mirage* F1.CR-200, for the first time rendering the FAF's dedicated reconnaissance assets easily deployable overseas. Implementation of this program was delayed into the 1980s, however.

In short, Giscard's tenure witnessed the launching or actual implementation of a broad array of modernization initiatives and reorganization measures designed to support the President's new policy of more active intervention by second echelon forces in Africa and other peripheral areas. Various issues concerning both domestic and Third World politics, budgetary constraints, and force posture all tended toward increasing reliance on the FAF relative to the other services for the implementation of Giscard's strategy of overseas action. The new FAF fighter/attack aircraft of the 1970s, the *Jaguar* and the *Mirage* F1.C, were developed or modified with overseas contingencies in mind and deployed into special second echelon rapid response cells. To support these forces, and army deployments overseas, the FAF improved aerial tanker, transport, and C3 capabilities. The next section examines the actual operational circumstances in the late 1970s that both encouraged the development and provided the initial tests of the specialized equipment, organization, and operational concepts that emerged during Giscard's tenure.

²⁸See Avions Marcel Dassault-Breguet Aviation, 1984.

III. FAF OPERATIONAL EXPERIENCE OVERSEAS, 1976-1980

INTRODUCTION

Most of the operational requirements behind the modernization initiatives detailed in Sec. II originated in or were initially tested out during the FAF's overseas operational experience in the late 1970s. Compared with the previous 15 years, that experience was rich indeed. Before Giscard's presidency, most overseas military interventions of the Fifth Republic had been undertaken during the early years of the De Gaulle presidency, usually small operations—particularly with respect to the air component—designed primarily to encourage domestic political stability in former French colonies in Africa during the French withdrawal and retrenchment after the Algerian War.

Giscard d'Estaing's new activist policies designed to counter growing Soviet-Cuban involvement in Africa led to a dramatic increase in the number and scale of French interventions beginning in the mid-1970s, including the major operations listed below and illustrated in Fig. 2:¹

- Operations *Lovada* and *Saphir* in 1976-77 in support of Djibouti against Somali insurgents;
- Offensive air operations in Mauritania against Polisario guerrillas, 1977, 1978 (Operation *Lamentin*); and 1980 (Operation *Nouadhibou*);
- Troop insertions and tactical support to ground forces in Zaire, 1977 and 1978 (Operations *Verveine* and *Leopard*);
- Offensive air and tactical support activities in Chad, 1978-80 (Operation *Tacaud*);
- Insertion and support of land forces in Operation *Barracuda* in the Central African Empire (CAE) against Emperor Bokassa in 1979;
- Support of French forces involved in UN peacekeeping operations in Lebanon beginning in March 1978.
- Operation *Gafsa*, Tunisia, 1980.

These operations, many of them undertaken concurrently, led to a serious overextension of the Exterior Intervention Force's modest capabilities, particularly with respect to second echelon rapid reaction army forces and the airlift assets necessary for quick deployment. This was especially true in May 1978, when three major crises—in Zaire, Mauritania, and Chad—arose simultaneously, all requiring French intervention. This overextension encouraged greater reliance on the FAF's aerial fire projection capabilities where appropriate, most dramatically demonstrated in Mauritania and Chad.

CONTINUING AIRLIFT LIMITATIONS ON LAND FORCE DEPLOYMENTS

All the operations listed above, but most clearly those that required only a ground combat component supported by CoTAM (Zaire and the CAE), highlighted both the strengths and the profound limitations of the FAF's force projection airlift capabilities. These experiences

¹In addition to the events listed here, French forces appear to have taken part in covert operations against insurgents in Angola in 1975-76 and against radical forces in Comores and Mayotte in 1978. French forces also contributed to efforts to open up and keep open the Suez Canal in 1975 and 1978.

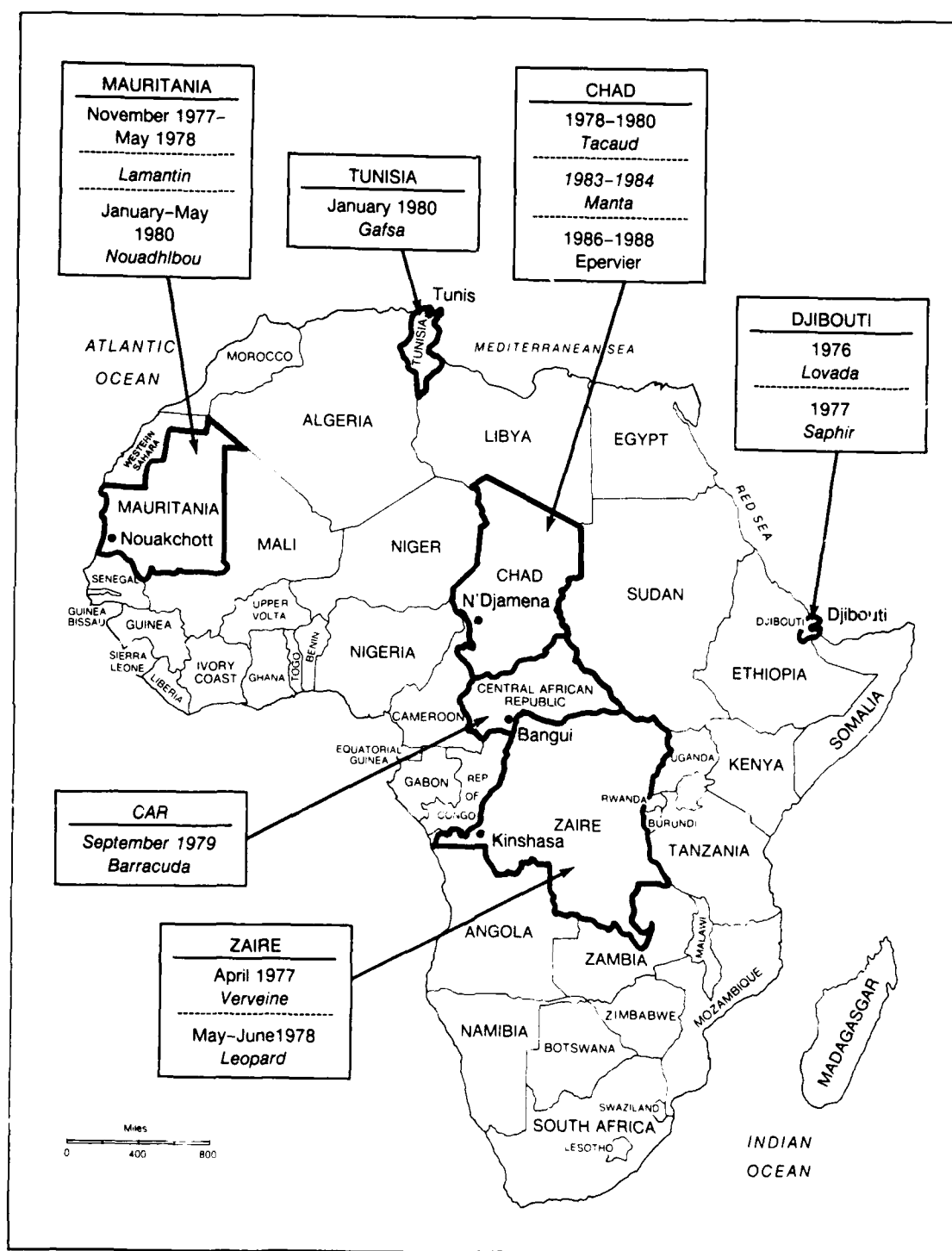


Fig. 2—Major French operations in Africa since 1976

confirmed the critical importance of the *Transall* C-160NG modernization program, while also demonstrating its ultimate inadequacy. Even upon the completion of that program in the late 1980s, the FAF could still expect only to possess sufficient assets to rapidly deploy small specialized light army contingents to assorted trouble spots in Africa to restore civil order or to ferry somewhat larger forces within the theater over longer periods of time. Any larger or more demanding effort, however, would continue to severely stress CoTAM airlift capabilities, and generally require outside assistance. This proved to be particularly true if other operations were in progress elsewhere.

For example, several interventions in the late 1970s demonstrated that in modest operations involving the insertion of small numbers of troops in low threat situations, the FAF could perform admirably well. Thus, in April 1977 CoTAM successfully airlifted 1500 Moroccan troops from their home bases into Shaba Province in southern Zaire to counter Angolan-Cuban backed insurgents threatening the key mining center at Kolwezi.² In a like manner, in September 1979 eight FAF *Transalls*, making repeated trips, rapidly transferred about 680 French soldiers, most of whom were already based in Africa, to Bangui, CAE, in support of an orderly and bloodless coup ousting the despotic Emperor Bokassa.³

The first case was little more than a simple intratheater ferrying mission. The second case, Operation *Barracuda*, was a bit more demanding for CoTAM, in the sense that it required the rapid mobilization and insertion of French armed forces to protect French interests and maintain civil order. As the crisis in the CAE unfolded in the spring and summer of 1979, the planning staff of the 11th Parachute Division developed contingency plans and identified or prepositioned designated forces in Africa that could most easily be deployed into the CAE if necessary. Thus the FAF and the Army were well prepared when the government ordered Operation *Barracuda* in September. French forces included one company of the 3rd Marine Infantry Parachute Regiment, normally stationed in Carcassonne, which had been deployed some months earlier to Zaire under the cover of joint maneuvers, and then to Libreville, Gabon, as the crisis developed. Two additional companies attached to the 8th Marine Infantry Parachute Regiment had been stationed for some time at N'Djamena in Chad supporting operations there. To these forces the army added a platoon of armored cars attached to the Marine Infantry Armored Regiment based at Vannes, and four *Puma* helicopters belonging to Army Aviation (ALAT).⁴

Yet, in Operation *Barracuda*, the French expected little organized opposition, and encountered none.⁵ The objective was to facilitate the success of conspirators plotting to overthrow the brutal Emperor Bokassa and replace him with a more moderate government acceptable to France. The operation turned out to be a typical, well-planned, small-scale intervention at which the French excel. But its small size probably represented the outside limits of the FAF's ability to quickly and easily insert land combat forces into Africa. The modest, short-term objectives of the operation, and the very low threat environment, contributed substantially to its success. Most important, from CoTAM's perspective, no other major operations were underway elsewhere, as was the case in Zaire in 1978.

²See Mangold, 1979.

³See Chapal, 1980; Chaigneau, 1984.

⁴ALAT-Aviation Légère de l'Armée de Terre.

⁵This partly explains why the French employed French national units attached to the 9th DIMa, rather than Foreign Legion troops. The French always prefer to employ Foreign Legion forces in overseas operations where casualties are likely, to minimize French domestic political reverberations. In addition, the regiments of the 9th DIMa routinely employed overseas are volunteer units. French law forbids the overseas deployment of draftees without prior consent of the national legislature.

Yet when slightly greater demands were placed on FAF airlift assets, outside assistance was required to accomplish the task. Thus, the second anti-insurgency operation in Zaire's Shaba Province, undertaken in May 1978, which for both tactical and political reasons required larger numbers of troops, necessitated substantial assistance from the United States and Belgium. At the time, French forces were already heavily committed elsewhere in Africa.

In the spring of 1978, 4000 Katangese irregulars of the Congolese National Liberation Front (FLNC) invaded Zaire once again from Angola, as shown in Fig. 3. On 12 May they successfully assaulted and took Kolwezi; the rebels then proceeded to massacre numerous French and other civilians among Kolwezi's 2500 European technicians and dependents. In France and Belgium, concern rapidly grew for the safety of the remaining Europeans and for the very survival of President Mobutu's regime, as the FLNC forces fanned out in mineral-rich Shaba Province unimpeded by Zairian army forces. The French felt obligated to respond quickly to



Fig. 3—Zaire

counter Angolan-Cuban backed aggression, and to save European nationals. Yet this was a much more demanding mission than merely maintaining or re-establishing civil order. Unfortunately, the French were already heavily committed in Lebanon, Mauritania, and particularly in Chad, at a time when a considerable force was required to counter the large, heavily armed invading force.

The FAF heroically scraped together sufficient assets to deploy several companies of light infantry. To accomplish this task, the FAF had to lease long-range French commercial transport aircraft under the auspices of the special FAF CRAF program. Such aircraft were required primarily because of the great distances involved; the FAF was unable to obtain over-flight rights in northern Africa, necessitating a very indirect route over water all the way to Zaire.

On 17 May, the 2nd Foreign Legion Parachute Regiment (2nd REP) based at Solenzara on Corsica received notification from 11 DP headquarters in Toulouse to go on six-hour alert status.⁶ The next day, 650 of the regiment's paratroopers (four parachute companies plus headquarters and organic support and weapons) boarded four DC-8s and one Boeing 707 owned by UTA and other French commercial airlines, and headed for Kinshasa, the rear staging base in Zaire. On May 19, five *Transalls* flew in ten tons of munitions and 30 tons of other material to support the operation, including 120 vehicles. Most logistics support, however, had to be provided by the mammoth airlifters of the USAF Military Airlift Command, which ferried in 30 times as much materiel during the operation.⁷ At mid-afternoon of the same day, three FAF *Transalls* and four Lockheed C-130 *Hercules* of the Zairian air force air-dropped 400 paratroopers of the 2nd REP over Kolwezi. The French paras secured the city within two days, at a cost of four killed and 14 wounded, against 300 dead for the rebels. A contingent of 1750 Belgian soldiers, flown in to Kolwezi airport on the 20th with the assistance of the U.S. Air Force, reinforced the small French force in securing the countryside. All French troops departed Zaire within 20 days of the beginning of the operation.⁸

As successful as the second Shaba operation proved to be, both the French and the Belgian efforts had been critically dependent on leased civilian aircraft and USAF airlift assets.⁹ To add insult to injury, the French airline pilots' association vigorously protested the CRAF element of the operation, as an illegal deployment of civilians into a combat zone.

Zaire demonstrated that land operations larger than modest peace-keeping efforts severely stressed CoTAM's capabilities, particularly when major actual or potential combat commitments were underway elsewhere.¹⁰ The situation would be mitigated somewhat later—but far from solved—by the 29 *Transall* C-160NG air-refuelable transports expected to come on line in the 1980s; unfortunately, the whole force was not expected to become fully operational until late in the decade, and even then the improvement in capability would be very modest. Thus, the continuing and very uncomfortable dependence on the uncertain cooperation of civilian airline pilots and the U.S. Air Force seemed to support those who argued for a reduced dependence on air-transportable French ground forces and a greater use of aerial firepower as a central component of true joint force projection operations.

⁶Some elements of the 2nd REP were also involved at this time in operations in Chad.

⁷MAC C-5As and C-141As flew in 931 tons of cargo and 124 passengers in 31 sorties between 16 and 27 May. See Matthews and Ofcansky, 1986.

⁸See Chaigneau, 1984; Erulin, 1980; Mangold, 1979; and Pons, 1981.

⁹The French Legionnaire paras and their equipment were moved from Lubumbashi, where they concluded their operations, back to their base on Corsica by two USAF MAC C-5s and 12 C-141s between 31 May and 16 June. See Matthews and Ofcansky, 1986.

¹⁰In 1978 French forces deployed to Lebanon as well as to Zaire, Mauritania, and Chad. In March, elements of the 3rd Marine Infantry Parachute Regiment (3 RIPMa), joined by various other combat support units, began deploying to Lebanon under the auspices of the UN Interim Forces in Lebanon (UNIFIL). For details, see Salvan and Sablier, 1979.

between the bordering French-backed states of Mauritania and Morocco.¹² The Polisarios habitually engaged in hit and run tactics against Mauritanian military and economic targets, deploying out of sanctuaries in Algeria such as Tindouf using highly mobile formations built around Land Rover type vehicles armed with modern Soviet Surface to Air Missiles (SAMs) and other weapons. In 1976 Polisario units even penetrated the capital city of Nouakchott during the annual Organization of African Unity meetings being held in nearby Libreville, Gabon, causing great embarrassment to President Ould Daddah's government. Polisario successes continued into the spring of 1977 as Algeria began supplying increasingly sophisticated equipment. Giscard's government obviously felt obligated to answer Daddah's calls for assistance.

France openly condemned Algeria for aiding the Polisarios with modern Soviet-supplied weapons and again temporarily deployed a cell of *Jaguars* attached to EC 3/11 to Cap Vert near Dakar—the principal reception and staging base in western Africa for deployment of second echelon forces—causing Franco-Algerian relations to rapidly deteriorate in May. In response to these French actions, the rebels began raiding Zouerate, where approximately 160 French technicians assisted in iron ore mining operations critical to the Mauritanian economy. The Polisarios successfully abducted six French technicians in May during one of these raids.

France countered by signing a new security assistance agreement with Mauritania in June. This agreement resulted in the dispatch of about 70 military technical advisors to assist the Mauritians in training and equipment maintenance. Some 20 FAF specialists helped support the tiny Mauritanian air force (GARIM) consisting of a handful of Britten-Norman *Defenders* and Reims F337 *Super Skymasters* configured with gun-pods and other underwing stores for COIN operations. Further, FAF *Transalls* and *Noratlases* ferried in two battalions of Moroccan troops who fortified and garrisoned Zouerate against further Polisario intrusions.¹³

The Polisarios demanded the cessation of French military assistance to Mauritania as a fundamental condition for the release of the French hostages. Mindful of the popularity of Algeria and the Polisario Front with the Left in France, and with an election approaching early in 1978, Giscard accepted a stalemate and attempted to conduct quiet negotiations for the release of the hostages. The Polisarios attempted to maintain pressure, however, by attacking the rail line linking Zouerate with the harbor of Nouadhibou, necessary for the transshipment of iron ore for overseas trade. The guerrillas hit the ore trains, armed outposts defending the railway, and maintenance crews. One such raid on October 25 netted two more French technicians and 18 Mauritanian maintenance workers, causing a public outcry in France, particularly from the Gaullist opposition papers.¹⁴

This time, Giscard D'Estaing reacted decisively to counter the most recent Polisario escalation. On October 27, the Ministry of Defense placed three regiments of the 11 DP of the Exterior Intervention Forces on special six hour alert. According to some sources, the French overseas deployment, dubbed Operation *Lamentin*, actually commenced the previous day, when elements attached to the 9th Marine Infantry Division (9 DIMa) and the 2nd Foreign Legion Parachute Regiment (2nd REP) of the 11 DP, along with components of the 35th Para Artil-

¹²For a fuller discussion of the Polisario guerrilla war, see W. Lewis, 1985. Also see Junqua, 1978.

¹³The Mauritians felt very uneasy about their alliance with Morocco against the Polisarios, since the latter country nursed major outstanding territorial claims against Mauritania. Nonetheless, they both opposed Algerian expansionism expressed through its surrogates, the Polisarios (ironically originally established by the Spanish in an attempt to set up a puppet government in the Western Sahara controlled from Madrid).

¹⁴See Hollick, 1979; and "France Is Under Public Pressure to Free 8 Kidnapped in the Sahara," *New York Times*, 1 November 1977.

lery Regiment, deployed out to Senegal from Toulouse and Tarbes in 18 *Transalls*.¹⁵ These forces were accompanied by several *Puma* utility helicopters operated by ALAT. On 2 November, another 300 combat and support personnel left for Senegal, raising the total number of troops in Dakar to about 1500.¹⁶

A key objective of these forces was to help establish the appropriate infrastructure both in Senegal and Mauritania to support several cells of *Jaguars* in actual combat operations. However, for both political and technical reasons, it was deemed necessary to avoid basing any combat operations in Mauritania itself. Thus, later in November, under cover of a combined exercise planned with Gabon, additional *Jaguars* deployed to Cap Vert, raising the total number of available fighter-attack aircraft to ten. The *Jaguars* were accompanied by transport support and several KC-135Fs, soon joined by *Atlantic* maritime patrol aircraft from the *Aéronavale's Flotille 21F* based at Nîmes-Garons. In addition, *Mirage IVA* strategic bombers equipped with photographic equipment also conducted high level reconnaissance runs.¹⁷

Cap Vert is about 400 miles south of the Zouerate-Nouadhibou rail line on the southern border of the Western Sahara. The distance between Cap Vert and the Western Sahara meant that from one to two KC-135Fs had to remain in Senegal to support long-range surveillance and attack.

Within Mauritania itself, Moroccan firms, under French guidance, began expanding the airfield facilities at Nouakchott and Atar to accommodate Moroccan Air Force Northrop F-5s and recently purchased *Mirage F1*.Cs. In addition, about 60 French personnel set up relay stations at five locations inside Mauritania, all netted into a special command post established inside the French embassy compound at Nouakchott, in order to assist in the management of French air assets deploying out of Dakar. To facilitate command and control, intelligence gathering, targeting, and airspace management of attack assets, both the *Atlantics* and *Jaguars* immediately began operating reconnaissance missions over the Western Sahara, linked in to the ground-based communications and intelligence network.

By the end of November, the FAF was fully prepared for combat operations. The following month, *Jaguars* launched a series of effective attacks against Polisario forces. The French government later officially confirmed two major attacks in mid-December; others were reported in the press. The first was apparently in response to a Polisario attack in early December against a Mauritanian army garrison at Boulanouar defending the Zouerate-Nouadhibou rail line. In retaliation, four *Jaguars* reportedly attacked an important Polisario fuel and munitions supply dump.¹⁸ In mid-December, *Jaguars* and Mauritanian air force aircraft attacked a Polisario column, destroying perhaps as many as 200 vehicles.¹⁹ These attacks were guided and managed in the air by *Atlantics* of the 21F *Flotille*.

According to the most detailed account of the mid-December attacks, two *Atlantics* detected the Polisario column heading toward the rail line on December 10. On the 12th, Moroccan Air Force Northrop F-5s and North American T-6s attacked the column. Later in the day, *Jaguars* launched out of Dakar joined the attack with cannon and rockets, returning again the following day to finish off the survivors. Five days later, at the request of the

¹⁵Reported by Murray, 1977.

¹⁶P. Lewis, 1977.

¹⁷See "Premières Interventions Armées du Jaguar," *Air et Cosmos*, No. 699, 31 December 1977; and Guhl, 1980.

¹⁸Other accounts claim that *Jaguars* only conducted reconnaissance missions at this time, on December 3 and 5. See *Air et Cosmos*, 31 December 1977.

¹⁹There is confusion in the press over the number of vehicles destroyed, the total number of FAF attacks, and the days on which the attacks took place. Dates for the FAF attacks are variously reported as December 3, 5, 13, 14, 15, and 18.

