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22 April 1981

# West Europe Report

(FOUO 21/81)

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WEST EUROPE REPORT

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THEATER FORCES

FRANCE

NEW 'NEUTRALIZING' TACTICAL WEAPONS DESCRIBED

Paris AIR & COSMOS in French 14 Mar 81 pp 14-15

[Article by Jean de Galard]

[Text] The visit made recently by Galley, minister of Defense, to the Luxeuil Air Base, during which he had them show him the whole array of modern weapons of the Tactical Air Force (see AIR & COSMOS No 849), reveals the importance attached by the Air Force Staff and the FATAAC [Tactical Air Force] Command to equipping the aircraft in service in the units of the FATAAC/1st RA [Air Region] with new neutralizing weapons for tactical purposes, that is to say in the battlefield environment and for attack missions on the ground, which are still the priority mission of every tactical air force in the world.

Experience in the conflicts that have occurred during the last few years has shown that there are at least four fields in which mastery belongs to the one who has highly specialized conventional tactical weapons: destruction of aviation infrastructure, attack on armored units, attack on hard targets with vertical development, attack on well-protected targets whose dispersal and mobility do not, however, justify the use of weapons with a high degree of accuracy.

Thomson-Brandt, an armament specialist with much experience in the fields of ballistics, explosives, propulsion and pyrotechnics, has produced and now proposes a whole range of conventional weapons -- rockets and bombs -- some of which have been decided on by the French Air Force and by foreign air forces. We shall discuss here more particularly four kinds of munitions whose use proves to be effective in each of the four fields mentioned above: the BAP-100 antirunway bomb, the BAT-120 tactical support bomb, the 100-millimeter rocket that can be equipped with various kinds of warhead, the modular bomb.

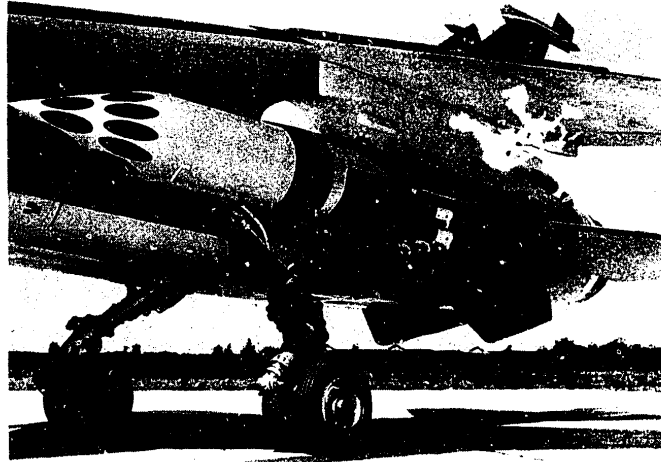
The BAP-100

This bomb, which has been adopted by the French Air Force, has been designed for neutralizing runways (hence its acronym, BAP [anti-runway bomb]) and airfield infrastructures made of concrete. The builder had to seek a compromise between two obvious requirements -- certainty of striking the runway and amount of destruction -- in the design of this bomb. In order to be sure of striking the runway, the attacking aircraft has to carry a large number of bombs. In order for the destruction to be substantial, the penetration speed has to be high. It is not so much the volume of the bomb and its charge that has to be considered. The third requirement that

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the builder had to take into account is not to make the pilot make more than one pass over the target, because of enemy antiaircraft defense, which is usually powerful on an air base or even on a mere runway.



Under the wing of a Mirage F1, a CEM1 multiple carrying container produced by Dessault, carrier to the rear of six BAP-100 antirunway bombs.

The BAP-100 are dropped in a large number (from 12 at least to over 100) and form strings of craters close together, large enough to prevent any aircraft movement and to require mechanical repair facilities. The space between two destruction zones must be less than 15 meters. Each BAP-100 causes damage requiring the repair of 50 square meters. These results are achieved by using a 3.5-kilogram explosive mass in each bomb, which penetrates under the runway at a speed of 250 meters a second on impact. The 100-millimeter caliber was chosen.

It is important for the maximum number of bombs to be carried using the minimum number of pylons, in order to allow fuel to be carried, or CME [electronic counter-measure] pods, or else other weapons. Hence the solution of hanging in clusters (see photograph).