Mauritanian government, several *Jaguars* reportedly hit a second column consisting of Algerian vehicles attacking a Mauritanian outpost at Tmeimchatt.²⁰

On December 18, *Jaguars* again struck a Polisario unit withdrawing from an attack on an iron ore train near Zouerate. The Polisarios claimed that their forces, while badly mauled, shot down at least two *Jaguars*, and damaged several others during these engagements, although this seems doubtful.²¹ Much more clear is that the Polisarios released all the French hostages soon after the French air attacks and ceased large-scale operations against the iron ore rail line for many months.

Over the next five months, the FAF did not need to conduct any direct combat operations. Nonetheless, *Jaguars* and *Atlantics* flew constant reconnaissance and harassment missions over the Western Sahara. To further bolster government forces, FAF transports ferried in another 600 Moroccan troops in January 1978. As tensions rose in Zaire and Chad, however, the Polisarios decided once more to try their luck against government forces and the French by launching a major offensive similar to those conducted in mid-1977.

In early May 1978, a column of about 50-100 Polisario vehicles set out from its sanctuary in Algeria headed toward Zouerate in a new attempt to disrupt operations there. The Polisarios apparently calculated correctly that the French were becoming increasingly preoccupied with the rapidly escalating crises in Katanga-Shaba and Chad (see above). However, the rebels made one critical miscalculation; their operation was undertaken in the mistaken belief that FAF *Jaguars* had been redeployed from Senegal to Chad. Yet, on May 3, to the great surprise and distress of the rebels, six *Jaguars* sporting their new desert camouflage scheme caught the Polisario forces in the open strung out across the desert some 60 miles northwest of Zouerate. In two separate series of low-level attacks, the *Jaguars* methodically strafed and rocketed the Polisario column, destroying numerous vehicles. The few surviving rebels were pursued all the way back into Algeria by Mauritanian army units.²²

Some months later, the political situation changed, leading to a halt in FAF combat operations. On 10 July 1978, a coup ousted the government of Ould Daddah. The new head of state, President Ould Salekh, encouraged negotiations with the Polisarios, leading the rebels to declare a ceasefire. The rebels may have been more willing to negotiate at this time, of course, because the presence of the FAF attack assets in Senegal limited their military options.²³

The spectacular tactical successes of the *Jaguars* against the rebels raised the hopes of Giscard's advisors that the desperate situation rapidly unfolding several hundred miles to the east in Chad could also be reversed with the assistance of the FAF's fighter-bombers, avoiding the need to make a major land combat commitment.

Chad 1978: *Jaguars* to the Rescue

Located in the center of equatorial Africa, Chad ranks among the poorest, most desolate countries on earth (see Fig. 5). Chad is sparsely populated with only about 4 million residents

²⁰See *Air et Cosmos*, 31 December 1977.

²¹The French government has officially said very little about these operations, other than that they took place. Losses were neither confirmed nor denied. However, the loss of even one *Jaguar* would have been difficult to keep secret, if later experience in Chad is any indicator. The account here has been pieced together from the following sources: "Polisario Guerrillas Charge French Attack in West Africa," *New York Times*, 19 December 1977; "French Planes Called in by Mauritania," *London Times*, 23 December 1977; Kandell, 1977; "Paris Confirms Air Raids Against Sahara Forces," *New York Times*, 24 December 1977; and Guhl, 1980.

²²See Chapal, 1978-79; and "France Says Its Planes Aided Mauritanian Forces," *New York Times*, 6 May 1978.

²³See Hollick, 1979; and P. Lewis, 1977.

inhabiting nearly 400,000 square miles of territory, much of it desert wasteland.²⁴ Furthermore, its fractious population contains numerous mutually hostile racial, religious, and ethnic groups. For example, at least 11 factions were vying for power in the late 1970s.

Nonetheless, France's most enduring post-colonial commitment in Africa has been to Chad. French forces have been militarily involved in Chad almost without pause since the country achieved independence in 1960. Of all French military aid to black Africa between 1960 and 1973, 30 percent went to this desolate country. French interest in Chad appears to be primarily strategic: Chad serves as a buffer state between the potentially hostile Arab Moslem states to the north, particularly Libya, and the black (and often Christian) francophone states of Central Africa, Cameroon, and Niger. Chad's capital, Fort Lamy, later renamed N'Djamena, has historically served as a major Foreign Legion outpost, and is a principal French staging and reception base in Africa.²⁵

The largest French military commitments in Africa since the Algerian War have always taken place in Chad. Perpetual civil strife and incipient civil war characterized Chad's political history almost from the moment of independence. French forces garrisoned the country from independence through 1965, when most withdrew. In 1963, Arabic speaking northerners formed FROLINAT (*Front de Liberation Nationale de Tchad*, or Chad National Liberation Front) and began anti-government guerrilla operations based in the Tibesti province near Libya. When FROLINAT forces threatened N'Djamena in 1969, President François Tombalbaye called for French assistance. In September de Gaulle deployed five Legionnaire companies attached to 2nd REP and additional units from 2 REI. By 1970, with a total of 1000 Legionnaires and some 2500 French army troops, Chad had become by far the largest overseas French military operation since Algeria. French forces secured N'Djamena and beat back FROLINAT guerrillas into the desolate north, at a cost of about 50 dead.²⁶ Most French forces withdrew in December 1971. A small number of French military advisors stayed on until September 1975, at which time they evacuated the country at government request.

FROLINAT forces fell back into sanctuaries in Libya to regroup, strongly supported after September 1969 by the new Libyan leader, Colonel Muammar el Qaddafi. Indeed, in 1973 Qaddafi laid claim to, and virtually annexed, the 27,000 square-mile, uranium-rich Aouzou Strip in northern Chad bordering Libya.²⁷ Two years later, General Malloum, Chief of Staff of the Chad government forces (ANT—*Armée Nationale de Tchad*), deposed President Tombalbaye and formed a new government. He then asked the remaining French advisors to leave. However, a resurgent FROLINAT, under the new leadership of Goukouni Oueddei and Hissene Habre, soon thereafter launched a new offensive south. In June 1977, the Chad government requested, and received, advisory and logistical support from the French.²⁸

By late 1977, FROLINAT forces totaling about 4000 irregulars, generously re-equipped with some of the latest Soviet weapons and equipment supplied compliments of Libya, began registering impressive gains against beleaguered government forces. Although President Malloum was able to bring Habre over to the government side, the rebels, increasingly backed by Libyan combat logistical support, redoubled their efforts. Northern government outposts at Bardai, Zouar, and Faya-Largeau fell with the loss of over 1000 casualties. By February 1978,

²⁴Some of which, however, contains rich uranium ore deposits.

²⁵For full accounts of the staggeringly complex political and strategic backdrop in Chad, see Hugot, 1983; Thompson and Adloff, 1981; and Yost, 1983.

²⁶Official French figures put losses at eight dead and 90 wounded. For a good summary, see Pimlott, 1985.

²⁷A detailed evaluation (and rejection) of the legal validity of Libyan claims on northern Chad can be found in Lanne, 1982.

²⁸The best brief published account of the French intervention in Chad in 1978 is found in Chapal, 1978-79.

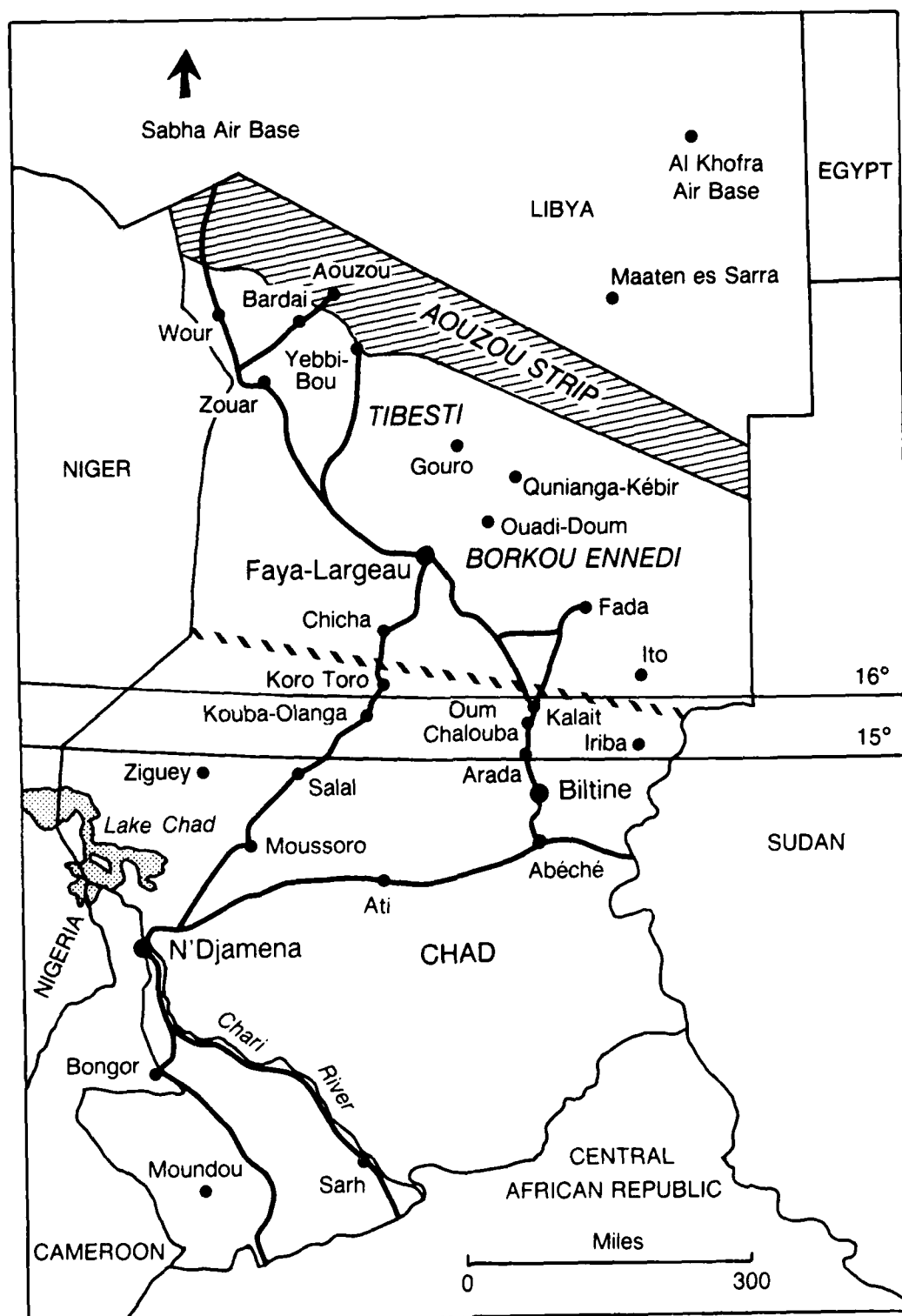


Fig. 5—Chad

FROLINAT had won control of most of the north, prompting Malloum to formally request large-scale French combat intervention. Giscard D'Estaing responded initially with a token gesture, sending in a small Legionnaire contingent of the 2nd REP to supplement 300 French military advisors. As a precautionary move, the FAF deployed a four-aircraft *Jaguar* cell to Abijan, Ivory Coast, as a possible supplement to the AD4 *Skyraiders* already stationed in Chad and flown by French civilian contract pilots.²⁹

However, the government position continued to deteriorate. In April, FROLINAT opened a new offensive to conquer the more populous south and take N'Djamena; it soon became evident that only a major French military commitment would prevent a FROLINAT victory. Following the shooting down of government aircraft with SAM-7 *Strellas*,³⁰ and the fall of the government outpost at Salal on April 15, Giscard D'Estaing decided to commit major land and air forces to stem the tide. By early May, additional Legionnaires from the 2nd REP, the 1st REC, and the 2nd REI arrived in N'Djamena, bringing the total of French combat forces in Chad to nearly 1700. Most of the Legionnaires deployed north to form a defensive line anchored in the west at Moussoro, 150 miles northeast of the capital, and just south of the enemy positions at Salal, to block the approach to N'Djamena from Faya-Largeau, and at Abeche in the east blocking the Fada-Biltine approach, and running through Ati in the center.³¹

In early May Katangese rebels again invaded Zaire's Shaba Province, requiring a major French rescue operation to defeat the insurgents and save Kongo's threatened European population, as discussed earlier. This operation drew off substantial numbers of Legionnaires of the 2nd REP and airlift assets that otherwise could have been made available for operations in Chad.

Encouraged by the great success of FAF *Jaguars* in Mauritania, French military planners pinned their hopes on offensive air power to deter further FROLINAT aggression, or, if deterrence failed, to tip the scales in favor of the hard-pressed government forces, thus preventing the fall of N'Djamena. At the end of April, one or two additional *Jaguar* cells with support deployed out of France to N'Djamena, joining another cell apparently deployed in from Abijan, Ivory Coast, perhaps 8-12 fighter-attack aircraft. These were supported by two KC-135Fs, one Atlantic patrol aircraft, and several *Transalls* and *Noratlases*.³²

FROLINAT was not deterred by the presence of FAF *Jaguars* in N'Djamena. Perhaps hoping to take advantage of the diversion caused by the crisis in Shaba Province, FROLINAT launched a major offensive whose ultimate objective was the nation's capital. In a climactic series of pitched battles fought around Ati in late May, French forces decisively defeated the Libyan-backed FROLINAT forces.

²⁹See Koven, 1978.

³⁰Apparently the casualties included at least one French-piloted AD4 *Skyraider* and possibly a FAF transport.

³¹See Darnton, 1978; Kandell, 1978; and Koven, 1978;

³²The confusion in the open press as to the total number of *Jaguars* deployed, and their bases of origin, seems to have misled the Polisarios in Algeria into believing that the *Jaguars* based in N'Djamena had all come in from Senegal, leaving none at Dakar, thus substantially reducing the air threat to their forces in the Western Sahara. This mistaken belief resulted in the ill-conceived Polisario attack on Zouerate in early May, as discussed above. It appears that at least one cell of *Jaguars* deployed to N'Djamena from Abijan on the Ivory Coast, or possibly Dakar. At least some of the others probably staged from France through Dakar or Abijan on the west, or Djibouti on the east. It seems almost certain, however, that Dakar was not stripped entirely of its *Jaguars* to reinforce N'Djamena. If indeed some of the aircraft came from the group stationed at Cap Vert, they were either replaced quickly with reinforcements from France or enough remained of the ten or so originally deployed to continue combat operations in Mauritania. Recall that at least one squadron of 15 aircraft, EC 3/11, was already specially designated for overseas deployments, and four other aircraft cells attached to different squadrons undoubtedly were operational, some of which later were grouped into EC 4/11 in January 1979. See "France Reported to Send Fighter-Bombers to Chad," *New York Times*, 28 April 1978; Chapal, 1978-79; Darnton, 1978; and Kandall, 1978.

The main FROLINAT effort was directed against Ati in the center of the French defensive line, about 270 miles northeast of N'Djamena. On May 18, a FROLINAT force of about 800–1000 encircled and attacked the garrison of about 1500 government soldiers, supported by 450 Legionnaires and Marine Infantry. In a week-long operation around Ati, the French paras and cavalry mounted on armored cars, supported by ALAT *Alouette* helicopters and *Jaguars*, broke the FROLINAT offensive. In early June, a second engagement took place at Djadda, an oasis 60 miles northeast of Ati. A French force of about 300 Legionnaires supported by some 40 Panhard armored cars again defeated the FROLINAT irregulars.

In both series of engagements, FAF *Jaguars* played a key role in the government victory. In one air attack alone near Djadda, *Jaguars* reportedly killed more than 200 rebels. However, at least one *Jaguar* may have been lost to enemy ground fire at Djadda.³³

The French were unwilling to accept the expenditure in casualties, equipment losses, and francs that would have been necessary to follow up on the success at Ati with a counteroffensive to retake the north. The French did not want to be viewed as “neo-colonial aggressors” by their Third World allies; nor did they relish a direct confrontation with the well-equipped armored forces of Col. Qaddafi. With French encouragement, President Malloum assembled a new Government of National Union in August, appointing Hissene Habre prime minister, and sought a negotiated settlement to the conflict. Three conferences in March, April, and May 1979 led to the formation of the Transitional National Unity Government (GUNT-*Gouvernement d'Unité Nationale de Transition*) in August headed, ironically enough, by France's former enemy Goukouni Oueddei, with Hissene Habre as Defense Minister.

The newly formed GUNT soon requested the withdrawal of all French forces. Nigeria and the OAU offered guarantees against further Libyan expansionism. France thus withdrew its forces—which at their height stood at 2500 military and 500 support personnel—between March 1979 and May 1980, ending the second major French intervention in post-colonial Chad and the last major French military involvement in Africa under Giscard D'Estaing.

SOME LESSONS LEARNED AND IGNORED

The late 1970s witnessed a beginning of a shift in emphasis in the use of French intervention forces away from an almost total dependency on ground forces toward much heavier use of aerial fire projection. Small very light ground forces could still be deployed quickly and prove to be quite effective without any air fire support, given the right conditions, as shown during Operation *Leopard* in Shaba Province. But Shaba also highlighted the glaring inadequacies of French strategic airlift. The FAF's airlift shortcomings, combined with the growing military effectiveness and potency of probable opponents, meant that France could no longer depend primarily on its own intervention land forces, built around the small but effective core of politically expendable Legionnaire forces, to defend its interests in Africa and elsewhere in the Third World. FAF airlift assets would almost certainly remain extremely limited; even if the land intervention forces were successfully expanded and beefed up, as was indeed planned for the 1980s, France was unlikely to possess the independent means of projecting large land forces rapidly by air during the next decade.

Aerial fire support could be expected to take an increasingly important role in overseas operations, compensating to some extent for French shortcomings in airlift and land forces. Operations in Mauritania and Chad showed that modern fighter-attack aircraft can be

³³Chapal, 1978–79; Hollick, 1979; Hugot, 1983; Pimlott, 1985.

employed with devastating effect against irregular forces in a desert environment; yet that environment was also clearly becoming increasingly high-threat.

French tactical air power had acquitted itself well, even in the face of multiple commitments, as in the spring of 1978, when FAF airlift capabilities had been stretched to the breaking point and beyond. Nonetheless, the overseas interventions in the late 1970s required the commitment of substantial percentages of FAF resources. In 1978, for example, at the height of French involvement in Africa, the FAF deployed approximately 10 percent of its entire *Jaguar* force to Africa; support of this force (and the land forces) required the deployment to Africa of *one-quarter* of the FAF's *Transalls*, nearly *one-third* of FAF's KC-135Fs, and 10 percent of Aeronaval's *Atlantics*.

Nonetheless, at times when virtually all French second-echelon land forces were operationally deployed, offensive air power clearly had played a critical if not decisive role on several occasions. This is why, in 1979 and 1980, the FAF placed two entire *Jaguar* squadrons, EC 4/7 and 4/11, on permanent alert status under the operational control of the joint command of the Exterior Action Forces, as discussed in Sec. II. At the same time, cells of *Mirage* F1.C-200s were also attached to the same command.

Important lessons emerged from these episodes on the use of air power in peripheral conflicts, not all of which were immediately or fully recognized by later French governments. These lessons may have application beyond the narrow confines of the history of French overseas interventions. On the most general level, although air power could prove extremely effective in the right circumstances, it could not relieve governments entirely of losing men and equipment. To have any effect at all, air power had to be used boldly in combat environments that had become increasingly high-threat. In any effective use of air power in the future, even on the smallest scale, in all likelihood there would be casualties, lost aircraft, and pilots killed or taken prisoners of war. These have political costs.

The spectacular success of the *Jaguars* in Africa tended to overshadow another basic truism about modern warfare: To be genuinely effective, air power had to be fully integrated into joint operations. It could not substitute for offensive ground activities. Without effective ground operations, with all the casualties that such operations inevitably produce, air power could do little more than stop or slow the opposing forces, but not decisively defeat them, particularly when the enemy almost always could withdraw to sanctuaries. Containment of the Polisarios in Mauritania and of FROLINAT forces in Chad depended at least as much on the sacrifices of Moroccan and ANT soldiers and Legionnaires as on *Jaguars*.

These lessons were difficult to accept and prepare for, particularly for the new French socialist political leadership in the 1980s. But by ignoring them, France found itself enmeshed in a military-political stalemate in Chad that drained its scarce resources but failed to resolve the situation in France's favor.

IV. AIR POWER AND THE STRUGGLE FOR CHAD, 1980-1984

INTRODUCTION

France was not the only participant in the Chad fighting in 1978 to draw lessons about the increased leverage that can be provided by the more extensive use of modern offensive air assets. Indeed, Libyan military planners drew similar conclusions. First, they too recognized the potential effectiveness of air support for ground forces in Chad and began projecting such support to the conflict south of their border. Second, the Libyans substantially upgraded the air defense assets available to their own forces and those of their allies in Chad, thus making it more difficult and costly for the French to intervene decisively with fighter-attack aircraft as they had done in 1978. Third, Tripoli decided to more directly involve its regular forces in the fighting in Chad to counter and neutralize French projection forces.

Consequently, each time during the next three rounds of major fighting in Chad that included Libyan involvement (1980-81, 1983-84, 1986-1987), the French were confronted with the dilemma of either permitting their client to be defeated or risking a potentially very costly direct confrontation with regular Libyan air and land forces. As the offensive and defensive air capability of the Libyan forces in Chad grew, the French could no longer risk insertion of land forces without air support, which in turn could not be provided safely without first conducting counterair operations directly against Libyan forces.

When presented with this dilemma in 1980, Giscard chose to forgo French military intervention. Two and a half years later, with another crisis in Chad brewing, the new Socialist President François Mitterrand also chose to avoid direct confrontation with Tripoli. However, this time, differing political and diplomatic factors made the option of nonintervention unacceptable. Consequently, Mitterrand attempted to deploy French forces in a "nonprovocative" posture, rejecting the offensive counterair operations deemed necessary by the French military leadership and advocated by the FAF. Mitterrand's approach contributed in the long run to a politically untenable situation: French forces soon found themselves hopelessly bogged down in a costly stalemate. When Paris again returned to Chad in 1986, it had learned what it thought was the lesson of the 1983-84 operation: the primacy of the counterair mission to neutralize Libyan air power.

LIBYAN COMBAT INVOLVEMENT IN CHAD, 1980-1981

Soon after the French withdrawal from Chad in May 1980, the GUNT coalition disintegrated. Defense Minister Hissene Habre broke with President Goukouni Oueddei, becoming his major opponent in new hostilities. Civil war broke out in earnest. Habre's forces, designated FANT (*Forces Armées Nationales du Tchad*—National Armed Forces of Chad) soon gained the upper hand, ultimately taking the capital. Goukouni sought and received weapons and logistical assistance from Col. Qaddafi, signing a formal mutual defense pact with Libya in June.¹

Five months later, heavy armored units of the Libyan Army, accompanied by Col. Qaddafi's "Islamic Legion," and assisted by Soviet, East German, and other foreign advisors

¹Excellent summaries of the complicated events during this period can be found in Lemarchand, 1984; and Yost, 1983.

and logistical support, entered Chad in response to President Goukouni's direct invitation to help defeat Habre and reconquer the capital. The Libyan-led force, which included between 2000 and 4000 Libyan regular army soldiers, linked up with Goukouni's forces and drove rapidly south. Estimates of the total forces confronting Habre's several thousand lightly armed irregulars went as high as 10,000. FANT forces fell back on N'Djamena in the face of this opposition. In mid-December heavy fighting broke out around the capital, as Habre made his last stand against the Libyan/GUNT coalition. Col. Qaddafi openly called for the unification of Chad with Libya into a new Islamic republic.²

In view of the poor performance of Libyan forces in previous military expeditions, such as the disastrous intervention into Uganda in April 1979 to prop up the collapsing regime of Idi Amin, most Western military observers were surprised and impressed with the professionalism, skill, and speed with which Col. Qaddafi's commanders deployed heavy mechanized and armored forces all the way from the northern border to the capital of Chad. The Libyans moved some 50-60 T-54s and other heavy Soviet-built tanks, Armored Fighting Vehicles, heavy artillery, and support equipment across 600 miles of desert in a matter of weeks, although only sporadic and light opposition was encountered. This force was supported by Libyan Air Force (LAF) tactical airlift assets—including Lockheed C-130 *Hercules*—supplemented by civilian transports.³

Giscard's government vigorously denounced open Libyan involvement in the Chadian civil war. A *Jaguar* cell deployed to Gabon. French ground forces in Gabon, Ivory Coast, Senegal, and the CAR (formerly the CAE) were placed on alert and reinforced. In particular, the French increased their garrison at Bangui, CAR, across the border from Chad, to 1400 soldiers. But Giscard D'Estaing refused to recommit French air or land forces, for both military and political reasons.

First and foremost, the Libyan forces opposing Hissene Habre were far more potent and sophisticated than any enemy formations ever encountered by the French in Africa. Instead of the Land Rovers and Toyotas Goukouni or the Polisarios used in Mauritania, substantial quantities of Main Battle Tanks, heavy artillery, and tactical rockets (Stalin organs) now confronted Habre and his French supporters. Giscard and his military advisors hesitated to expose the very light infantry formations of the Foreign Legion, or of the Airborne and Marine Infantry regiments—at best equipped with light armored cars and towed 105mm howitzers—to this sort of firepower.

Indeed, for these reasons plans were accelerated for the establishment of a beefed up deployment force appropriate for countering armored and mechanized forces both in forward operations in Europe and in overseas contingencies. This concept eventually evolved into an independent corps-like formation with five divisions, the FAR or *Force d'Action Rapide* officially announced in the 1983 French Army reorganization plan. The FAR would consist of a light armored division (6th DLB—*Division Légère Blindée*), derived from an expansion of the 31st Light Armored Demi-Brigade, and an all-new antitank helicopter assault division, the 4th Airmobile Division (4 DAM—*Division Aeromobile*). The two light infantry divisions whose units were traditionally deployed overseas—the 11th DP (Airborne Division) and the 9th DIMA (Marine Infantry Division)—were programmed to be upgraded with more APCs, artillery, air

²See Lycett, 1981; Wilson, 1980; and Yost, 1983.

³Koven, 1980.

defense, and ATGMS.⁴ Plans called for grouping these two divisions, along with the 27th Alpine Division (DA—*Division Alpine*), a third light infantry division, into the new FAR.⁵

Although the FAR would eventually provide much more capability for countering armored formations overseas, the realization was still years away. Furthermore, the FAR's heavier, more-capable units could be deployed overseas only by ship. Thus they would never provide a solution for the need for rapidly deployable heavy firepower. That job would still fall on the shoulders of air force tactical fighter-bombers.

Yet the events of late 1980 in Chad proved very disturbing to those who hoped to substitute aerial firepower for heavier army overseas deployment forces. Suddenly French air power no longer seemed to be the low-cost, high-leverage means of effectively projecting firepower that it had been in Mauritania and in Chad in 1978. Instead of small arms and simple man-portable SAM-7 *Strellas*, in 1980 the Libyan armored forces protected themselves with ZSU-23/4 radar-directed quad anti-aircraft cannons and sophisticated mobile SAM systems.

Furthermore, for the first time, the French had to face the real prospect of a fixed wing ground support and counterair threat. The LAF deployed fighter aircraft along with tactical transports into several forward operating bases in Chad: Aouzou airstrip to the north in the Aouzou Strip, Fada to the southeast, a third base north of N'Djamena, and possibly to Faya-Largeau in north-central Chad. Italian-built MB-332 light-attack aircraft launched out of these forward bases supported the assault on N'Djamena. Reports of possible forward deployments of Soviet-built MiG fighters and LAF *Mirage* F1.Cs,⁶ when combined with information regarding the organic air defense assets of the Libyan land forces, raised serious doubts about whether *Jaguar* cells could support Habre's forces without risking unacceptably high losses.⁷

Giscard D'Estaing also probably refused to act for political and economic reasons. He undoubtedly did not want to become bogged down in a potentially major land war that would cause French casualties when elections for president were scheduled to take place in less than six months.⁸ Furthermore, direct military confrontation with Libya was also undesirable for economic reasons. Libya served as a major market for French weapons, as well as an important source of oil. Finally, Libya had intervened at the invitation of the internationally recognized legitimate government, leaving no legally constituted body to request French intervention, as had been the case both in 1969 and 1978.

Not surprisingly, then, despite stern warnings to the Libyan dictator, French forces refrained from entering the fray. Equally unsurprising, given the balance of forces engaged, after a week of heavy fighting around N'Djamena in mid-December, the capital of Chad fell to the invading forces.⁹ Despite the loss of the capital, however, Habre's forces continued the struggle, providing an opportunity for the new President of France to pursue a new approach to a negotiated settlement. But peace was not to come to Chad so easily.

⁴In the early 1980s, the 11th DP included 11,000 men organized into six infantry regiments, one light armored regiment with 36 wheeled armored vehicles, an artillery regiment with 54 heavy-artillery pieces and mortars, an engineering regiment and two command support regiments. The infantry were armed with 168 *Milan* ATGMs. The 9th DIMa, specializing in overseas amphibious and air transportable operations, organized and equipped its 8000 men in a like manner. The 9000 man 27th DA (Alpine Division) is also organized and equipped in a fashion similar to the 11th DP and specializes in operations in very rough terrain.

⁵See Fricaud-Chagnaud, 1984.

⁶Ironically, despite the conflict in Chad and Qaddafi's attempt to undermine French interests in Tunisia, French arms sales to Libya continued uninterrupted. As late as two weeks after the fall of N'Djamena, France delivered a substantial shipment of Matra missiles to the Libyan dictator. See Yost, 1983.

⁷Wilson, 1980; and Markham, 1980.

⁸Although the Gaullists were severely criticizing Giscard for his failure to take decisive military action.

⁹Koven, 1980; and Markham, 1980.

OPERATION MANTA, 1983-1984: TOO PASSIVE, TOO COSTLY, AND TOO CUMBERSOME

Mitterrand and the Primacy of Negotiation

Throughout most of the late 1970s, the French Socialist Party (PSF) had criticized Giscard's "neo-colonial" military interventionist policies in Africa. The Socialists advocated renegotiating all the security agreements with francophone African states, and reorienting French policy in favor of "progressive" states, such as Algeria.¹⁰ Furthermore, the Socialists firmly rejected Giscard's use of French military force, strongly criticizing the image of France as the *Gendarme* of Africa supporting "corrupt," "barbarous," "backward" regimes. According to the party's platform for the elections of 1981, "French imperialism in Africa, which doesn't hesitate to have recourse to military means . . . has had its day. . . . We do not wish to see our country bogged down in an uninterrupted series of neo-colonial wars."¹¹ François Mitterrand, the leader of PSF, denounced Giscard for turning France into "the Cuba of the West."¹²

It came as no surprise, then, that following his victory in the May 1981 elections, Socialist President François Mitterrand set out to negotiate a settlement of the continuing civil war in Chad. Mitterrand pursued discussions with Goukouni and encouraged OAU peacekeeping plans. Because of these efforts and other factors, Qaddafi withdrew his forces from Chad in November 1981; a seven-country OAU peacekeeping force was intended to guarantee the settlement.¹³

However, the peacekeeping force failed to materialize. Instead, in a mirror-image of the situation following the earlier French withdrawal in May 1980, Habre's forces went over to the offensive following the departure of Qaddafi's forces, quickly capturing most of the north and putting Goukouni's GUNT forces on the run.¹⁴ After six months of fighting, in June 1982, Habre's FANT marched victorious into N'Djamena. Still seeking a negotiated settlement, France ultimately came around to the U.S. position, as did the OAU, and recognized Habre as representing the legitimate government of Chad.

Goukouni fled to Algeria to regroup for the next round. He was soon scheming once again with Qaddafi, in the hopes of ultimately repeating his triumphant 1980 conquest of N'Djamena and the south, made possible through the generous assistance of Libyan armor and air power. By the end of the year, Goukouni's own forces, known as the ALN (*Armée de Liberation Nationale*—National Liberation Army) were well established in the north, and had established a rival government in exile just south of the Aouzou Strip with Libyan sponsorship. Thereafter, benefiting from substantial Libyan logistical assistance, Goukouni's forces began making genuine headway against Habre's men. This time, however, Qaddafi refrained from a massive overt intervention on the scale of 1980. Nonetheless, as a precautionary step, France moved additional forces into Africa in June, including six *Jaguars*, one KC-135F, five *Transalls*, and a DC-8, under cover of two joint-combined exercises held in Togo and Gabon.¹⁵

FANT seemed to be holding its own until June 1983, when Goukouni's ALN launched a major offensive against Faya-Largeau, a key oasis outpost just under 500 miles north of

¹⁰Koven, 1978.

¹¹*Projet socialiste: Pour la France des années 80*, Club Socialiste du Livre, Paris, 1980, quoted in Yost, 1983.

¹²Quoted in Lellouche, 1979.

¹³Nigeria, Benin, Togo, Zaire, Guinea, Senegal, and Gabon.

¹⁴It is commonly alleged that Habre's forces received substantial arms and logistical support from the United States and Egypt, through Sudan. This caused some unpleasantness with the French, who were still backing Goukouni. See, for example, Lemarchand, 1984; and Yost, 1983.

¹⁵See "Les Manoeuvres Bilaterales: *Katcha et Mayumba 83*," *Freres d'Armes*, September/October 1983.

N'Djamena.¹⁶ On June 24, Faya-Largeau fell to Goukouni's mechanized forces, thus giving control of northern Chad to the ALN/GUNT coalition. Although Libyan forces did not take part directly in the fighting, they provided logistical, artillery, and communications support. Two days later, a government request for ground or at least air support was passed to the French, who did not respond. Meanwhile, on July 1 an ALN/GUNT force of three battalions of 1500-2000 men launched a new offensive south with the ultimate objective of taking N'Djamena. With FANT starting to disintegrate, Habre took over personal command of his forces in the second week of July; in a remarkable reversal of fortunes, FANT rallied and began beating back the ALN/GUNT thrust. The French attempted to restrain Habre for fear that his new found success might provoke overt and massive Libyan combat intervention, as in 1980. Yet Habre could not be stopped; on July 30 his forces retook Faya-Largeau and Fada to the southeast.

French concern proved well-founded. Within three hours of the FANT victory, LAF fighter-bombers entered the fighting in a major way, attacking Habre's forces at Faya-Largeau repeatedly. The LAF launched 15 raids between July 30 and August 2 employing MiG-23 *Floggers*, Su-22 *Fitters*, and *Mirage* 5Ds.¹⁷ FANT possessed no modern effective air defense weapons to counter these attacks. As mentioned in Sec. III, the Chadian air force fielded only four ex-FAF A-1D *Skyraiders* flown by French civilian contract pilots, one of which was lost in 1978. Three Aermacchi MB-326K light attack aircraft and three *Mirage* 5s provided by Zaïre and based at N'Djamena were technically available to Habre, but for various reasons could not be used. Thus, on July 31, Habre urgently requested direct military assistance against the Libyan air attacks. Paris frantically sought a diplomatic solution, but none was forthcoming.

The French Return As Peacekeepers

Mitterrand faced an excruciating dilemma. The same military and economic conditions that persuaded Giscard not to intervene in November 1980 applied even more forcefully now. Yet unlike Giscard, Mitterrand was also ideologically opposed to French military intervention in Africa. Furthermore, other major French commitments elsewhere (as in 1978) also caused Mitterrand to hesitate. In September 1982, France had begun deploying forces to Lebanon as part of the Beirut Multinational Force (MNF), in response to the situation that developed in Beirut in the aftermath of the Israeli Operation *Peace for Galilee* launched three months earlier. By the summer of 1983, nearly 2000 French troops had been deployed to Beirut and could not be easily withdrawn without unacceptable political repercussions.¹⁸

¹⁶A remarkably complete, detailed account of the events before and during Operation *Manta* is publicly available in a book written under the pen name of "Colonel Spartacus" entitled *Les Documents Secrets: Operation Manta, Tchad 1983-1984*, Plon, Paris, 1985. Much of the information recounted in this section is drawn from this work. It is rumored that Col. Spartacus is a senior army General Staff officer who has been imprisoned for revealing classified (and politically embarrassing) information. It is of course impossible to verify these rumors. Whatever the truth, the richness of tactical detail in the book seems authentic; the book cannot be ignored as a major unclassified source of tactical detail about French overseas operations. Also see Belian, 1984, and Chapal, 1985, which provide additional detailed sources. Because of the widespread controversy caused by the publication of Col. Spartacus's exposé, the French Army countered with its own detailed account of Operation *Manta*. Useful discussions of the operation based primarily on the official version that have also been used extensively in this account include Bechu, 1985; Castillon, 1986; Gibour, 1985; and "Liban, Tchad, Mer Rouge, 1983-1984," *Armées d'Aujourd'hui*, 1985.

¹⁷Libya boasts one of the world's largest air forces, totaling over 500 combat aircraft, although some of the aircraft remain in storage. In 1983, the LAF fielded about 55 MiG 21 *Fishbeds*, 175 MiG 23s, 55 MiG 25 *Foxbats*, some 100 Su-20/22s, 60 *Mirage* 5Ds, 46 *Mirage* F1s, and 9 Tu-22 *Blinders* medium bombers, according to the International Institute for Strategic Studies, 1983.

¹⁸See *Armées d'Aujourd'hui*, May 1985; Crosnier, 1982; and Dufour, 1985.

Yet Mitterrand could not ignore the enormous pressure to intervene applied by both the francophone Black African states and the United States. If France was to maintain its traditional prestige and position in Black Africa, it had to act. Mitterrand finally accepted this conclusion, but convinced himself that France could intervene militarily in a manner that would encourage the cessation of hostilities and promote negotiation. French forces would be used to separate the two warring sides; they would behave in a manner not unlike a peacekeeping force, just like the French forces in Lebanon. As in Lebanon, direct military action was to be strictly avoided.¹⁹

From the perspective of certain elements in the French military, this was the worst possible use of their forces. They would have preferred either to go in fast, strike hard, and get out, or stay out completely. Instead, they were to be committed to a dangerous combat situation with "one hand tied behind their back."

This difference in attitudes is dramatically illustrated by the debate between the military and civilian echelons over the necessary initial military actions that should be taken in Chad. From the military perspective, by far the most important factor inhibiting French commitment was the change in the threat environment in Chad since the late 1970s. The introduction of a substantial LAF fixed-wing air threat fundamentally undermined the assumptions on which the FAF second echelon forces had been built and severely blunted their capabilities. Had the conditions of the late 1970s still held, the military leadership would have advocated sending 15-20 *Transalls* into N'Djamena with 1000-1500 Legionnaires and Marine Infantry to deploy out to Faya-Largeau and Fada to bolster the defense. Indeed, in May 1978, French ground forces had been flown in, and, with critical support provided by FAF *Jaguars*, had turned the tide at Ati.

Five years later, any attempt to insert ground forces without neutralizing Libyan counter-air assets appeared far too risky to the military, as it had to Giscard in November 1981. *Transalls* deploying forces out to forward positions would be extremely vulnerable to the large numbers of LAF fighter interceptors and Libyan mobile SAMS and ZSU-23s. Even if the French light infantry forces could be successfully inserted and resupplied, they were not adequately equipped with the weapons necessary to counter mechanized and armored forces.

Deployment of fighter cells directly to Chad before the insertion of ground forces was not seen as a viable option. Without ground forces, the defenses of N'Djamena could not be assured. N'Djamena airport had fallen into a state of disrepair and could no longer support offensive fighter operations without preparation. Little aviation fuel was available. Furthermore, the airport possessed no air defenses or shelters whatsoever to counter possible attacks by forward based LAF fighter-bombers or long-range Tu-22 medium bombers. Even if *Jaguars* could fly out of N'Djamena to provide close air support to Habre's forces, they would have to cope with the possibility of interception by LAF fighters, in addition to the problems posed by the sophisticated Libyan ground-based air defenses.

French military planners argued that the first order of business had to be the neutralization of LAF offensive air capabilities; the Air Staff rapidly worked up a plan to achieve this end. Operation *Orque*, as the plan was called, envisioned a counterair strike on Aouzou air base, from which the LAF was launching most of its offensive sorties against Faya-Largeau. The operation, if implemented, would be extremely difficult and risky. As discussed above, the attacking *Jaguars* could not be safely based and launched out of N'Djamena. The nearest adequate rear-area base was Bangui-M'Poko, in the CAR, located about 1200 miles south of

¹⁹See, for example, Echikson, 1983.

Aouzou, or nearly 2500 miles round trip. The FAF Air Staff calculated that a minimum of four *Jaguars* would have to be loaded up near their maximum takeoff weight of 14.5 tons with six 400 kg or six 250 kg bombs plus an ECM pod, and a 1200 liter center-line drop tank. The attack would require at least two KC-135Fs, one based at Bangui and the other at Libreville in Gabon. The 5-1/2 hour round trip would require three aerial refuelings. The Air Staff was especially concerned about the vulnerability of the KC-135F required to orbit for 15 minutes at high altitude about 240 miles south of the objective in order to refuel the *Jaguars* for their return flight home after the attack.

Given the difficulty of the mission and the risk involved of French casualties and direct military confrontation with the Libyans, Mitterrand chose to reject Operation *Orque*.²⁰ As an alternative, the French Defense Minister, Charles Hernu, pressed for direct ground support for Habre's forces by *Jaguars* flying out of the CAR, and protected from LAF interceptors by USAF F-15s and E-3A AWACS launched out of Sudan. Mitterrand also rejected this proposal as too risky and politically unacceptable for domestic and international reasons. In essence, Mitterrand rejected any option that entailed a high likelihood of combat.

Unfortunately, the situation for Habre's forces on the ground continued to deteriorate in early August, as all indications suggested imminent Libyan ground combat involvement. Behind the shield of repeated air strikes, the Libyans prepared to send two battalion-sized mechanized and armored forces down two axes into Chad, equipped with T54/55 tanks, paratroopers, heliborne assault forces, and artillery units. Goukouni's forces now included about 2000 of his own men, about 2000 Libyan regulars, and another one to two thousand Islamic Legionnaires, supported by some 80 LAF aircraft. Habre's three or four thousand active combatants could not match this force; by August 10 FANT had pulled out of Faya-Largeau in the face of withering enemy firepower.

Following the fall of Faya-Largeau, the Goukouni-Libyan forces briefly stood down to regroup and wait for the arrival of their second echelon forces, which included two columns of Libyan armored and mechanized forces of several score T-54/55 MBTs, ZSU-23/4 mobile radar-directed antiaircraft guns, and other heavy weapons.²¹ This delay permitted the French government some breathing time to decide on a course of action. Given Mitterrand's insistence on the absolute primacy of diplomatic over military approaches and his unwillingness to take military risks, the only acceptable military action had to be purely defensive and nonprovocative. The lull in the fighting permitted Paris to develop a concept of a French intervention akin to a peacekeeping force. French ground forces could be inserted overland north of N'Djamena to form a purely deterrent defensive line south of Faya-Largeau to separate the two warring parties.

Mitterrand approved this course of action but with the proviso that French forces were to avoid all combat unless directly threatened, in the hopes that all contact with Libyan forces could be avoided. The intention was not to directly oppose Goukouni-Libyan forces (as had been the case in 1978), much less to win back any territory lost in the north, but rather to act as a peacekeeping force between the two warring sides in the hope of deterring further movement to the south. Consequently, the political leadership imposed restrictive Rules of Engagement on the French forces that prohibited firing on enemy forces unless fired on first, without permission from Paris. Many in the French military privately objected to these restrictions,

²⁰See Chapal, 1985; and Spartacus, 1985. According to Col. Spartacus, these details are from intelligence reports generated by CERM (*Centre d'Exploitation du Renseignement Militaire*, or Military Intelligence Analysis Center), the office of the Joint Staff responsible for analysis and synthesis of intelligence for French national security decision-makers.

²¹As reported in Echikson, 1983; and Spartacus, 1985.

believing they would lead to unnecessary casualties and undermine the provision of effective military assistance.

Paris clearly was still extremely hesitant to make any move whatsoever without some way of guaranteeing that the LAF would not interfere with French actions, particularly during the period of peak vulnerability during actual deployment. Without such a guarantee, it is unlikely that Mitterrand would have permitted even a defensive "peacekeeping" deployment to Chad. But that guarantee was finally provided by the United States Air Force. In early August, two USAF E-3A AWACS, several aerial tankers, and eight F-15 fighters deployed into Khartoum in Sudan.²² In addition, the U.S. Navy carriers *Coral Sea* and *Eisenhower* were put on alert off the shores of Libya in the Mediterranean Sea. These U.S. Air Force and Navy deployments provided the assets necessary to deter LAF intervention, thus assuring the French that the LAF would probably not interfere directly with French deployments of land forces into N'Djamena. In addition, the United States provided *Redeye* and possibly some *Stinger* short-range air defense missiles to both the French and Chadian government forces as additional protection against LAF attacks.

On August 11, with USAF AWACS and F-15s still operating in the region and serving as a deterrent to possible LAF offensive operations, the first phase of what became known as Operation *Manta* commenced, as the small contingent of Airborne Naval Infantry (RPIMa) from Bouar in the CAR crossed the Chari river and entered Chad near N'Djamena. By the end of the month, the FAF, using *Transalls*, DC-8s, and commercial wide-bodies flying into Bangui-M'Poko, had been able—with great difficulty, but unmolested by LAF attack—to stage in a small contingent to the capital totaling some 1750 men.²³ Substantial portions of these forces were quickly airlifted out of N'Djamena by *Transalls* to help establish a defensive line north of the capital in the hopes of deterring further enemy advances. The French army elected to garrison defensive positions along the three main axes of approach to the capital: Faya-Largeau/Salal/Moussoro/N'Djamena (600 miles) at Moussoro, Fada/Oum-Chalouba/Abeche (480 miles) at Abeche and Biltine, and Abeche/Ati/N'Djamena (600 miles) near Ati.

FAF airlift capabilities proved to be of critical importance for the implementation of Operation *Manta*; deploying men and material into N'Djamena directly from France took about 24 hours by air, but about 30–50 days by sea and land. Nonetheless, because of the lack of a long-range strategic airlifter, CoTAM's capabilities remained far from satisfactory. The distances from FAF air bases to the Chadian capital, 2700 to 3000 miles, posed enormous difficulties. Some of the new air-refuelable *Transall* C-160NGs were already in the inventory. Nonetheless, it still took two C-160NGs to deploy one AMX-10RC light wheeled tank: one to carry the vehicle and one to carry the extra fuel for the first *Transall*.²⁴

CoTAM's problem proved particularly difficult because Algeria denied overflight rights, requiring an approach from east or west. A *Transall* carrying ten tons coming from the western route had to refuel at Casablanca, Dakar, and Abidjan before arriving at N'Djamena. If Nigeria denied overflight, as it sometimes did, another stop at Douala, Cameroon, or Libreville was required. From the eastern approach, the necessary refueling stops were Tunis, Cairo, and Khartoum.

²²Nine USAF MAC C-5 and 35 C-141 sorties were required to support this deployment. See Chapal, 1985; Gibour, 1985; and Matthews and Ofcansky, 1986.

²³The main army combat elements included units from the 1st, 3rd, and 8th Marine Infantry Parachute Regiments, the 11th Marine Artillery Regiment, the 1st Foreign Legion Cavalry Regiment, and the 1st Squadron of the Marine Infantry Cavalry Regiment. See "Chad: French Role Described," *Defense and Foreign Affairs Daily*, Vol. XII, No. 154, 17 August 1983.

²⁴AMX-10RCs were ultimately deployed to Chad by sealift.

Because of these persistent CoTAM inadequacies, Operation *Manta*, like earlier operations, relied heavily on FAF DC-8s and commercial wide-bodies. A DC-8 could carry 30 tons with only one refueling stop at Dakar or Khartoum, but the FAF owned only five of these aircraft. The French Ministry of Defense (MoD) leased about 30 Boeing B747s and DC-10s as heavy lifters in accordance with its CRAF agreements, primarily from UTA. Unfortunately, the airport at N'Djamena could not accommodate wide-bodies. These large aircraft had to fly into Bangui, 600 miles south of N'Djamena. Each wide-body load of cargo required eight to ten *Transall* flights to trans-ship it to the Chadian capital. After the first full week of Operation *Manta*, with the FAF mustering every effort, only 900 men, equipped with light weapons, a few AML 90 Panhard armored cars, and some 120mm mortars, had been inserted into the country.

Once the initial ground forces were in place, the primary objective of the French joint staff was to reduce dependence on the USAF air defenses by providing some in-country air capability to counter the LAF, provide air support to the ground forces, and obtain reconnaissance information. On August 18, the FAF flew in a *Crotale* SAM battery (one acquisition unit and two firing units) from France via Bangui to provide N'Djamena airport with its first medium-range air defenses. The next day, COMAIR Manta, Colonel Lepatezour, arrived in N'Djamena, and took command of a four-aircraft *Jaguar* cell based in Libreville, another based at Bangui, and three KC-135Fs and two *Atlantics* also at the latter CAR airfield.

These aircraft had refrained from deploying into N'Djamena for several reasons, as discussed above. The FAF was particularly concerned about the possibility of pre-emptive Libyan air attacks against N'Djamena. After the provision of air defense provided indirectly by the USAF, the main problems were aviation fuel—of which there was none in N'Djamena—plus ramp space, dust, and heat. The latter problems increased vulnerability to air attack, complicated security, and disrupted maintenance.

By far the most urgent problem at N'Djamena was the extreme shortage of aviation fuel. Upon arriving at the capital's airport and inventorying the existing supplies, the French discovered that the total stores equaled only about one-half of a KC-135F tanker load. The French Ministry of Defense arranged to have some fuel flown in by contracting commercial airlines (Camair and Air Gabon Cargo in Africa, and Le Point Air and Minerve out of France). Mobil and Total agreed to lease 350–400 tanker trucks to establish a Petroleum, Oil, and Lubricants (POL) supply line from the west coast of Africa to N'Djamena, although it would take some time to set up the operation. These trucks had to follow a tortuous overland route nearly 1000 miles long through Cameroon or Nigeria that took four to six weeks. Through these difficult means, it took nearly three months to raise N'Djamena's POL stocks to acceptable levels.

Finally, two weeks after the beginning of Operation *Manta*, POL stocks rose sufficiently high enough to permit deployment of combat aircraft to N'Djamena. On the 21st, one four-aircraft cell of *Jaguars*, and one of *Mirage* F1.C-200s accompanied by one KC-135F arrived in the capital. This mix of attack aircraft to interceptors is itself a strong indication of the concern of the FAF with the LAF fighter threat.

Other support units were rapidly deployed in, beginning the next day with a unit of FAF commandos to provide air base security. On the 24th, technicians arrived with and installed a SNERI light surveillance radar capable of detecting air targets at medium and high altitude, but possessing poor low-level detection capability. Two Aeronavale *Atlantics* flew in from Bangui on the 26th and 27th to provide detection capability of ground targets and also to act as airborne radio relay and monitoring stations. Early in September, the 8th RPI brought in

its Forward Air Controllers to coordinate Close Air Support, if necessary, for forward deployed French army units. About a dozen French Army Light Aviation combat helicopters had also arrived by the end of August.

Since the overland POL supply line had not yet been fully established, all aviation fuel still had to be flown in by contracted commercial airliners; consequently, POL stocks remained critically low. If the LAF had undertaken offensive operations in the south in late August, and the *Mirage* F1.C-200s had scrambled to meet them, aviation fuel stocks would have been rapidly depleted.

The FAF Polices a Costly Stalemate

Fortunately, the Libyan-Goukouni forces waited until early September to renew the offensive. At the beginning of the French intervention, the Libyans appeared almost as reticent as the French about direct confrontation and provoking air attacks and may have actually attempted to restrain their client Goukouni after the fall of Faya-Largeau. By the end of August, however, it had become obvious to Goukouni that the French had no intention of employing their air power in offensive operations and that French land forces were deployed in purely defensive positions and scrupulously avoiding combat. Thus the likelihood of a repeat of the battle around Ati and Djadda in 1978, where *Jaguars* destroyed the attacking land force, appeared low.

Whatever the case, ALN-GUNT forces backed by the Libyan army sortied out of Fada at the beginning of September, attacking Habre's forces outside Oum-Chalouba. This operation may have been a test of French intentions and resolve, because it directly threatened a small French garrison located nearby to the south at Arada. Two major engagements took place on 2 and 6 September. During the fighting, Goukouni's forces moved forward to within 12 miles of the French positions, causing the French joint commander (COMELEF—*Commandement des Elements Français*), Army Gen. Poli, to scramble two *Jaguars* and a KC-135F from N'Djamena on the morning of 6 September. Gen. Poli sent a message to the *Centre Operationnel Des Armees*—Joint Operations Center located underground in Paris—for permission to engage enemy forces. Over an hour later, N'Djamena finally received a reply granting permission to open fire, but only against a clearly identified enemy directly threatening French positions. By this time, the *Jaguars* had turned back toward home base. Fortunately, the FANT forces successfully beat back Goukouni's attack on their own; the beaten ALN-GUNT units withdrew to Fada. Nonetheless, French forces also pulled back from Arada to Biltine to reduce the possibility of contact in the future.

Five days later, ALN-GUNT forces attempted one last foray. On September 11, French reconnaissance flights detected a column heading for government positions at Koro-Toro on the Faya-Largeau/Moussoro axis. With *Mirage* F1.C-200s flying cap, *Jaguars* repeatedly overflew the column at very low level. Apparently no LAF fighters attempted to intercept the FAF aircraft. Although the *Jaguars* never opened fire, their tactics were sufficiently intimidating to cause the ALN-GUNT column to call off the operation and return to Faya-Largeau.

Following these actions, a *de facto* cease-fire set in from September 12 through the end of the year, as both sides sought their objectives through diplomatic channels. Meanwhile, both sides built up their defensive positions and brought in reinforcements. By the end of the year, about 3000 French military personnel had deployed to Chad. The 15th parallel served as a *de facto* northern limit for French ground and air activity, although Habre installed forces north of the line at Oum-Chalouba and Kouba-Oulanga. The French garrisoned forces along or near

this "Red Line" at numerous locations, including Moussoro, Ati, Salal, Abeche, and Biltine, mostly using Foreign Legion airborne troops. French diplomats made it clear that Operation *Manta* was purely defensive, but that ALN-GUNT or Libyan air or ground forces penetrating below the Red Line would be intercepted. This position virtually ceded the northern half of the country to the enemy.

French forces policed the Red Line with air and land forces. Two or three ship formations of ALAT *Gazelle* attack helicopters²⁵ complemented army/Legionnaire land patrols mounted on VLRA²⁶ armored cars, armed with ATGMs, 81 and 120mm mortars, and 20mm cannons and *Stingers* for air defense. About 12 *Puma* assault helicopters were also available for air mobility. The Army based heavier armored equipment at N'Djamena, including a squadron of about 10 AMX-10RC light wheeled tanks.

The French joint command assigned air defense of the capital and all territory south of the Red Line to the FAF as its primary mission. Col. Lepatezour took the threat posed by LAF long-range bombers and forward based fighter-bombers very seriously. All FAF combat aircraft were based at N'Djamena airport; however, tarmac parking space was at a premium, complicating security by forcing the FAF to use the civilian side of the airport, where the aircraft sat out in the open unprotected. The FAF deployed four SRE and SNERI surveillance radars just south of the Red Line for early warning. Yet these provided N'Djamena with only 15 minutes warning. Further, the two *Crotale* launch vehicles at N'Djamena airport were insufficient for full coverage; at least three more were required.

Normally the FAF based four *Jaguars* and four *Mirage* F1.C-200s at N'Djamena to provide air defense and to patrol the Red Line, supported by a KC-135F. Whenever tensions rose, another four-aircraft *Jaguar* cell would deploy in from Bangui or Libreville. A key mission of the *Mirage* F1.Cs was to escort the vulnerable *Atlantic* patrol aircraft on Electronic Intelligence missions along the Red Line, less than 240 miles south of LAF fighters based at Aouzou, and 120 miles south of the air base at Faya-Largeau.

Through August and September the opposing forces settled into an uneventful stalemate; at first the Goukouni-Libyan forces made no attempt to penetrate across the Red Line, either in the air or on the ground.²⁷ Both sides built up their defensive positions and reinforced their garrisons. Then, in early October, the LAF began overflying FANT positions north of the Red Line in preparation for a ground thrust south of the 15th parallel. On October 21 and 23, LAF recce aircraft overflew French positions on the Red Line. On the latter date, *Mirage* F1.Cs scrambled to intercept an Ilyushin IL-76, which turned around and headed back north.

On the diplomatic front, negotiations broke down in December, causing a further rise in tensions. In mid-January 1984 an ALN/GUNT column began moving south, hugging the border with Niger, and crossed the Red Line undetected. On January 24, it attacked the FANT outpost at Ziguey, well south of the 15th parallel, taking the garrison completely by surprise and capturing a Belgian volunteer doctor and nurse.

The incursion was not discovered until the next day, when Gen. Poli's headquarters was unable to raise Ziguey on the radio. Poli dispatched three *Gazelles* and a *Puma*, which visually confirmed the attack. Numerous *Jaguar* and *Mirage* armed recce missions were then undertaken in the morning. One of these missions detected an enemy column protected by ZSU-23s about 120 miles north of Ziguey near Torodoum. Enemy soldiers fired on a second recce

²⁵ Armed either with HOT Anti-Tank Guided Missiles (ATGMs) or 30mm cannons.

²⁶ *Vehicules Legers de Reconnaissance et d'Appui* - Light Reconnaissance and Support Vehicles.

²⁷ For their part, the French also respected the Red Line and did not cross it. However, some FANT troops remained garrisoned north of the line.

mission with SAM-7s, the *Jaguars* returning cannon fire. An *Atlantic* then kept the column under surveillance from a distance. Finally, late in the afternoon (at 1700), the FAF finally received permission to launch a direct attack on the column.

Two *Jaguars* escorted by two *Mirage* F1.Cs attacked the column at low level, supported by several *Gazelle* HOT attack helicopters. After several strafing passes, one *Mirage* F1.C was badly damaged by a ZSU-23 and barely made it back to N'Djamena. One of the *Jaguars* was even less fortunate; hit by ZSU-23 fire, it lost its hydraulics and crashed almost immediately. Its pilot unsuccessfully attempted to eject and was killed.²⁸

Critics allege that extremely restrictive rules of engagement imposed for political reasons led to these casualties. The FAF pilots had to positively identify the ambulance in which it was thought the Belgian prisoners were being held before firing. Thus the FAF pilots had to overfly the column numerous times at low altitude, exposing their aircraft to hostile ground fire. Further, no bombs or rockets, only cannons could be used, thus requiring close-in activity.²⁹

Whatever the cause, the Torodoum action stood out in stark contrast to the spectacular successes in 1978 in Chad and Mauritania. Yet Paris had no choice but to react firmly to the incident to deter further probing south. Between the 26th and the 30th of January another *Jaguar* cell, three *Mirage* F1.Cs, several attack helicopters, and additional land forces were deployed to N'Djamena, bringing the total French force in Chad to 3500 combatants. Paris moved the Red Line north to the 16th parallel for the purposes of aerial reconnaissance and long-range army patrols conducted by FANT. The area between the old and new Red Lines was designated a sort of free-fire zone, in that French aircraft could fire on any enemy forces identified intruding into the zone without permission.

However, the Libyans also did not remain idle. Qaddafi brought in more regular army and Islamic Legion forces; by May a total of some 5000 were in the country, concentrated mostly at Faya-Largeau and Fada. Furthermore, the Libyans began expanding and lengthening the runways at Faya-Largeau to accommodate heavy lifters and to support more extensive forward fighter-bomber operations. Construction workers began building entirely new rear-area staging airfields, such as Maaten-es-Sarra, in the extreme southern part of Libya. Even worse, the French discovered from friendly nomads that Libyans had begun construction inside Chad of an entirely new modern air base in the middle of the desert just northwest of Faya-Largeau at a location called Ouadi Doum. In response, the French widened the runway at N'Djamena to accommodate wide-body transports in order to facilitate rapid reinforcement from France, if necessary.

By early 1984, *Manta* had become the largest French overseas military operation since the Algerian War and was becoming more and more of a political liability to Mitterrand. Unlike the quick and spectacular interventions of the late 1970s under Giscard, *Manta*, despite numerous escalations, remained an increasingly expensive and unpopular stalemate. By May 1984, a total of ten thousand French soldiers had cycled through the country. Further, the operation was costing seven million francs a month. Each month, 45,000 tons of material had to be shipped into the country; POL accounted for a full 80 percent of this material, and potable water made up another 10 percent.³⁰

²⁸The pilot was Capt. Michel Croci, commander of the *Jaguar* contingent in Chad, and a very popular and prolific writer in aviation journalism circles in France. See "Notre Ami Michel Croci," *Air Fan*, March 1984.

²⁹See Belian, 1984; and Spartacus, 1985.

³⁰For the FAF, a typical fuel day comprising sorties of seven or eight *Jaguars* and *Mirage* F1.Cs, a KC-135F, and two *Atlantics*, accounted for 200,000 liters of aviation fuel. See Belian, 1984.

Even worse, beginning with the loss of the *Jaguar* and its pilot at Torodoum, the human and material losses began to mount. In March, a bomb planted by the ALN-GUNT destroyed a UTA cargo plane. Early the next month, nine French soldiers on patrol died in a single incident caused by the explosion of an old artillery shell or a Libyan booby trap near Oum-Chalouba-Kalait. Finally, on April 16, the FAF lost another *Jaguar* and its pilot on patrol along the Red Line. Apparently the pilot became disoriented in a sand storm at low level and flew his aircraft into the ground.

Special supplementary defense budget allocations had to be authorized in response to the mounting fiscal drain of Chad, at the expense of other programs desired by the armed forces. Most of the elite units of the overseas Rapid Deployment Forces had become permanently tied down in Chad or Lebanon, making them unavailable for other operations.

With the 1986 parliamentary elections rapidly approaching, Mitterrand did not want to be accused by his political adversaries of having bogged down France in a hopeless open-ended commitment in Africa. Further escalation seemed unacceptable, given Mitterrand's ideological predilections, French military capabilities, the constantly growing Libyan air threat, and the political ramifications of increased French casualties.

Not surprisingly, Mitterrand eagerly sought to repeat his success of November 1981 when a negotiated settlement led to a withdrawal of Libyan troops—albeit only a temporary withdrawal. In April 1984, Col. Qaddafi conveniently obliged Mitterrand's wishes, offering to negotiate a mutual phased withdrawal of all foreign forces. Paris gratefully accepted the offer. Habre, however, bitterly opposed negotiations, suspecting that at best the Libyans would withdraw temporarily to Aouzou, wait for French forces to depart, and then return to the offensive. The French political leadership countered that because he faced mounting domestic problems, in part because of the burdensome costs of the open-ended stalemate in Chad, Qaddafi himself desired a graceful way out of the Chad quagmire as much as Mitterrand.

By September, an agreement had been reached calling for both sides to withdraw their armed forces within 45 days, beginning on the 25th of the month. France began the withdrawal on time, but slowed it in early October because of indications that the Libyans were renegeing on the agreement. Despite a continuous flow of ambiguous and often disturbing intelligence reports regarding Libyan intentions, the French continued their pullout. On November 1, the last *Mirage* F1.C cell left N'Djamena for Libreville; two days later the last *Jaguar* cell left for Bangui. The last French soldier left on November 7, officially concluding Operation *Manta*.³¹

Several days later, the Chadian government, claiming to have gained access to photographs from U.S. reconnaissance satellites, publicly accused Libya of renegeing on the agreement. In November, on the eve of a meeting between Mitterrand and Qaddafi on Crete, Libyan violations of the Chad agreement were widely reported in the Western press, causing the French President great embarrassment. The evidence indicated that, instead of withdrawing, the Libyans had continued to reinforce their positions. Somewhere between 4000 and 7000 Libyan troops still remained in Chad (including the Aouzou Strip), primarily at Fada, Faya-Largeau, and Aouzou; at the latter base, the LAF had deployed at least five *Mirage* F1s, and nine Su-22s. Much of the Libyan effort to reinforce its position in Chad was concentrated on the new air base under construction at Ouadi-Doum. The main runway there was expanded further to over 8000 feet in length; Ouadi-Doum was clearly being transformed into the major reception and staging base for forward Libyan operations in Chad.³²

³¹See "Full Chad Pullout Reported Near," *New York Times*, 9 November 1984; and Dobbs, 1984.

³²See, for example, Chipaux, 1984.

Nonetheless, an uneasy truce took hold, based on a de facto partition of Chad at the 16th parallel between Goukouni's forces backed by Tripoli in the north and Habre's forces in the south. Bitter over what he considered to be the almost complete passivity and exclusively defensive orientation of French forces throughout Operation *Manta*, and the unseemly French willingness to overlook Libyan violations in order to hasten the departure from Chad, Habre nonetheless responded favorably to the constant urgings of Paris and agreed to negotiate with Goukouni. Although negotiations failed to produce anything approaching a political settlement, neither side in the civil war chose to violate the de facto truce by attacking into the other's territory. Both sides slowly but steadily built up their forces and infrastructures in preparation for the day when hostilities would once again be resumed. That day would come less than 18 months after the announcement of the Paris-Tripoli agreement of September 1984.

Manta's Lesson

The French military and political leadership relearned one central overriding lesson from Operation *Manta*: At all costs France had to avoid becoming involved in inconclusive open-ended major overseas military operations. Even if such operations entailed relatively few casualties to French forces, the economic and political costs remained prohibitive. As the largest overseas operation since the Algerian War, Operation *Manta* had tied down the bulk of French air and land projection forces for well over a year, making them unavailable for overseas operations elsewhere. FAF assets available for European contingencies were reduced considerably by the long-term diversion of substantial percentages of total FAF airlift, aerial refueling, and fighter-attack assets to Africa. The great cost of Operation *Manta* required special supplemental budgetary allocations that drained off resources urgently needed to maintain and improve readiness and training of the forces stationed in France and the FRG. Even worse, for all its expense, Operation *Manta* solved nothing in Chad, causing considerable political discomfort to the political and military leadership in Paris.

Both the political and military leadership in Paris agreed that Operation *Manta* had been "too passive, too costly, and too cumbersome."³³ Paris was now determined to redouble its efforts to find a diplomatic solution to the Chadian civil war. But if military intervention was ever again required, it would have to be quick, sharp and decisive. This meant that ground forces had to be kept to a minimum and that air power had to once again play the key role, as it had in Mauritania and Chad in 1978. But to rely once again on air power meant heeding the air staff's warnings about the threat posed by Libyan air power. Thus, in contrast to the summer of 1983, Mitterrand would become much more receptive to the prospect of beginning the next French operation, if needed, with an offensive counterair attack against Libyan forces.

³³Quoted in Seznec, 1986.

V. OPERATION ÉPERVIER: AIR POWER ASCENDANT IN CHAD

INTRODUCTION

In early February 1986, 15 months after the end of Operation *Manta* and the withdrawal of all French forces from Chad, Goukouni Oueddei shattered the uneasy truce with Hissene Habre by launching a major new offensive south of the Red Line with assistance from Libyan forces. Western observers were at a loss in explaining Qaddafi's motivations for heating up the Chad civil war, because Libya had become increasingly isolated in Africa and the Arab world after its failure to withdraw troops in 1984. Furthermore, Tripoli faced the distinct possibility of a direct confrontation with the U.S. Sixth Fleet at this time. In response to evidence of Libyan involvement in Palestinian terrorist attacks at the Vienna and Rome airports in December 1985, President Reagan imposed economic sanctions on Tripoli, and the U.S. Navy began conducting maneuvers off the Libyan coast. The most plausible explanation for the renewed GUNT offensive was that in the face of numerous diplomatic setbacks, Qaddafi had to take action to prevent a progressive deterioration in the Libyan backed coalition and reassert Tripoli's pretensions in equatorial Africa.¹

Whatever the motivation, the attacks apparently did not come as a complete surprise to Habre or the French. It appears that earlier in the year Habre privately requested French assistance because of indications of an impending attack.² Mitterrand increased French military aid to Habre's forces and undertook diplomatic activity in hopes of forestalling new hostilities.

Nonetheless Goukouni went ahead and opened his offensive on February 10 against FANT positions on the 15th parallel at Kouba Olonga 180 miles north of N'Djamena, and at Oum-Chalouba and Kalait to the east. The latter two locations fell to GUNT forces the next day. Soon thereafter Habre formally requested the dispatch of French troops to repel further attacks.

Finding himself confronted with a dilemma very similar to that of August 1983 immediately before the implementation of Operation *Manta*, President Mitterrand hesitated to act. The evidence was overwhelming that Qaddafi's Islamic Legion was taking part in the offensive and that regular Libyan forces were providing armor, artillery, logistical, communications, and intelligence support to Goukouni's forces. With parliamentary elections only a month away and expected to be very close and hard fought, Mitterrand could not afford to appear indecisive or timid. However, the President equally could ill afford taking the risk of bogging down French forces in another large-scale land operation similar to Operation *Manta*, which had proved to be the greatest foreign policy failure to date of his presidency.³

Mitterrand initially ordered only precautionary measures. The Ministry of Defense placed the 1500 army and Legionnaire troops in Bangui and Bouar, CAR, and the 500 troops in Libreville, Gabon, on a high state of alert. In France, elements of the 11th Parachute Division and the 9th Marine Infantry Division were also alerted. By February 14 the FAF had assembled together about 12 *Jaguars* from EC 7 and 11 and four *Mirage* F1.C-200s from EC 1/5 *Vendee* based in Dakar and Libreville and redeployed them to Bangui along with three

¹Several factions had left the GUNT coalition during 1985. See Miller, 1986.

²"Chad Seeks French Aid Against Libyan Attack," *New York Times*, 14 February 1986.

³See Meisler, 18 February 1986.

KC-135Fs. Two *Atlantics* stationed in Libreville began flying intelligence gathering missions over Chad. An aerial resupply effort was mounted by six CoTAM *Transalls* and several Boeing 707s to bring in additional armored wheeled vehicles and other weapons and ammunition to support Habre's forces.⁴

Meanwhile, events moved rapidly on the ground in Chad. Habre's forces regrouped at Oued Fama, and on the 13th launched a counteroffensive. The next day FANT forces succeeded in retaking Oum Chalouba. For the French, this sudden turn of events in favor of Habre was not entirely welcome; soon the situation began to resemble that of July 1983 when Habre's forces stopped Goukouni's attack and then went over to the offensive, thereby provoking massive Libyan intervention, particularly LAF air support. This in turn forced France to intervene on a large scale under the indirect (and possibly unwelcome) cover of USAF AWACS and F-15s in the context of Operation *Manta*.

This time, however, the Libyans possessed major forward airfields in Chad at Faya-Largeau and at Ouadi Doum that were situated much closer to N'Djamena and thus potentially posed a much more serious air threat to the French aerial resupply operations supporting Habre's forces and to any air and land forces attempting to deploy into N'Djamena from Bangui or elsewhere. As in 1983, the FAF insisted that any escalation of French military activity in Chad had to be preceded by a counterair operation against the LAF. Furthermore, to reduce risk and maximize effectiveness, the FAF argued that such an operation had to be undertaken before the forward deployment of substantial LAF assets and the commencement of offensive LAF operations.⁵

Having rejected Operation *Orque*, the FAF's plan for a counterair strike against Aouzou airfield in 1983, Mitterrand hesitated to act immediately on this plan. Instead, he dispatched Defense Minister Paul Quilès and Chief of Staff General Brette to N'Djamena and Bangui to assess the situation first-hand. On arriving in the Chadian capital, Quilès discovered that the military situation had temporarily quieted down; the fighting had slacked off after Habre's forces retook Oum Chalouba on the 14th. However, intelligence information indicated that the LAF had instituted its own resupply effort in response to the French airlift operation, aimed at building up Goukouni's forces in preparation for a renewed offensive. Following Quilès's return to Paris on the night of the 14th, Mitterrand concluded that decisive French military action was necessary to deter a renewal of the offensive by Goukouni's forces and stabilize the overall situation in Chad. This action, the precursor to Operation *Épervier* (Sparrow Hawk), was set to begin two days later on Sunday, February 16.⁶

THE ATTACK ON OUADI DOUM AND THE COMMENCEMENT OF OPERATION ÉPÉRVIER, 1986

Having accepted the necessity of some French military action to stabilize the situation in Chad, Mitterrand was nonetheless determined to avoid a second Operation *Manta*. This time the President was committed to avoiding an open-ended commitment of ground forces and possible involvement in a politically damaging and costly stalemate. Ground operations would be left largely to Habre's forces, with France providing training, modern equipment, intelligence,

⁴Bernstein, 1986; and Colin, 1987.

⁵See "Épervier au Tchad: Commentaires sur une Operation Réussie," *Air et Cosmos*, No. 1085, 1 March 1986; and "Épervier," *Air Actualités*, No. 390, May 1986.

⁶The most detailed discussions of the background and early phases of Operation *Épervier* can be found in Bombeau, 1986; Fulcrand, 1986; Sez nec, 1986; Zecchini, 1986; *Air et Cosmos*, 1 March 1986; *Air Actualités*, May 1986.

and logistics support, but no combat troops. Direct French military activities would be limited almost exclusively to logistics support and possibly occasional air operations that could administer quick, sharp blows, and be easily withdrawn if necessary.

To implement this strategy, Mitterrand realized that he had to approve virtually the same Air Staff OCA plan that he had rejected three years earlier as too risky. The President accepted the plan this time in part because the LAF forward operating bases were located some several hundred miles further south than in 1983, making them much closer to FAF attack assets based in Bangui. But more important, the overall French strategy would be much more risky to implement without an OCA attack. Such an attack had several specific strategic and tactical objectives:

- As a political warning to Qaddafi to deter further Libyan escalation, particularly in the air;
- At least temporarily to cripple the LAF resupply operation to Goukouni by knocking out the major airlift reception base in northern Chad, thereby delaying further GUNT offensives;
- To prevent forward deployment of LAF fighters into northern Chad that could threaten both the FAF airlift resupply effort to N'Djamena and also possible deployment forward of FAF fighters from Bangui and other French forces to N'Djamena airport.

The obvious target for such an OCA attack was Ouadi Doum, the modern new air base constructed in northern Chad by the Libyans. Located some 480 miles north of N'Djamena and only 150 miles north of the 16th parallel, by mid-February Ouadi Doum had become the main reception base for the Libyan resupply airlift. Begun in late 1984 as French forces of Operation *Manta* withdrew and completed only in October 1985, Ouadi Doum now boasted a main runway in excess of 12,000 feet (surfaced with aluminum grid) capable of accommodating heavy airlifters, TU-22 bombers, and all types of high performance fighter-attack aircraft in the LAF inventory. The main runway was supplemented by a hardened sand secondary runway.

French intelligence indicated that the LAF was preparing to deploy fighter aircraft forward to Ouadi Doum from bases in southern Libya. FAS *Mirage* IVA high-altitude reconnaissance flights observed that at least four LAF SIAI-Marechetti SF.260 light attack aircraft and several LAF Mil Mi-24 *Hind* assault helicopters were based at Ouadi Doum. The base itself was well-defended. Tripoli had equipped it with hardened fuel and ammunition storage depots. In mid-February air defenses included at least two SAM 6 *Gainful* launch vehicles and probably some SAM 9 launchers, and six 23mm cannon and several 14.7mm heavy machine gun positions at either end of the runway, supported by *Longtrack*, *Spoon Rest*, and *Straight Flush* early warning and acquisition radars. The Libyans had also deployed several T-55 tanks to the air base for defensive purposes.⁷

Although reasonably well defended, Ouadi Doum appeared to Paris to be politically and operationally a far safer target to hit than Aouzou air base had seemed to be three years earlier. As alluded to above, Ouadi Doum's location 300 miles closer to Bangui simplified the attackers' task and complicated the ability of LAF fighters based in southern Libya to detect and intercept the low-flying attackers and their aerial tankers. The main LAF bases in southern Libya were at Al Khofra, Sabha, and Maaten-Es-Sarra, the closest one of which was over

⁷Bombeau, 1986b; "Épervier," *Air et Cosmos*, 1986.

250 miles north of Ouadi Doum.⁸ Further, because of the location of Aouzou near the Libyan border and the imprecision of available maps, in 1983 Paris had been concerned about the possibility of violating Libyan air space or attacking targets in Libya by mistake. Such problems did not exist with Ouadi Doum, located as it was not much further north than Faya-Largeau. Finally, an attack on Ouadi Doum posed no risk of inadvertently hitting civilian targets or causing civilian casualties, since it was positioned in the midst of empty desert many miles from the nearest civilian settlement.

On 13 February the government placed FAF overseas deployment cells of fighter aircraft, transport aircraft, air defense assets, and communications based in France on alert. FAF assets already deployed in Africa began preparing for combat operations. On 14 February, these latter assets included three cells of 12 *Jaguars* from EC 7 and EC 11, one cell of four *Mirage* F1.C-200s, three KC-135Fs, two *Atlantics*, and six *Transalls* based at Dakar, Bangui, and Libreville. Because of the need to act quickly to forestall LAF forward deployment of high-performance fighter aircraft, the operation against Ouadi Doum had to be carried out with forces already in place without the benefit of reinforcements from France.⁹

Paris ordered the OCA attack against Ouadi Doum on Saturday February 15. At dawn the next day, about ten *Jaguars* armed with 8-12 BAP-100 runway cratering munitions each sortied out from Bangui supported by *Mirage* F1.C-200s, KC-135Fs, and *Atlantics*. Although less demanding than Operation *Orque*, this attack still meant an 1800 mile round trip requiring five hours and several aerial refuelings.

In planning the raid, two requirements had overriding importance:

- Ouadi Doum had to be made unusable by LAF high-performance fighter-attack aircraft for at least several days in order to provide sufficient time to carry out an intensive resupply effort and, if necessary, to deploy FAF fighter and air defense assets forward to N'Djamena without interference.
- For political reasons the risk of captured or downed FAF pilots had to be kept to an absolute minimum.

The FAF employed concentration and surprise to achieve these objectives. Most FAF *Jaguars* in Africa were moved to Bangui to take part in the raid. With the possible exception of one *Jaguar* used for reconnaissance, all were committed to exactly the same mission: runway attack. Other potential targets such as air defenses, munitions and POL bunkers, aircraft, etc. were left alone in order not to dilute the effort against the runways. The *Jaguars* achieved total surprise through a very low and fast approach to the target area early in the morning (Ouadi Doum was hit at around 0800 local time) and with the assistance of offensive ECM activities of the *Atlantics*. Finally, each aircraft made only a single pass over the target to reduce exposure to enemy air defenses.

The FAF attack achieved its objectives. All aircraft returned safely to their home bases. Numerous direct hits by BAP 100s rendered Ouadi Doum airfield temporarily unusable by heavy airlifters and high performance jets. As a bonus, at least one Hind 24 was damaged. Now reasonably certain that LAF attacks against N'Djamena could not be launched out of Ouadi Doum for at least several days, the French government almost immediately ordered CoTAM C-160s to begin an intensive around-the-clock airlift of light armored vehicles and other equipment and supplies into N'Djamena from Bangui and elsewhere for use by Habre's

⁸See "Dans Le Vieux Fort de Biltine les 'Marsouins' Veillent . . .," *Le Monde*, 22-23 February 1987.

⁹See "Épervier au Tchad: Commentaires Sur Une Operation Réussie," *Air et Cosmos*, No. 1085, 1 March 1986; and Fulcrand, 1986.

forces in the event of a resumption of Goukouni's offensive.¹⁰ On February 16 a CoTAM DC-8 also flew in a contingent of FAF commandos for base security.

Less than 24 hours after the attack on Ouadi Doum, the LAF was able to mount a small retaliation attack against the French resupply effort using a long-range TU-22 bomber based out of southern Libya. Early on the morning of the 17th, at 0700, an LAF TU-22 bomber dropped three 500 kg (1100 lb) bombs on N'Djamena airport. Two bombs missed their target but a third hit the main runway three quarters of the way down its length, producing a crater 65 feet in diameter and 26 feet deep. The TU-22 had launched out of an LAF air base in southern Libya (either Sabha or Koufrah) and flown the 750 mile distance to N'Djamena totally undetected. The damage did little to interrupt *Transall* operations, but it took FAF engineers 36 hours to make the repairs necessary to permit the operation of CoTAM DC-8s and civilian transports out of N'Djamena. Although the damage was minimal, the French government and the FAF were clearly embarrassed at the failure to detect and shoot down the aircraft. From the FAF perspective, however, the attack served only to confirm the correctness of the decision to precede any deployments into N'Djamena with an OCA attack on Ouadi Doum and underlined the need to move up air defense assets as quickly as possible to N'Djamena airfield.¹¹

Over the next 36 hours following the LAF attack on N'Djamena, in an operation publicly designated Operation *Épervier* for the first time on February 18, the French deployed in a small deterrent force of under 600 men plus considerable supplies for Habre's forces into Chad. *Épervier* was tailored specifically with the intention of avoiding the less desirable outcomes of its much larger precursor, Operation *Manta*. Unlike *Manta*, *Épervier* was initially assigned just one clear-cut, modest objective: ensuring the security of N'Djamena airport as a reception base for logistical and material support for Habre. Thus, as originally conceived, the French government intended *Épervier* to be a small, light, easily withdrawn deployment of French forces limited to N'Djamena and designed to deter and defend the capital in general and the airport in particular against Libyan attacks so that the FAF resupply effort supporting Habre could continue unmolested. French forces would take no direct part in any ground operations unrelated to securing N'Djamena airport. Furthermore, following the attack on Ouadi Doum, the French government planned not to undertake any additional offensive air operations unless necessary. The composition of the forces deployed into N'Djamena under the auspices of Operation *Épervier* reflect these objectives. Yet the need to provide credible air defense—underlined by the TU-22 attack on the 17th and the incursion of another unidentified aircraft into N'Djamena airspace two days later—tended to place constant pressure on the French government to deploy more and more air defense assets.

On the afternoon of the 17th—the same day as the LAF attack—the first two *Jaguars* and two *Mirage* F1.C-200s deployed in to N'Djamena. Thirty C-160 plane loads of support personnel and air defense equipment were unloaded the next day. Within several days of the commencement of the operation, the FAF joint commander of *Épervier* based at N'Djamena airport commanded a force of around 12 *Jaguars* and *Mirage* F1.Cs, and several batteries of *Crotale* medium-range SAMs, supplemented by batteries of 20mm and 40mm anti-aircraft artillery, and supported by mobile air defense radars and communications equipment. In addition, the French authorities expanded the N'Djamena air base defense perimeter by airlifting in a

¹⁰It is unclear why the FAF did not employ wide-body commercial cargo transports, although it appears that the runway had deteriorated to the point where it could not safely accommodate them.

¹¹See Boebion, 1986; Bombeau, 1986b; and "Controversy After Bombing," AB201610, Paris AFP in French 1456 GMT 20 February 1986, in *FBIS*, Middle East and Africa, MEA-86-035, 21 February 1986.

company of Airborne Marine Infantry (probably attached to 9 DIMa) to supplement the FAF commandos already in place.

Additional field requirements soon led to an expansion of the *Épervier* expeditionary force. To provide more adequate early warning of LAF air attacks, the FAF airlifted a mobile surveillance radar station with a 450 mile detection range to Moussoro 150 miles northeast of N'Djamena. The French Army installed a *Syracuse* mobile communications station at N'Djamena. To protect these new installations, French military authorities dispatched another company of airborne troops (probably from 11 DP). Finally, in early March, wide-body transports began using N'Djamena airport, permitting the deployment of a battery of French Army *Hawk* long-range SAMs belonging to the 403e RA. As if to underline FAF's chronic shortcomings in strategic lift, the *Hawk* battery and other radar surveillance equipment was delivered aboard four C-5A *Galaxy* airlifters chartered from the USAF and flying out of Saint-Dizier.¹² These additional deployments raised the total size of the French expeditionary force to about 1000 soldiers.

Operation *Épervier* succeeded initially in deterring a forward deployment of LAF combat aircraft and a major resumption of the GUNT offensive. For some six months, the situation on the ground in Chad stabilized and remained reasonably quiet. Behind the scenes, however, constant diplomatic maneuvering by Libya, France, and the United States, accompanied by the frenzied jockeying for better position among the various Chadian factions, kept the pot boiling. The basic French objectives remained unchanged: stabilization of the military-political situation, while seeking a diplomatic settlement. Ideally, the French would have liked to achieve some sort of settlement that would have permitted the withdrawal of all, or at least most, of the *Épervier* force. Although such a settlement proved elusive, thus preventing a withdrawal of *Épervier*, at least for the time being the situation remained sufficiently stable for France to avoid having to increase the size of its Chad deployment.

THE LIBYAN DEBACLE, 1987

The Disintegration of GUNT

Following the raid on Ouadi Doum, France was forced to engage in a delicate balancing act: Libyan-GUNT aggression south of the 16th parallel had to be deterred, yet Habre's burning ambition to reconquer the north had to be restrained for fear of provoking Qaddafi. At the same time, the French could not risk placing excessive pressure on Habre for fear that he might try to supplant them with the Americans as his primary supporters.

Since *Épervier* was less than one-third the size of Operation *Manta*, and no French casualties were being taken, the political and economic costs of remaining in Chad were not quite as intolerable as they had been in the earlier operation. Nonetheless, the nightmare for French planners remained that either Goukouni backed by Qaddafi would attack south again, or that Habre would return to the offensive thus provoking a massive Libyan response that would require France to increase its presence up to or above the levels of Operation *Manta*. As long as the ground forces remained stalemated along the 16th parallel and the *Épervier* force continued to deter Libyan air attacks south of the Red Line, attempts at finding a diplomatic solution to permit a withdrawal of French forces could continue.

¹²At this time USAF C-141s and chartered French commercial aircraft were also engaged in airlifting material, including *Redeye* short range SAMs, into N'Djamena to equip Habre's forces. See "Tchad: Renforcement du Dispositif Français à N'Djamena et dans le Nord du Pays," *Air et Cosmos*, 8 March 1986.

The uneasy peace in Chad was shattered late in 1986, precipitated by the defection of Toubou tribesmen from the GUNT coalition because of dissatisfaction with Qaddafi's creeping annexation of northern Chad, and a Libyan attempt to replace Goukouni as the GUNT leader. According to some accounts, near the end of the summer, Qaddafi, dissatisfied with indications that Goukouni was increasingly willing to negotiate with Habre, and because of Goukouni's unwillingness to crush the Toubou rebellion, encouraged a rival, Acheikh ibn 'Oumar, to oust Goukouni from his leadership position. Goukouni apparently barely escaped with his life from a skirmish between his body guards and Libyan security personnel in Tripoli on October 30.

The rebel forces now in opposition to Qaddafi regrouped around Goukouni's group now known as the Patriotic Armed Forces (FAP—*Forces Armées Patriotiques*) in northern Chad in the Tibesti region, and began fighting against Libyan and pro-Libyan forces. In an ironic twist of events, Goukouni's forces were soon asking for assistance from Habre's FANT against the Libyans. Now, with only very small splinter groups of Chadians still loyal to Tripoli, Habre saw an opening to begin a new offensive and possibly reconquer the north, and he applied enormous pressure to the French to support such a venture.¹³

The French were extremely ambivalent toward these developments; while they were pleased to see Qaddafi's camp weakened by the break-up of the GUNT coalition, they preferred to maintain the status quo with the low-profile role of providing a defensive deterrence force in the south. The primary French objective was to avoid a direct military confrontation with Qaddafi precipitated by a new FANT offensive that might require a large-scale reinforcement of Operation *Épervier* and cause problems for French foreign policy in the rest of the Arab world. But with the collapse of the GUNT coalition and the defection of Goukouni's FAP, it became nearly impossible to restrain Habre.

Ouadi Doum Reattacked

Tripoli reacted vigorously to put down the anti-Libyan rebellion in the north. In early November 1986, Qaddafi moved several thousand additional troops into northern Chad and mounted a major operation employing some 2000 of the 6-8,000 Libyan troops now in the country against the 1500-2000 irregular FAP rebel forces in the Tibesti region. The Libyans were equipped with T-55 and T-62 tanks and supported by LAF fighter-attack aircraft.¹⁴ Under intense pressure from Habre and from the United States to assist the FAP rebels in repelling the Libyan attack, two FAF *Transalls* dropped 12 tons of food, fuel, and munitions to rebel forces on the night of December 16. On at least two occasions in December, USAF C-5As delivered shipments of additional vehicles, ammunition, small arms, and other material to N'Djamena for Habre's use. Further, two Lockheed C-130 *Hercules* military transports were transferred to Habre to facilitate distribution of the material in the north. As an additional precautionary move, France sent another 200 men to *Épervier*. Despite these actions, Mitterrand continued to emphasize that France's role was purely defensive, and under no circumstances would French forces attack north of the 16th parallel or directly support operations there unless Libyan forces operated south of the Red Line.¹⁵

In response to these actions, the Libyans increased the pressure on the rebels holding out in Tibesti. It was reported that LAF fighters were now forward based at Faya-Largeau and

¹³No full account of the events of late 1986 and 1987 is yet available in open sources. Many press accounts differ on important details. This account was assembled from numerous press reports in *Le Monde*, *Air et Cosmos*, *New York Times*, *Washington Post*, *Los Angeles Times*, *Military Aviation News*, and *Defense and Foreign Affairs*.

¹⁴See Ottaway, 1986.

¹⁵See "Tchad: Aide Logistique Française Accrue," *Air et Cosmos*, 10 January 1987.

Ouadi Doum and conducting repeated attacks on FAP positions. On December 16, following a LAF attack on Zouar at the southern rim of the Tibesti mountains, FANT forces crossed the 16th parallel for the first time in a bid to relieve FAP rebel units. Yet despite repeated appeals from Habre, the French government still refused to provide direct air support for FANT or FAP rebel forces.

Having initially blunted the FANT attack, and convinced the FAF would not interfere, the Libyans mounted a major counteroffensive backed by armor and aircraft on December 20 against key FAP rebel positions at Bardai, Wour, and Zouar. To relieve pressure on the FAP rebels, Habre was determined to continue forward with his push into Tibesti and to open up a second front by launching a new attack across the 16th parallel against Libyan positions to the southeast. While refusing to provide direct air support, the French agreed to assist in the establishment of a jumpoff base camp for the second attack just south of the Red Line at Kalait.

Some days later a column of FANT vehicles moved out from Kalait to attack the Libyan positions and airfield at Fada. On January 2, 1987, Chad government spokesmen announced the capture of Fada following a sharp engagement. In early January Zouar in the Tibesti region also fell to Habre's forces. The loss of Fada was an especially severe setback for the Libyans, because it exposed Faya-Largeau and Ouadi Doum, the main Libyan positions in northeastern Chad, to direct attack.¹⁶

Qaddafi appears to have responded to this setback with a strategy of applying renewed pressure on the French in the hopes that they would restrain Habre. On January 4, 1987, four LAF MiG-23s bombed and strafed Biltine and Arada in southeast Chad, well south of the Red Line. Later in the day Oum Chalouba was also hit by a TU-22. These targets are the principal outposts on the main Abeche-Fada route, so the LAF attacks could be viewed as an attempt to forestall a government buildup in Fada in preparation for an attack on Faya-Largeau. Nonetheless, because of Mitterrand's numerous warnings about crossing the 16th parallel, most observers viewed the LAF air attacks as a direct challenge to France.¹⁷

The French responded almost immediately by ordering a new attack on the Libyan airfield at Ouadi Doum. Few details of the attack have come to light in open sources. What is known is that at least four *Jaguars*, and possibly as many as ten, escorted by *Mirage* F1.C-200s, took part in the raid on January 7. Instead of hitting the runway, the *Jaguars* this time attacked the air defense radar installations at the air base, probably with a standoff munition such as the *Martel* anti-radiation missile. In addition, the attack appears to have been aimed at the air control and Ground Control Intercept (GCI) capabilities at Ouadi Doum.¹⁸ By carrying out a Suppression of Enemy Air Defenses (SEAD) attack, the FAF may have been preparing the ground for a possible follow-on OCA attack if ordered. Such an attack did not materialize. However, as a precaution against possible further escalation in the air war, three more *Jaguars* and an additional C-160 *Transall* were also dispatched from the CAR, arriving in N'Djamena on January 9.

Concern mounted in Paris as to Libya's reaction to Habre's successful offensive and the FAF attack on Ouadi Doum. French authorities doubted the ability of Habre's forces to take Faya-Largeau without armor and air support but were adamant in refusing to supply such support for fear of being dragged into a direct confrontation with the Libyans. Furthermore,

¹⁶One of the best press accounts of these complex events can be found in Gwertzman, 1987.

¹⁷See especially P. Lewis, 1987.

¹⁸See Bernstein, 1987b; "Chad," *Military Aviation News*, February 1987; and "Nouveaux Engagements Libyens au Tchad," *Air et Cosmos*, 17 January 1987.

intelligence sources indicated a clear buildup of attack aircraft at the LAF air base at Maaten-Es-Sarra in southern Libya and at Aouzou and Faya-Largeau. Despite the FAF attack on Ouadi Doum, LAF aircraft increased their attacks on FANT and FAP rebel positions at Zouar, Wour, and Fada. But most disturbing to the French, a day after the FAF attack, LAF aircraft struck Kouba Oulanga, 40 miles south of the Red Line. The French Minister of Defense André Giraud attempted to play down the importance of the LAF violation of the 16th parallel and asserted that France would not escalate the conflict or adopt a "tit-for-tat" retaliation strategy. Further, the French government firmly and publicly rejected Habre's pleas for air support for his campaign north of the Red Line. However, the French Chief of Staff Jean Saulnier flew to N'Djamena to assess the overall situation and recommend improvements in the air defense system in the south. He, along with many western military analysts, came away surprised at how poorly the Libyans were performing on the ground. Nonetheless, concern remained over the LAF's next moves.¹⁹

Intelligence sources soon indicated that Qaddafi was preparing for a new counteroffensive to the south, most probably aimed at recapturing Fada. Libya reinforced its troop levels in Chad to an estimated 13,000 men, with major new air defense and land contingents dispatched to Ouadi Doum and Faya-Largeau. Ouadi Doum cannot accommodate large numbers of fighter aircraft because of parking space limitations. But before the fall of Fada, the LAF began moving large numbers of combat and transport aircraft to Aouzou airfield and to its two southern Libya bases, Sebha and Maaten-Es-Sarra. These bases were used to stage men and material into the forward operating bases at Ouadi Doum and Faya-Largeau, to provide these reception bases with air defense, and to attack Chadian positions at Fada and Zouar. Maaten-Es-Sarra, with its three modern runways and ample parking space, could easily support over 100 combat aircraft. In addition to the air and land force buildup in the north, a Libyan mobile strike force of up to 2000 men was detected in Sudan, outflanking government positions to the east and posing a direct threat to FANT's lines of communication to Fada.

The Libyan buildup in the north and flanking movement to the east forced the French to respond. Air defenses and early warning capability had to be improved, and some sort of French presence had to be established in eastern Chad to deter the Libyan flanking movement through Sudan. To expand their forces outside of the N'Djamena perimeter, the French needed more manpower. Reluctantly, in early February, the French government ordered the deployment of an additional 1000 French military personnel to Chad, followed by another 200 several weeks later. The primary purpose was to permit a forward deployment of air defense and early warning assets outside N'Djamena north to the Red Line along an eastern axis supporting Fada. This amounted to a de facto extension of the French air defense umbrella beyond the 16th parallel.

As a result of these actions, by early March Operation *Épervier* had grown considerably in size to a total of 2240 men, 11 *Jaguars*, 8 *Mirage* F1.Cs, and 12 *Gazelle* and *Puma* helicopters, some armed with HOT ATGMs. Two additional four-aircraft *Jaguar* cells based at Libreville and Bangui were also available for operations in Chad. The 1500-man French Operational Assistance Elements stationed in Bouar, CAR, were placed on a high state of alert. About 600 infantrymen from the 21st RIMa and the 2nd REI deployed to positions at Biltine and elsewhere along the Abeche-Kalait axis to establish a presence in eastern Chad across from Sudan and protect the line to Fada. The French government also approved a plan to repair and

¹⁹See Bernstein, 1987a; "Chad Says Libyans Bomb 3 Oasis Sites," *New York Times*, 17 January 1987; Trainor, 1987; "Victories Shore Up Chadians," *New York Times*, 18 January 1987.

expand the air base at Abeche to accommodate *Jaguars* as a further deterrent to Libyan forces in the Sudan.²⁰

Although Ouadi Doum was clearly being built up by the Libyans as the primary forward staging and jumpoff point for an attempt to recapture Fada, the French ruled out a third air attack as too risky. The Libyans had considerably reinforced Ouadi Doum's air defenses with anti-aircraft artillery and SAMs.²¹ The French could do little more than engage in a war of nerves, hoping that if they reinforced Operation *Épervier* through deployments of forces on the eastern Abeche-Fada axis and extended the air defense umbrella north of the Red Line, Qaddafi would hesitate to attack. Yet in view of the heavy concentrations of armor, artillery, and aircraft at Ouadi Doum, the French had little confidence that Habre's forces could stop a serious Libyan attack if it were pressed home with determination. Further, the French were not prepared to provide anything to Habre's forces other than reconnaissance and logistical support for operations north of the 16th parallel. If Qaddafi attacked and threatened to push south of the Red Line, the French government would be confronted with the excruciating dilemma of either unceremoniously withdrawing or massively reinforcing Operation *Épervier* with the risk of a major military confrontation with Libya.

Habre's Reconquest of the North

The French dilemma was at least temporarily resolved through a combination of decisive military leadership by Habre and incredible incompetence on the part of the Libyans. In mid-March Libyan armored forces finally moved out from Ouadi Doum headed for their long-awaited assault on Fada. On March 19, FANT forces mounted on Toyota Land Rovers and armed with *Milan* ATGMs intercepted and defeated the Libyan column near Bir Kora, destroying some 30 T-55 tanks. The next day, a second column was also destroyed about 12 miles south of Ouadi Doum. With the Libyan field forces defeated and in disarray, Habre seized the initiative and launched a daring surprise attack on Ouadi Doum itself. Remarkably, after only two hours of fighting on the evening of March 22, Ouadi Doum, along with an impressive quantity of the latest Soviet equipment, fell to Habre's forces.

The fall of Qaddafi's key installation in northern Chad was a stunning blow. Tripoli quickly decided to cut its losses and began withdrawing its forces from Faya-Largeau, the administrative capital of the northern part of the country, and other outposts. The retreating forces joined other Libyan units in the Aouzou strip and the Tibesti region. FANT troops reoccupied Faya-Largeau without a fight on March 27.²²

Having cleared the Libyans out of nearly all of northern Chad, FANT paused briefly to regroup. The French hoped that with both sides exhausted, some form of lasting settlement might be achieved. But in the wake of such spectacular victories, Habre had no intention of standing down for long. He soon made his next objective clear: consolidation and reconquest of the whole of northern Chad, including the long-disputed Aouzou Strip annexed by Libya in 1973.

²⁰ See especially Zecchini, 1987a and b.

²¹ However, stories widely reported in the press that the Libyans had deployed the advanced SA 10 later proved unfounded.

²² The fall of Ouadi Doum and Faya Largeau received extensive and detailed coverage in the Western press. See, for example, "Chad Said to Capture Libya Air Base," *New York Times*, 23 March 1987; Kraft, 1987; "Libya's Losses at Ouadi Doum Include Tu 22s, SA 10s, 1200 Dead," *Defense and Foreign Affairs Daily*, 26 March 1987; Zecchini, 1987c; and "Des Missiles SA 10 Récupérés à Ouadi Doum," *Le Monde*, 31 March 1987.

Habre pressed the French once again for air and logistical support. The French urged Habre to consolidate his gains, but refused to provide any direct support for any attempt to retake the Aouzou Strip. When it became clear that Habre was determined to press forward the attack, the French saw no choice but to provide some indirect assistance, particularly in view of repeated LAF air attacks on Faya-Largeau. The French began examining the option of redeploying some forces north of the Red Line to provide logistics support, improve early warning against LAF attacks, and deter further LAF attacks against Ouadi Doum and Faya-Largeau. Some elements in the FAF went so far as to urge the deployment of *Jaguars* forward to Ouadi Doum, but this was rejected as too risky.

After much debate, most of it focusing on the possible consequences for French foreign policy in the Arab world of breaking the unwritten agreement with Qaddafi regarding the Red Line, the French government approved a modest insertion of forces north of the 16th parallel to support Habre. In early May logistics units, a surveillance radar station, and 250-300 security troops moved forward from Kalait to Faya-Largeau. French engineers also assisted Chadian forces in clearing mines and repairing facilities at Ouadi Doum. Work began on developing the airstrip at Abeche to accommodate combat aircraft if required, to pose a counter threat to any flanking movement undertaken through Sudan.

With the likelihood of a Libyan ground attack south of the 16th parallel now virtually nonexistent, the French felt secure enough to reduce the size of *Épervier* back down to the levels of early 1987, or to about 1200 men.²³ It soon became clear, however, that the situation remained extremely dangerous from the French perspective, as Habre's forces stayed on the offensive, even entering Libya itself. Ignoring French pleas for restraint, and despite continued LAF attacks on Bardai and other towns in the Tibesti region, Habre launched an offensive to retake the Aouzou Strip. After bitter fighting, the key town of Aouzou fell to FANT forces on 8 August.²⁴ Three weeks later, on August 28, FANT forces suffered their first major reversal of the year when Libyan forces recaptured Aouzou after a surprise attack.²⁵

Following the setback at Aouzou, FANT forces pulled back to Bardai and regrouped. Preparations were made for what appeared to be an attempt to conquer the village once again. Fearing a new Libyan thrust south, French authorities promised to deploy more troops north of the Red Line. Instead, on September 6, FANT forces completely surprised the Libyans—and apparently the French—by crossing into Libyan territory proper and attacking the key LAF air base at Maaten-Es-Sarra, some 60 miles north of the Aouzou Strip. Habre's forces inflicted a stunning and embarrassing blow, reportedly killing or wounding several thousand troops and destroying most of the base along with 22 LAF aircraft, including three MiG-23s, four *Mirage* F1s, and an Mi-24 helicopter, before withdrawing back across the border.²⁶

As he had done on numerous occasions in the past, Qaddafi chose to respond to reverses in the field by blaming the French and challenging their position in Chad, particularly since French forces had deployed north of the 16th parallel. Two days after the attack on Maaten-Es-Sarra, Tripoli countered by dispatching LAF TU-22 *Blinders* against N'Djamena and Abeche. A French Army *Hawk* SAM battery brought down one of two TU-22s attacking the Chadian capital, while a second evaded French air defenses but failed to drop its bombs. A

²³See de la Guerivière, 1987a and b; "France Crosses 16th Parallel in Chad," *Defense and Foreign Affairs Daily*, 11 May 1987.

²⁴The LAF airfield of Aouzou, also known as Tanoa, is about 60 miles from the town of Aouzou and is built astride the international border between the Aouzou Strip and Libya.

²⁵Parmelee, 1987.

²⁶See Dunn, 1987; "Africa: Habre Holds on in Aouzou," *Defense and Foreign Affairs Weekly*, August 31-September 6, 1987; "French Act to Foil Libya Jab at Chad," *Washington Times*, 3 September 1987.

third LAF TU-22 reportedly dropped five bombs on the recently extended and upgraded airfield at Abeche. One of the bombs killed a civilian and caused extensive damage to the runway.

The LAF attacks once again directed world attention toward the French military support role in Chad at a time when Habre's forces had attacked inside Libya, thus complicating French diplomacy in the Arab world and raising the possibility of further escalation in Chad. Both the French Defense Minister, André Giraud, and the Foreign Minister, Jean-Bernard Raimond, downplayed the air attacks and the French response, insisting that France did not support Habre's attempt to retake the Aouzou Strip, and had no previous knowledge of the attack on Maaten-Es-Sarra. The French government strongly reiterated the longstanding defensive objective of Operation *Épervier* of deterring attack on southern Chad. Nonetheless, the events of the summer had deepened concern in Paris over the inability to control Habre and the possibility of further Libyan escalation.²⁷

By the end of the summer, the situation appeared to have stabilized. A cease-fire that had gone into effect on September 11 was holding. Late in the month, following the conclusion of an OAU meeting held in the Zambian capital of Lusaka, Chad and Libya agreed to submit their rival claims to sovereignty over the Aouzou Strip to arbitration by an independent committee scheduled to meet in Gabon in December.²⁸

OPERATION ÉPERVIER: AN INTERIM ASSESSMENT

Eighteen months after its inception, Operation *Épervier*, unlike its predecessor Operation *Manta*, could in many respects be characterized as a spectacular success. Libyan ground forces had been deterred from crossing south of the 16th parallel. LAF incursions south of the Red Line had been infrequent and always answered with decisive but measured retaliation. In essence the FAF was able to establish a government sanctuary in the southern half of the country.

Under cover of the air defense umbrella established by the FAF, the French and U.S. governments were able to deliver substantial quantities of sophisticated weapons and supplies to Habre's FANT and provide the government forces with invaluable training and advice. Freedom from LAF air attack also permitted Chad government forces to stage and mount a stunning series of offensive operations that cleared all of Chad south of the Aouzou Strip of Libyan forces for the first time since 1983. Critical intelligence provided to FANT forces and collected by *Aéronavale Atlantique* SIGINT platforms, FAF *recce Jaguars*, and French and U.S. observation satellites probably contributed substantially to Habre's success in detecting, isolating, and attacking Libyan forces.

France reaped these benefits at a much smaller human, material, and political cost than Operation *Manta*. As essentially an Air Force operation based out of N'Djamena, Operation *Épervier* remained much smaller, more compact, and based further to the rear of the fighting than the Army-dominated Operation *Manta*, yet it provided the capability of projecting substantial firepower deep into enemy-controlled territory in northern Chad. Two cleverly conceived, well planned, and effective OCA attacks bolstered FAF air defense efforts while substantially enhancing the credibility of the overall *Épervier* deterrent force. Further, by leaving the ground fighting exclusively in the hands of the Chadians, but extending them extensive

²⁷See Gohl, 1987; Greenhouse, 1987; Meisler, 1987a and b.

²⁸"Africa: Hope for a Negotiated Peace in Chad?" *Defense and Foreign Affairs Weekly*, 21-27 September 1987; and "Chad and Libya," *Los Angeles Times*, 25 September 1987.

logistical, intelligence, and air defense support, the French were able to provide critical assistance without losing any personnel or fixed-wing aircraft.²⁹

Nonetheless, despite its apparent accomplishments, the jury is still out on Operation *Épervier*. Habre's impressive victories have for the moment masked any potential problem areas in the French strategy. It should not be forgotten that *Épervier* exhibited a tendency to slowly increase in size over time, and indeed it came very close in early 1987 to expanding into a major land commitment as large as, or even larger than, Operation *Manta*. Habre made this unnecessary by defeating the Libyan attempt to retake Fada in March and then by capturing Ouadi Doum a few days later.

But in a strategic sense, the key to FANT's success against the Libyans was not the military virtuosity of its military leaders and armed forces or the poor showing of the Libyans, its use of advanced Western equipment such as *Milan* ATGMs and *Redeyes* provided by France and the United States, or the contributions of French air power, but rather it was the disintegration of the GUNT coalition in late 1986 and the resulting defection of the vast majority of the Chadian rebels from the Libyan to the government side. With no credible client group remaining in Chad, and all major factions opposing its military occupation, Libya had to withdraw north to the Aouzou Strip.

Whatever caused the break-up of GUNT, it probably was not the presence of the French forces in southern Chad. It is true that the French military presence assured the survival of the FANT regime while permitting the sort of discontent and conspiracies that destroyed GUNT. Nonetheless, it is perfectly plausible to argue that GUNT's demise was not inevitable. Had its cohesion remained intact, leaving the Tibesti region secure in the rear of Tripoli's forward presence in Chad, Habre's rapid roll-up of the Libyan forces would have been much less likely.

Even given the defection of Goukouni's forces, it is difficult to pinpoint precisely why Habre succeeded with such apparent ease; outside observers were surprised by the rapidity and decisiveness of FANT's victories. Whatever the cause, it was little comfort to the French that their fortunes had become totally dependent on the actions of a client who could not be predicted or controlled. Had Habre failed to stop Qaddafi's march on Fada, for whatever reasons, the French would have been forced to choose among several undesirable options, including (1) an escalation in the air war, including direct attacks on Libyan ground forces or more OCA attacks, all entailing a high likelihood of FAF losses, (2) commitment of substantial ground forces to Chad up to or beyond the level of Operation *Manta*; or (3) withdrawal followed by a probable Libyan conquest of southern Chad. The first option had been for all practical purposes rejected following the second attack on Ouadi Doum and the buildup of Libyan air defenses. Operation *Épervier* had been explicitly designed from its inception to avoid the second option.

In short, the favorable outcome of Operation *Épervier* through the summer of 1987 may have been as much the result of good fortune as sound strategy. With Habre beyond French control and willing to strike deep into Libya, and the battle for the Aouzou Strip still far from settled, it is much too early to pass final judgment on the effectiveness and wisdom of Operation *Épervier*. Nonetheless, French air power clearly contributed substantially to Habre's ability to take advantage of unfolding events on the ground.

²⁹At least one *Gazelle* helicopter was lost in an apparent accident.

VI. LESSONS FROM THE FRENCH EXPERIENCE

OPERATIONAL LESSONS: THE IMPORTANCE OF SPECIALIZATION

The French armed forces have been involved in overseas operations almost without pause since before World War I, with the Air Force often playing an important role. For nearly two decades following World War II, the FAF was heavily engaged in large-scale overseas conventional conflicts in Indo-China and Algeria.

The French reaction to the long and bitter war in Algeria was not unlike the U.S. response to the Vietnam War: Never again would the armed forces, equipped and trained to fight a conventional war in Europe, be committed on a large-scale to an open-ended conflict in the Third World. Following the resolution of the Algerian War, France developed a new approach to protecting its remaining overseas interests, based on a strategy, organizational and unit structure, equipment, and training that were tailored specifically to respond to the new needs and requirements of peripheral operations. Given a planning environment characterized by chronic resource constraints, the French have found that:

- *Specialization* (based on existing assets) is the key to the development of effective overseas intervention capabilities.

Of course, the limited number of regions and environments in which the French deployment forces expected to operate facilitated the task of specializing for the overseas mission.

Strategy and Doctrine

As detailed in Sec. I, in the 1960s France developed a three-tiered strategy designed to protect its overseas interests in the demanding political-strategic environment of the post-colonial world. Each component of the strategy interacts with and contributes to the success of the others. The first tier involves training and equipping friendly regional military forces. This not only strengthens francophone governments but also promotes equipment, tactical, and doctrinal interoperability with French projection forces; and it permits representatives of those forces to familiarize themselves with the topography, climate, language, and culture of the client state. The basing of small Operational Assistance Elements at strategic reception bases is a key component of the second tier. These prepositioned regional forces furnish an extremely rapid reaction capability and maintain and secure regional reception bases. The bulk of the assistance forces—the third tier—is normally based “over the horizon” in France, enhancing strategic flexibility and reducing economic and political costs associated with large permanent overseas deployments.

Organization and Force Structure

In principle all French conventional forces are “multi-role” in the sense that they may be employed in European nuclear and conventional operations as well as in peripheral conflicts. In reality, however,

- France has organized several highly specialized Army and Air Force units primarily for use in peripheral conflicts and other overseas contingencies.

French deployment units are lightly equipped, highly mobile, easily deployable, light-weight units capable of projecting substantial firepower. In the FAF, at least two *Jaguar* squadrons have been specially configured for peripheral operations and are permanently attached to the air command component of the overseas projection forces, while other squadrons are designated for overseas deployment if necessary. They are organized into four-aircraft cells supported by dedicated *Transall* airlifters and KC-135F aerial tankers and are maintained at especially high levels of readiness and alert.

Equipment and Support

The problem of inappropriate or overly complex equipment remains a difficult one for overseas deployment forces. Operating complex machinery in extremely hot and sandy conditions with little or no indigenous logistics infrastructure poses particularly severe support problems for modern air forces. The majority of French overseas combat operations have been conducted in extremely harsh and austere conditions. For example, some of the most intensive combat operations undertaken in Chad in 1978 took place in temperatures that at times exceeded 120° F.

French forces have routinely been expected to operate from isolated and extremely austere airfields lacking adequate runways and ramp space, POL, fuel and munition storage, maintenance facilities, and other basic support services. Through the mid-1970s, the French used less complex dedicated COIN aircraft as a partial solution to the support and infrastructure problems. But because of the sophisticated nature of the threat that now can be expected in many potential peripheral conflict scenarios,

- Simple, more easily supported COIN aircraft may no longer be appropriate for many peripheral conflict situations. Air forces must be prepared to deploy and support their most modern and capable aircraft and support assets to extremely austere locations, if effective air support is to be provided in peripheral operations.

The FAF has attempted to cope with these problems by ensuring that the complexity and support requirements of their fighter-attack aircraft are kept to a minimum, and by developing compact, robust, and easily deployable support assets. Nonetheless,

- Secure regional reception and support facilities must be made available to forward deployed aircraft. Without such facilities, it is extremely difficult to conduct sustained operations with high-performance fighter-attack aircraft.

Exercises and Training

The problems of operating and supporting complex combat equipment in harsh environments are generally recognized. Equally important, and less often noted, is the need to acclimate and acculturate personnel to strange and unfamiliar environments.

- The French excel at providing specialized training to their overseas deployment forces and believe it is a key component of their effectiveness.

The French deployment forces historically have enjoyed the advantage of intervening in regions in which they have experience and considerable linguistic and cultural connections. Even so, the French stress the importance of maintaining and building on this experience. As noted above, a key function of the second tier forces located at regional reception and staging

bases is to facilitate the familiarization and training process for all rapid deployment forces. During repeated deployments to the harsh environment of Sub-Saharan Africa, the French have discovered that several weeks are often required for personnel to fully adjust to differences in climate, food, and water. During this adjustment period, operational effectiveness can be reduced substantially. It was found that the adjustment period was considerably less for personnel who had been recently deployed to the region. As a result of this experience,

- Most French overseas deployment units routinely cycle through regional reception and staging bases for the purpose of familiarization with and adjustment to the geography, climate, food, water, languages, and cultures of the area.

The French also argue that extensive programs of military assistance and routine combined maneuvers with regional allied forces contribute substantially to the effectiveness of overseas deployment forces. Combined and joint maneuvers improve coordination and test force projection capabilities but, equally important, provide the intervention forces with a realistic and intensive exposure to the regional environment. French Operational Assistance Detachments offer training in weapons and tactics to local forces while providing an additional channel for both sides to gain confidence in and understanding of each other. To enhance the credibility of its rapid response forces, and to ensure a high state of readiness and tactical proficiency, FAF deployment cells take part in numerous long-range deployment exercises, often including combined and joint exercises with allied forces in Africa and with land elements of the Rapid Action Forces.

In recent years FAF participation in the U.S. Air Force *Red Flag* exercises has become a central element of the exercise program for units attached to the projection forces.¹ Five times since 1983 a cell of four *Jaguars* from EC 7 and EC 11, accompanied by several *Transalls* and KC-135Fs, has deployed to Nellis AFB in Nevada in a grueling test of FAF rapid deployment and fire-projection capabilities.

Unlike some of the other participating allied air forces, the FAF considers the deployment to Nevada from France an extremely important element of the exercise. Typically, a fighter cell and support aircraft (including some 40 ground support personnel and associated equipment in two *Transalls*) depart from Istres in southern France and deploy out to Dakar, Senegal; from there the aircraft continue across the southern Atlantic stopping at Recife, and the French possessions of Cayenne and Point-de-Pitre, and then on to Eglin AFB in Florida. The 11,000 mile deployment to Nellis is accomplished in four days and includes numerous aerial refuelings.

In a realistic simulation of an emergency deployment overseas, the fighters and *Transalls* enter into combat operations at the Nellis range within two days of arrival. The 6000 square mile range at Nellis has been developed to present targets and simulate the threat environment in Central Europe; however, its large size and desert climate and topography are ideal for simulating the Sub-Saharan conditions that the FAF faces in Africa. Participation in *Red Flag* has proven so beneficial to the FAF projection forces that in 1987 a two-ship cell of *Mirage* F1.CRs of EC 33 was added to its usual *Jaguar* contingent.²

¹First undertaken in 1975, *Red Flag* exercises are operated by 4440th Tactical Fighter Training Group of the USAF Tactical Air Command. In part a response to statistical studies that demonstrate pilot casualty rates decline significantly after ten combat missions, *Red Flag* is intended to simulate as realistically as possible large-scale air combat operations in order to familiarize U.S. Air Force crews with probable wartime conditions.

²See de Galard, 1987a; Forget, 1986a; Gohl, 1984; "FATAC Red Flag," *Air Actualites*, March 1984.

The FAF believes that specialized training and exercises concentrated on enhancing its capability to rapidly deploy over very long distances, quickly followed by the commencement of combat operations, contribute substantially to the credibility and deterrence value of the Rapid Action Forces. Further, equipment and organizational structures specifically configured for overseas operations considerably enhance the ability of the French deployment forces to carry out their assigned tasks with limited resources.

UTILITY, EFFECTIVENESS, AND LIMITATIONS OF AIR POWER IN PERIPHERAL CONFLICT

After 1962, the FAF formed and integrated specialized units into the power projection forces that took part in a nearly continuous series of operations overseas, amassing extensive experience in the use of air power in low- and mid-intensity peripheral conflicts. However, the roles and relative importance of these forces has changed considerably over time. One of the most striking trends to emerge from the past quarter century of French experience, and a compelling commentary on the perceived usefulness of air power, is

- An increasing reliance on the air force to project firepower in French overseas combat operations.³

This trend is illustrated by the changes in the composition and character of the four major French combat deployments to Chad after 1965. The first deployment of this period, from 1968 through 1971, witnessed periods of heavy ground fighting between some 2600 regular French Army Marine Infantry and Foreign Legion Infantry and Airborne forces, and the FROLINAT rebels.⁴ French tactics emphasized search-and-destroy operations involving mobile columns of French infantry mounted on half-tracks and armored cars supported by Army helicopters. The primary FAF mission involved transporting the lead elements of the land forces into Chad by air and establishing an air line of communication to support Army operations. Several FAF AD4 *Skyriders* based at N'Djamena and organized into a small Air Support Squadron⁵ on occasion provided close air support. Yet, commanded by an Army joint commander, this operation, like other French operations of the period, was overwhelmingly oriented toward ground combat activities with the Air Force playing only a secondary supporting role.

A shift in the relative importance of the ground and air components is noticeable by the second major deployment to Chad, from 1978 through 1980. The French again inserted a large ground force, but this time supported it with specially constituted overseas deployment cells of front-line *Jaguar* fighter-bombers and *Aéronavale Atlantic* early warning/SIGINT aircraft. As in 1970, French ground forces adopted the tactics of search and destroy and were thus directly involved in combat operations. But instead of playing only a secondary support role to the ground forces, the FAF *Jaguars* on several occasions during the spring of 1978 conducted key operations that destroyed major concentrations of enemy forces. At approximately the same

³FAF combat experience in peripheral conflicts since 1954 has taken place in North African and Sub-Saharan desert or semi-arid conditions. Thus, the French estimate of the effectiveness of air power for peripheral operations may not be entirely applicable to environments characterized by say dense jungle. For a sample of current published French Air Force views on the uses of air power overseas, see Baer, 1987; General Michel Forget, 1985, 1986b; and "L'Armée Aérienne," *Armées d'Aujourd'hui*, May 1985.

⁴The French Army units involved included three RIMa, two REP, and two REI. See Pimlott, 1985; Chaigneau, 1984.

⁵Designated EAA 1/22 *Ain*.

time *Jaguar* cells operating out of Senegal struck decisive blows against Polisario columns threatening Mauritanian government forces and installations. In the latter case, no French ground combat forces had been deployed into the immediate area of conflict; the combat assistance provided by the French power projection forces, which proved to be substantial, came entirely from the FAF.

By the time Operation *Manta* commenced in the summer of 1983, air power had become a combat component of at least equal importance to the ground forces in overseas operations. Although Operation *Manta* included one of the largest French Army combat contingents deployed overseas since Algeria, little or no ground fighting took place between French Army and rebel forces. For the first time, FAF air defense fighters, SAMS, and radars deployed overseas on a large scale to provide air defense and support attack operations. The Air Force furnished critical reconnaissance and SIGINT to the French joint commander and to loyal government forces. FAF attack assets represented the key element deterring enemy air and land incursions into southern Chad. Despite the large size of the land element of *Manta*, the FAF engaged in the only direct combat activities against rebel forces during the entire operation.

Beginning in 1986, Operation *Épervier* exhibited a complete reversal of the original roles between air and ground components in peripheral combat operations. For the first time, the French general staff appointed an air force officer as the joint commander of a major overseas joint combat fire projection force. Ground forces attached to *Épervier* initially played only a supporting role to the air component of the operation. The primary purpose of the operation was to ensure air defense of government controlled areas and assets, deter enemy air and land incursions below the 16th parallel, and deter or neutralize enemy offensive air capabilities. The FAF undertook two major counterair attacks deep inside enemy-held territory, and engaged enemy aircraft in combat at least twice in the southern half of the country. French Army forces, though reinforced substantially in early 1987, refrained from any direct combat operations with enemy forces.

In short, the French government and joint staff have recognized a growing utility in the employment of air force assets for the projection of firepower overseas relative to ground forces. However, from the French perspective,

- Air power's increasing utility for the projection of firepower overseas compared with that of the ground forces derives more from a perception of its greater military *efficiency* in terms of manpower and casualties than from a perception of its greater military *effectiveness* in peripheral conflict.

The growing French dependency on air power for fire projection is a function of complex and interrelated factors, including:

- A substantial rise in the offensive ground and air capabilities of potential Third World opponents;
- Persistent and intractable shortfalls in strategic and tactical airlift;
- The increasing need for a flexible and highly effective rapid-response capability;
- The desirability of reducing potential political and budgetary liabilities associated with prolonged overseas deployment of substantial ground combat forces.

The proliferation of sophisticated Soviet and Western weaponry to Third World governments and guerrilla movements fundamentally altered the threat environment confronting intervening Western powers in many peripheral conflict situations by the end of the 1970s.

Through the 1960s client states and guerrilla movements in peripheral regions normally received cast-off, out-dated, obsolete, or down-rated equipment that was no longer appropriate for first-line use in the inventories of large or medium powers. Beginning in the latter half of the 1960s, however, not merely the most privileged or wealthiest, but virtually all client states began demanding the same first-line, high-capability equipment available to the armed forces of the most technologically advanced countries.⁶ This trend resulted in a considerable increase in the potential ground and air threat facing power projection forces of the Western powers.

Following the withdrawal of its forces from Algeria, France had configured its peripheral intervention forces around a core of very lightly equipped but highly motivated and hard hitting Airborne, Marine, and Legionnaire infantry regiments. Small numbers of these forces proved extremely effective on numerous occasions throughout the 1960s, and into the next decade, against lightly armed irregulars. But as the Soviet Union and its Cuban and East German surrogates began raining, reinforcing, and heavily arming client states Libya, Angola, and so forth, the relative advantage of the light French deployment units declined dramatically. Of particular concern was the introduction for the first time and on a massive scale of large quantities of modern main battle tanks, infantry fighting vehicles, and artillery into the inventories of such hostile states as Libya, directly threatening or supporting insurgencies against French clients such as Djibouti and Chad.

The French responded to these developments by configuring heavier armored deployment units such as the 31st Light Armored Demi-Brigade, later expanded into the 6th Light Armored Division, and attaching them to the peripheral action forces. Foreign Legion and light infantry regiments attached to the 11th Airborne and the 9th Marine Infantry Divisions received more armored fighting vehicles, anti-tank guided missiles, and artillery tubes.

However, beefing up and expanding the ground combat units available for overseas deployment only exacerbated a major shortcoming of the peripheral action forces: its crippling shortfall in strategic and tactical airlift. French planners realized that budgetary, industrial, and political considerations made it extremely unlikely that these shortfalls would be addressed and remedied in the foreseeable future. Thus France planned to be able to provide more capable land forces for overseas contingencies, but these forces would have to go by sealoft and thus would take much longer to arrive.

Yet, because of the political and strategic pitfalls associated with major peripheral contingencies, the French concept of overseas assistance emphasizes the importance of rapid response and flexibility. After the debacles of Indo-China and Algeria, the French permanently rejected the notion of building up massive land forces in a slow and measured way. In its place they adopted the concept of the rapid, decisive blow delivered by small, quickly deployable, effective units. In order to retain this concept in the face of mounting capabilities of the land forces of potential opponents, and accepting that substantial improvement in airlift capabilities remained unlikely, French security planners turned increasingly toward air force fire projection as a means of meeting its requirements. Small numbers of modern fighter bombers capable of

⁶Client states in the Middle East and in Southeast Asia were probably the first to routinely demand and receive all types of the most advanced equipment from their super power supporters. But even as late as the 1960s, medium European powers, such as The Netherlands, Norway, and Spain, and key U.S. client states, such as the Republic of South Korea and Taiwan, readily accepted less capable equipment. For example, with little hesitation, all these countries procured the Northrop F-5, a lower-capability, lightweight fighter designed specifically for export, but rejected by the U.S. Air Force for first-line duties because of inadequate performance. By the 1980s, however, these countries, and even traditionally poorer and less-demanding clients such as Pakistan, would accept only first-line equipment already in the USAF or U.S. Navy inventories, such as the General Dynamics F-16 or the McDonald Douglas-Northrop F-18, as suitable for their air forces. Because of this change in attitude (in part driven by the increase in the threat), Northrop was unable to find buyers for its F-20 export fighter, the highly capable follow-on to the F-5, forcing it to cancel the program.

delivering enormous firepower could be much more quickly deployed into a peripheral region than meaningful numbers of Army troops, and, perhaps equally important, could more easily and quickly be withdrawn.

Air power also seemed to offer a substantial advantage in intra-theater flexibility, an attribute that became increasingly attractive as multiple French commitments began to strain the resources available for conducting ground operations at numerous locations overseas. For example, in 1978 when French forces deployed almost simultaneously to four different contingencies in Zaire, Mauritania, Chad, and Lebanon, airlift and Army assets stretched beyond the breaking point, requiring massive assistance from the United States and European allies. Yet the FAF was able to rapidly shift fighter-attack assets both from France and within the theater to provide critical assistance to hard pressed ground forces both in Mauritania and Chad.

Further, the French political leadership, particularly by the 1980s, clearly perceived a heavier reliance on air power for fire projection as a means of reducing potential political and economic liabilities arising from extended overseas operations. Years before, the bitter experience of the Algerian War demonstrated to the French policy elite the close correlation between combat casualties in limited wars and undesirable domestic political trends.⁷ Planners specifically configured the overseas intervention forces with this problem in mind, by designating Foreign Legion and special all-volunteer Marine and Airborne regiments as the core ground forces.⁸ Nonetheless, the multiple commitments in the late 1970s and early 1980s forced the French to draw on regular conscript army forces, complicating French planning.

The all-volunteer Air Force appeared particularly attractive for overseas operations under these circumstances, because it is a very capital and technology intensive means of projecting firepower. A greater reliance on air power under certain circumstances could reduce the number of personnel that had to be deployed overseas in the long run, it was hoped, reducing financial and political costs. These benefits were most dramatically demonstrated by Operation *Lamentin* in Senegal against the Polisarios and by Operation *Épervier* in Chad, particularly when contrasted with Operation *Manta*. In short, air power deployments permitted the maintenance of a lower profile both at home and abroad.

Finally, the more sophisticated armaments potential adversaries began receiving in the 1970s also included more effective air defense weapons, initially mainly man-portable *Grail* SA-7s and anti-aircraft artillery. The introduction of such weapons into Chad reduced the effectiveness of slower, older COIN aircraft such as the A4D *Skyraiders* traditionally employed by the French in Africa, and heavily influenced the decision to attach first-line fighter-attack aircraft such as the *Jaguar* and *Mirage* F1.C-200 to the peripheral action forces in the late 1970s.

The initial combat deployments of high-performance fighter-bombers to Africa proved highly effective and appeared to vindicate the tendency to rely more heavily on air power. The *Jaguar* attacks launched out of Senegal against Polisario forces in Mauritania in late 1977 and early 1978 were clearly instrumental in neutralizing the rebel threat to key government economic installations. Likewise, the 1978 *Jaguar* attacks against FROLINAT forces around Ati in Chad contributed to stopping the rebel offensive.

However, both of these successes occurred within the context of much larger joint operations. Had they not been backed up and exploited by aggressive ground force operations, these

⁷For an examination of this problem in recent U.S. history, see Lorell, 1985.

⁸Regular French Army units are made up of conscripts. Further, French law prohibits the deployment of conscripts outside of France without legislative approval.

air attacks would have had no lasting effect. In addition, the FAF achieved these successes against irregular forces that, although much better equipped than similar forces in the 1960s, were still not up to the standards of regular armies. When confronted with the possibility of having to counter forces equipped with modern armor, artillery, and the full panoply of organic air defenses, French leaders not only refused to commit the lightly armed French land intervention forces, but also hesitated to employ air attack for fear of losing pilots and expensive machines.

By the beginning of the decade of the 1980s, hopes began fading that air force firepower might be an economical and politically acceptable substitute for major land commitments and offensive ground operations. Both Giscard d'Estaing in 1980 and Mitterrand in 1983 and 1986 ultimately decided against the direct use of fighter-bombers against enemy armored forces in Chad. This was a problem of resource constraints as well as one of political will. With only 30 *Jaguars* permanently attached to the intervention forces, the loss of just a few was a serious matter. The combat death or capture of a single pilot received enormous and often unfavorable publicity, as illustrated by the case of Captain Michel Croci in Chad during Operation *Manta*. Further, loss of first-line combat aircraft to Third World forces was often seen as a political and military embarrassment that reduced the credibility of the conventional forces in Europe.

The unwillingness to risk ground attack aircraft against well-defended armored forces was complemented by the emergence of urgent new primary missions for the air component of the power-projection forces: defensive and offensive counterair. Ironically, the great success of the initial *Jaguar* combat deployments to Africa in 1977 and 1978 against enemy ground formations helped stimulate the introduction of far larger numbers of modern, high-performance combat aircraft into the theater by France's primary opponent in the region, Libya. This in turn required the French intervention forces to concentrate far more heavily on air defense than in the past, to the extent that by the time of Operation *Épervier*, the primary FAF mission had become air defense, rather than ground attack as in the late 1970s.⁹

With the French government unable to commit sizable ground forces, and unwilling to accept pilot and aircraft losses, the intervention air component became increasingly defensive and reactive. As a result, the success of French overseas operations has grown more dependent on the capabilities and leadership of allied ground forces that are beyond French control. In this sense the French strategy developed in the late 1970s of relying more heavily on air power for firepower projection has not entirely succeeded, and French experience over the past decade confirms some lessons that bear repeating:

- The widespread proliferation of modern offensive and defensive air capabilities among Third World armies and irregular military forces has increased the relative importance of high-performance air force assets for the conduct of offensive and defensive counter-air operations.
- Air power cannot substitute for effective, aggressive ground operations. It is not a panacea that on its own can provide decisive results at low cost.
- Air power is most effective when used aggressively and in the context of carefully coordinated joint operations. It can be used effectively against conventionally configured enemy ground forces, but losses must be expected.

⁹For a discussion of the growing FAR air defense requirements in the context of overseas operations, see Baldecchi, 1985.

- The effectiveness of air power in peripheral conflicts is inevitably reduced by political, economic, and diplomatic constraints that typify such conflicts, including restrictive rules of engagement, politically controlled targeting, enemy sanctuaries, the requirement of reducing pilot and aircraft losses to the absolute minimum. Such constraints must be anticipated in order to avoid corrosive effects on service morale and the generation of unrealistic expectations as to the effectiveness of air power.

BIBLIOGRAPHY

- "Africa: Habre Holds on in Aouzou," *Defense and Foreign Affairs Weekly*, August 31-September 6, 1987.
- Alexandre, Pierre, "Francophonie: The French in Africa," *Journal of Contemporary History*, Vol. IV, No. 1, 1969.
- Avions Marcel Dassault-Breguet Aviation, *Atlantique ATL 2*, Paris, September 1984.
- Baer, Alain, "Fait Aérien et Avions Futurs," *Défense Nationale*, March 1987.
- Baldecchi, Serge, "Menace dans Les Cieux d'Outre-Mer," *Armées d'Aujourd'hui*, December 1985.
- Barthelemy, General Raymond, *Histoire du Transport Aérien Militaire Français*, Paris, 1981.
- Bechu, General Yves (COMELF-TCHAD), "Témoignage du COMELF-Tchad," *Armées d'Aujourd'hui*, May 1985.
- Belian, Louis, "The French in Chad: The Heart of the Matter," *African Defence*, September 1984.
- Bernstein, Richard, "France Plays Down Latest Libyan Air Raid in Southern Chad," *New York Times*, 9 January 1987a.
- Bernstein, Richard, "French Jets Bomb Airfield in Chad Held by Libyans," *New York Times*, January 8, 1987b.
- Bigel, Patrick, and Jean-Michel Guhl, "100,000 H de Vol sur Jaguar à la 11," *Air Fan*, August 1984.
- Bigot, Lt. Col. Claude, "Le Groupement de Transport," *Armées d'Aujourd'hui*, March 1985.
- Blond, Georges, et al., "La Légion Étrangère: 150e Anniversaire," *Historia*, Special Issue, Paris, 1981.
- Boebion, Alain, "Libyan-Built Airstrip Said Eliminated by French," AU201550 Paris AFP in English, 1543 GMT 20 February 1986.
- Bombeau, Bernard, "Dans la Corne de l'Afrique avec le CoTAM," *Aviation Magazine*, No. 928, 15 November 1986.
- Bombeau, Bernard, "Jaguar Sur Ouadi Doum: Operation Épervier," *Aviation Magazine*, No. 914, 15 March 1986.
- Bon, Daniel, and Karen Mingst, "French Intervention in Africa: Dependency or Decolonization," *Africa Today*, Vol. 27, 2nd Quarter, 1980.
- Bontoux, Colonel Georges, "Présence Militaire Française Hors d'Europe," *Armées d'Aujourd'hui*, No. 115, November 1986.
- Carlier, Claude, *Le Développement de l'Aéronautique Militaire Française de 1958 à 1970*, Service Historique de l'Armée de l'Air, Paris, 1979.
- Castillon, Lt. Col. Michel L., "Low-Intensity Conflict in the 1980s: The French Experience," *Military Review*, Vol. 66, No. 1, January 1986.
- "Cent Mille Heures de Vol sur Jaguar à la 11^e E.C.," *Air et Cosmos*, No. 1007, 23 June 1984.
- "Chad and Libya," *Los Angeles Times*, 25 September 1987.
- "Chad Said to Capture Libya Air Base," *New York Times*, 23 March 1987.
- "Chad Says Libyans Bomb 3 Oasis Sites," *New York Times*, 17 January 1987.
- "Chad Seeks French Aid Against Libyan Attack," *New York Times*, 14 February 1986.
- "Chad," *Military Aviation News*, February 1987.

- "Chad: French Role Described," *Defense and Foreign Affairs Daily*, Vol. XII, No. 154, 17 August 1983.
- Chaigneau, Pascal, *La Politique Militaire de la France en Afrique*, Le Centre des Hautes Études sur l'Afrique et l'Asie Modernes, Paris, 1984.
- Chapal, Philippe, "L'Intervention Militaire de la France en Centrafrique," *Ares: Défense et Sécurité*, 1980.
- Chapal, Philippe, "Les Interventions Militaires de la France en Afrique en 1978," *Ares: Défense et Sécurité*, 1978-79.
- Chapal, Philippe, "L'Intervention Militaire de la France au Tchad," *Ares: Défense et Sécurité*, 1985.
- Charollais, François, and Jean de Ribes, *Le défi de L'Outre-Mer: L'Action Extérieure dans la Défense de la France*, Fondation Pour Les Études de Défense Nationale, Les Sept Épées, Cahier No. 26, Paris, 1983.
- Chipaux, Françoise, "Les Troupes Libyennes N'Ont Amorce Aucun Mouvement de Retrait," *Le Monde*, 30 November 1984.
- Chipman, John, *French Military Policy and African Security*, The International Institute for Strategic Studies, Adelphi Paper No. 201, Summer 1985.
- Christienne, Charles, et al., *Histoire de l'Aviation Militaire Française*, Charles-Lavauzelle, Paris, 1980.
- Cogne, Lt. Robert L., "France's Global Reach," *Proceedings of the U.S. Naval Academy*, March 1987.
- Colin, Benoit, "Longue Vie au 1/5 Vendée; 50,000 Heures Sur F-1C," *Air Fan*, September 1987.
- "Controversy After Bombing," AB201610, Paris AFP in French 1456 GMT 20 February 1986, in *FBIS*, Middle East and Africa, MEA-86-035, 21 February 1986.
- "CoTAM: Quand Viendront les Nouveaux Transall," *Aviation Magazine*, No. 773, 1 March 1981.
- Croci, Michel, "Le Jura à 30 Ans," *Air Fan*, Vol. 6, No. 61, November 1983.
- Crosnier, Alain, "Adieu l'Afrique," *Air Fan*, Vol. 7, No. 75, January 1985.
- Crosnier, Alain, "CoTAM 1984," *Air Fan*, Vol. 6, No. 66, April 1984.
- Crosnier, Alain, "L'ALAT au Liban," *Air Fan*, February 1982.
- Crosnier, Alain, "La 4e Division Aériomobile: Fer de Lance de la Force d'Action Rapide," *Air Fan*, March 1987.
- Crosnier, Alain, "La Force Aérienne de Djibouti," *Air Fan*, August 1980.
- "Dans la Corne de l'Afrique Avec Le CoTAM," *Aviation Magazine*, 15 November 1986.
- Darnton, John, "French Troops Keeping Chad from Falling to Rebels," *New York Times*, 15 April 1978.
- De Briganti, Giovanni, "Forces d'Action Rapide: France's Rapid Deployment Force," *Armed Forces Journal International*, October 1984.
- de Galard, Jean, "En Participant à Red Flag, la FATAO Investit," *Air et Cosmos*, 28 February 1987a.
- de Galard, Jean, "Un Système Français Cohérent de Défense Aérienne," *Air et Cosmos*, No. 1133, 7 March 1987b.
- de la Guerivière, Jean, "M. Hissène Habré Marque Une Pause," *Le Monde*, 3 April 1987a.
- de la Guerivière, Jean, "Paris Hésite à Étendre le Dispositif Épervier ou Nord du 16e Parallèle," *Le Monde*, 7 April 1987b.
- "Des Missiles SA 10 Récupérés à Ouadi Doum?" *Le Monde*, 31 March 1987.

- Dobbs, Michael, "Chad Pullout Complete, France and Libya Say," *Washington Post*, 11 November 1984.
- "Dossier: La Force d'Action Rapide," *Armées d'Aujourd'hui*, December 1984.
- Dufour, Jean-Louis, "Armée de Terre: L'Expérience Libanaise," *Armées d'Aujourd'hui*, December 1985.
- Dunn, Michael Collins, "Habre's Libyan Attack Reshuffles Deck," *Defense and Foreign Affairs Daily*, 9 September 1987.
- du Peyrat, Général Michel, "Nos Capacités Militaires d'Action Extérieure," *Défense Nationale*, Vol. 35, May 1979.
- Echikson, William, "France Points a Finger at Qaddafi," *Christian Science Monitor*, 11 August 1983.
- Englund, Jon, and Stephen Aubin, "The JCS and Congress: Lessons from France and Great Britain," *Comparative Strategy*, Vol. 6, No. 3, Fall 1987.
- "Épervier au Tchad: Commentaires Sur Une Operation Réussie," *Air et Cosmos*, No. 1085, 1 March 1986.
- "Épervier," *Air Actualités*, No. 390, May 1986.
- Erulin, Colonel, *Zaire: Sauver Kolwezi*. Eric Baschet Editions, Evreux, 1980.
- "FATAC—Red Flag," *Air Actualités*, March 1984.
- Favin-Leveque, Lt. Col. Jean-Claude, "Transall Nouvelle Generation," *Armées d'Aujourd'hui*, December 1986–January 1987.
- "Force Aérienne Tactique," *Air Actualités*, No. 377, February 1985.
- Forget, Général Michel, "Le Changement dans La Troisième Dimension," *Défense Nationale*, April 1985.
- Forget, Général Michel, "Les Plus-Values Passées et Futures de la FATAC," *Air et Cosmos*, 15 June 1986a.
- Forget, Général Michel, "Le Vent Du Large," *Défense Nationale*, June 1986b.
- "France Crosses 16th Parallel in Chad," *Defense and Foreign Affairs Daily*, 11 May 1987.
- "France Is Under Public Pressure to Free 8 Kidnapped in the Sahara," *New York Times*, 1 November 1977.
- "France Reported to Send Fighter-Bombers to Chad," *New York Times*, 28 April 1978.
- "France Says Its Planes Aided Mauritanian Forces," *New York Times*, 6 May 1978.
- "French Act to Foil Libya Jab at Chad," *Washington Times*, 3 September 1987.
- "French Planes Called in by Mauritania," *London Times*, 23 December 1977.
- Fricaud-Chagnaud, Lt. General Charles Georges (Ret.), *Origins, Capabilities and Significance of the Force d'Action Rapide*, paper presented at the 1983-84 International Security Studies Program Core Seminar on "Prospects for Effective Conventional Defense in Europe," Wilson Center, Washington, D.C., October 1984.
- Fulcrand, Alain, "Operation Épervier," *Armées d'Aujourd'hui*, No. 115, November 1986.
- "Full Chad Pullout Reported Near," *New York Times*, 9 November 1984.
- Gibour, Jean, "A Closer Look at Operation Manta," *African Defence*, October 1985.
- Greenhouse, Steven, "Libya: Warplane Is Downed in Chad by French Forces," *New York Times*, 8 September 1987.
- Gudel, Christoph, "The Libyan Challenge: Qaddafi Challenges France," *Swiss Review of World Affairs*, Vol. 30, March 1981.
- Guhl, Jean-Michel, "L'Aviation Embarquée," *Air Fan*, No. 79, May 1985.
- Guhl, Jean-Michel, "Le Dernier des AD-4 Français," *Air Fan*, No. 13, November 1979.

- Guhl, Jean-Michel, "La Flottille 21F Franchit Le Cap: 50,000 H Sur Atlantic," *Air Fan*, June 1980.
- Guhl, Jean-Michel, "Le Président à Istres," *Air Fan*, September 1987.
- Guhl, Jean-Michel, "Red Flag," *Air Fan*, March 1984.
- Guhl, Jean-Michel, "100,000 H de Vol Sur Jaguar," *Air Fan*, June 1983.
- Guillemin, Jacques, "L'Importance des Bases dans la Politique Militaire de la France en Afrique Noire Francophone et à Madagascar," *Le Mois en Afrique*, No. 188-189, August-September 1981a.
- Guillemin, Jacques, "L'Intervention Extérieure dans la Politique Militaire de la France en Afrique Noire Francophone et à Madagascar," *Le Mois en Afrique*, No. 186-187, June-July 1981b.
- Gwertzman, Bernard, "Chadians Down Libyan Jet Over Oasis," *New York Times*, 6 January 1987.
- Hollick, Julian Crandall, "French Intervention in Africa in 1978," *World Today*, Vol. 35, No. 2, February 1979.
- Hugot, Pierre, "Les Guerres du Tchad, 1964-1983," *Études*, Vol. 359, No. 4, 1983.
- Imbot, General René, "The French Rapid Action Force," *NATO's Sixteen Nations, Special*, January 1983.
- International Institute for Strategic Studies, *The Military Balance, 1983-1984*, IISS, London, 1983.
- Isnard, Jacques, "La Force d'Action Rapide Française Pourra Intervenir en Europe," *Le Monde*, 20-21 November 1983.
- Jackson, Paul A., *French Military Aviation*, Midland Counties Publications, Leicester, 1979.
- Jackson, Paul, *Mirage*, Ian Allan Ltd., Shepperton, Surrey, 1985.
- Junqua, Danial, "France to the Rescue: The Trap Springs on Mauritania," *Manchester Guardian*, 5 March 1978.
- Kandell, Jonathan, "French Jets Have Apparently Joined Sahara Fighting," *New York Times*, 23 December 1977.
- Kandell, Jonathan, "French Seeking New Role in Africa With Troop Aid," *New York Times*, 29 April 1978.
- Kolodziej, Edward A., and Bokanga Lokulutu, "Security Interests and French Arms-Transfer Policy in Sub-Saharan Africa," in Bruce E. Arlinghaus (ed.), *Arms for Africa: Military Assistance and Foreign Policy in the Developing World*, Lexington Books, Lexington, Mass., 1983.
- Koven, Ronald, "France Tells Libya to End Role in Chad War," *Washington Post*, 14 December 1980.
- Koven, Ronald, "France's New Role: Africa's Gendarme," *Washington Post*, 9 May 1978.
- Koven, Ronald, "Left May Change France's Africa Policy," *Washington Post*, 4 March 1978.
- Koven, Ronald, "Qaddafi Scores Victory, French Suffer Setback in Chad Civil War," *Washington Post*, 17 December 1980.
- Kraft, Scott, "Chad Victory Over Libyans a Major Setback for Qaddafi," *Los Angeles Times*, 25 March 1987.
- "L'Armée Aérienne," *Armées d'Aujourd'hui*, May 1985.
- "La FAR et l'Utilisation de Satellites Militaires," *Air et Cosmos*, 19 May 1984.
- Lanne, Bernard, *Tchad Libye - La Querelle des Frontières*, Editions Karthala, Paris, 1982.
- Lellouche, Pierre, and Dominique Moisi, "French Policy in Africa: A Lonely Battle Against Destabilization," *International Security*, Vol. 3, No. 4, Spring 1979.

- Lemarchand, René, "Chad: The Road to Partition," *Current History*, March 1984.
- Lenox, David R., and Thomas M. Dickey, "The Impact of French Defense Commitments on Military Expenditures in Central and West African Nations, 1970-1980," *Global Perspectives*, Vol. 1, Fall 1983.
- "Les Manoeuvres Bilatérales: Katcha et Mayumba 83," *Frères d'Armes*, September/October 1983.
- Lewis, Paul, "France Reinforces Garrison in Senegal," *New York Times*, 3 November 1977.
- Lewis, Paul, "Libya Said to Bomb Chad in Area Defended by France," *New York Times*, 5 January 1987.
- Lewis, William, "War in the Western Sahara," in Robert E. Harkavy and Stephanie G. Neuman (eds.), *The Lessons of Recent Wars in the Third World: Approaches and Case Studies*, Vol. I, Lexington Books, Lexington, Mass., 1985.
- "Liban, Tchad, Mer Rouge, 1983-1984," *Armées d'Aujourd'hui*, May 1985.
- "Libya's Losses at Ouadi Doum Include Tu-22s, SA-10s, 1200 Dead," *Defense and Foreign Affairs Daily*, 26 March 1987.
- Lorell, Mark A., *Casualties, Public Opinion, and Presidential Policy During the Vietnam War*, The RAND Corporation, R-3060-AF, March 1985.
- Lorell, Mark A., *Multinational Development of Large Aircraft: The European Experience*, The RAND Corporation, R-2596-DR&E, July 1980.
- Luckham, Robert, "French Militarism in Africa," *Review of African Political Economy*, July/August 1982, pp. 55-84.
- Lycett, Andrew, "Libyans in Chad: Guests or Hosts?" *The Middle East*, March 1981.
- Mangold, Peter, "Shaba I and Shaba II," *Survival*, Vol. 21, No. 3, May/June 1979.
- "Marine et Relations Extérieures," *Armées d'Aujourd'hui*, No. 106, December 1985.
- Mariotti, Guy, "Projection de Puissance: Des Moyens Pour la France," *Armées d'Aujourd'hui*, May 1985.
- Markham, James M., "Libyan Troops Control Chad's Capital," *New York Times*, 17 December 1980.
- Matthews, James K., and Thomas P. Ofcansky, *Military Airlift Command Operations in Sub-Saharan Africa, 1960-1985: A Case Study of Airpower in the Third World*, Military Airlift Command, USAF, Scott AFB, Illinois, June 1986.
- Meisler, Stanley, "French Force Downs a Libyan Warplane Over Chad's Capital," *Philadelphia Inquirer*, 8 September 1987a.
- Meisler, Stanley, "French Force Sent to Chad," *Los Angeles Times*, 18 February 1986.
- Meisler, Stanley, "Libyan Plane Shot Down by French," *Los Angeles Times*, 8 September 1987b.
- Miller, Judith, "Qaddafi Opens a Second Front with the West," *New York Times*, 23 February 1986.
- MSS, "Damocles: Test Réussi Pour la Brigade Aériomobile," *Aviation Magazine*, 15 October 1984.
- Murray, Ian, "French Shock Troops Put on Alert as Pressure Mounts for Action to Save Sahara Rebels' Prisoners," *Times of London*, 31 October 1977.
- Noetinger, Jacques, *Histoire de l'Aéronautique Française: Hommes et Événements, 1940-1980*, Editions France-Empire, Paris, 1983.
- Noetinger, Jacques, *Histoire de l'Aéronautique Française: L'Épopée 1940-1960*, Editions France-Empire, Paris, 1978.

- Noetinger, Jacques, *Histoire de l'Aéronautique Française: L'Essor 1960-1980*, Editions France-Empire, Paris, 1984.
- "Notre Ami Michel Croci," *Air Fan*, March 1984.
- "Nouveaux Engagements Libyens au Tchad," *Air et Cosmos*, 17 January 1987.
- Olson, Dr. William J., "Airpower in Low-Intensity Conflict in the Middle East," *Air University Review*, Vol. 37, No. 3, March-April 1986.
- Ottaway, David B., "US Sending Emergency Military Aid to Chad," *Washington Post*, 19 December 1986.
- Palmer, Bruce, Jr., "U.S. Security Interests and Africa South of the Sahara," *AEI Defense Review*, Vol. 2, No. 6, 1978.
- "Paris Confirms Air Raids Against Sahara Forces," *New York Times*, 24 December 1977.
- Parmelee, Jennifer, "Libyans Display Chadian Prisoners in Recaptured Town," *Los Angeles Times*, 30 August 1987.
- PC, "Ravitaillement en Vol et Interventions Extérieures," *Aviation Magazine*, No. 774, 1 March 1980.
- Phelut, Lt. Col. Georges, "Les Capacités D'Actions Extérieures: Intervenir Sous Tous les Ciel," *Armées d'Aujourd'hui*, 79, No. 38, March 1979.
- Pimlott, John, "The French Army: from Indochina to Chad, 1946-1984," in F. W. Beckett and John Pimlott (eds.), *Armed Forces and Modern Counter-Insurgency*, St. Martins Press, New York, 1985.
- Pissochet, Hector, "Jaguar au Decollage," *Armées d'Aujourd'hui*, Vol. 79, No. 43, September 1979.
- "Polisario Guerrillas Charge French Attack in West Africa," *New York Times*, 19 December 1977.
- Pons, Jacques L., "Lessons of Modern History: The French Experience," in Sam C. Sarkesian and William L. Scully (eds.), *U.S. Policy and Low-Intensity Conflict: Potentials for Military Struggles in the 1980s*, Transaction Books, New Brunswick, 1981.
- "Premières Interventions Armées du Jaguar," *Air et Cosmos*, No. 699, 31 December 1977.
- Projet socialiste: Pour la France des années 80*, Club Socialiste du Livre, Paris, 1980.
- "Quatre Jaguar Ont Participé à l'Exercice Franco-Gabonais Estuaire 1977," *Air et Cosmos*, No. 695, 3 December 1977.
- Reed, Arthur, *SEPECAT Jaguar*, Ian Allan Ltd., London, 1982.
- Ruehl, Lothar, *La Politique Militaire de la V^e République*, Presses de la Fondation Nationale des Sciences Politiques, Paris, 1976.
- Sabrosky, Alan Ned, "The Defense Policy of France," in Douglas J. Murray and Paul R. Viotti (eds.), *The Defense Policies of Nations: A Comparative Study*, Johns Hopkins, Baltimore, 1982.
- Salvan, Colonel, and Edouard Sablier, *Liban 1978*, Eric Baschet Editions, Paris, 1979.
- Selles, Michel, *La Force Aérienne Tactique: Organisation, Insignes d'Unités, Avions, Armements*, Amion de Publicité et d'Édition, Paris, 1983.
- Seznec, Bruno, "Afrique: L'Oeil de l'Épervier," *L'Express*, 30 May-5 June 1986.
- Spartacus, Colonel, *Les Documents Secrets; Operation Manta, Tchad 1983-1984*, Plon, Paris, 1985.
- Steward, Major Richard A, and Janet Allen, "The French RDF," *U.S. Naval Institute Proceedings*, March 1985.
- "Tchad: Renforcement du Dispositif Français à N'Djamena et Dans le Nord du Pays," *Air et Cosmos*, 8 March 1986.

- "Tchad: Aide Logistique Française Accrue," *Air et Cosmos*, 10 January 1987.
- Thompson, Virginia, and Richard Adloff, *Conflict in Chad*, Institute of International Studies, Berkeley, 1981.
- Trainor, Bernard E., "Chad's Anti-Libya Offensive: Surprising Successes," *New York Times*, 12 January 1987.
- "Trente-Deux Mois de Présence Navale au Liban," *Armées d'Aujourd'hui*, May 1985.
- Trichet, Jean-Claude, "Les AWACS Français en Service en 1991," *Aviation Magazine*, No. 936, 15 September 1987.
- "Victories Shore Up Chadians," *New York Times*, 18 January 1987.
- Wayne, E. A., "U.S. Ready to Send Stingers to Chad," *Christian Science Monitor*, 5 October 1987.
- Wendt, James C., and Nanette Brown, *Improving the NATO Force Planning Process*, The RAND Corporation, R-3383-USDP, June 1986.
- Wilson, George C., "Qaddafi on Verge of Significant Military Win in Chad," *Washington Post*, 25 November 1980.
- Yost, David, *France and Conventional Defense in Central Europe*, EAI Paper No. 7, Marina del Rey, Spring 1984.
- Yost, David, "French Defense Budgeting: Executive Dominance and Resource Constraints," *Orbis*, Vol. 23, No. 3, Fall 1979.
- Yost, David S., "French Policy in Chad and the Libyan Challenge," *Orbis*, Vol. 26, No. 4, Winter 1983.
- Yost, David, "The French Way of War," *Nuclear Strategy and National Style, Vol. II*, Hudson Institute, DNA 5814F-2, July 1981.
- Zecchini, Laurent, "Dans Le Vieux Fort de Biltine les 'Marsouins' Veillent . . .," *Le Monde*, 22-23 February 1987a.
- Zecchini, Laurent, "Les Nouvelles Inquietudes de Paris et de N'Djamena," *Le Monde*, 8 March 1987b.
- Zecchini, Laurent, "L'Operation Épervier La France Prête à Repousser Une Nouvelle Attaque au Tchad," *Le Monde*, 20 February 1986.
- Zecchini, Laurent, "Un Pas Decisif Dans La Reconquête du Tchad," *Le Monde*, 29-30 March 1987c.