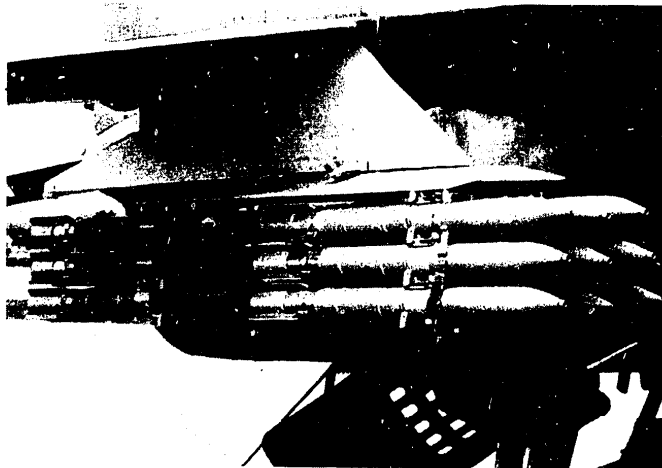
Seven minutes are all that is needed for attaching 18 BAP-100 under one of the support points on a Jaguar or for placing 16 BAP-100 in tandem under two adapters installed under the wing structure of a Mirage III.

The dropping sequence was designed for very low altitude and it provides protection of the aircraft from the explosion bursts. It also provides the best speed and the best penetration angle of the bomb at impact.

Immediately after it has been ejected, the bomb is braked by parachute. At the desired time, the propellant is ignited and causes the speed of the BAP-100 to increase from 25 to 250 meters a second. After impact, the charge is "initiated" when the bomb is already under the concrete pavement. The BAP-100 is operational

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now. It equips Air Force Jaguar and Mirage aircraft. It can also equip Alpha Jet aircraft (multiple containers each capable of carrying 18 rockets and 6 BAP).



These 18 BAP-100 antirunway bombs, carried by a 30-6-M2 launcher, arranged in groups of nine, are attached to the inside support point of the right wing of a Jaguar.



Sixteen BAP-100's under the fuselage of a Mirage-III.

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Substantial damage caused by the impact and explosion in depth of a BAP-100 antirunway bomb.

The 120-millimeter BAT Bomb

The 120-millimeter tactical support bomb is an extrapolation of the BAP-100 with regard to firing sequence. Produced for attacking columns of armored vehicles, it was designed to explode on contact with the ground, without an acceleration phase. The BAT-120 is derived, with regard to the explosive head, from the 120-millimeter anti-armored-vehicle rifled shell, which is the ammunition for the rifled mortar adopted and ordered in large quantities by the French Army. Each splinter of the exploded bomb weighs 16 grams and is capable of penetrating 12 millimeters of armor in a radius of 15 meters. The BAT-120 is very effective against all armored vehicles and tanks on the battlefield.



Eighteen BAT-120 tactical support bombs under the fuselage of a Jaguar.

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#### 100-millimeter Rockets

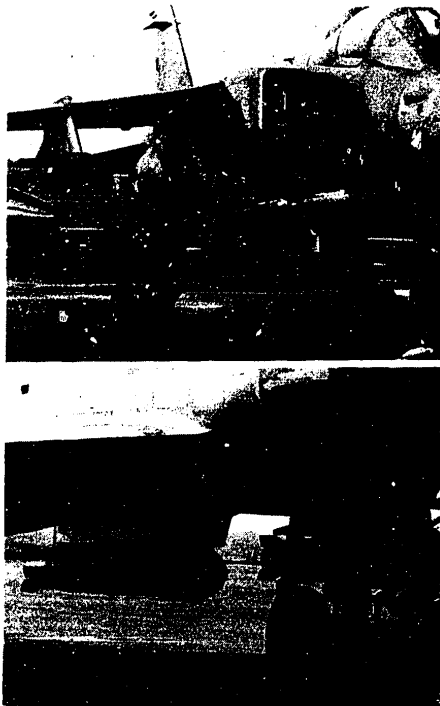
For several years, Thomson-Brandt has been proposing a system of 100-millimeter rockets, fired from a four-tube rocket-launcher, for attacking hard targets with vertical development. This type of rocket and launcher has been adopted and ordered by the Air Force and by several foreign air forces. The four-tube launcher is designated as F-3.

Five different warheads can be mounted on the propellant: inert training head, hollow charge head, demolition head, general-purpose explosive head, multiprojectile kinetic effect head. A rocket with a demolition warhead is accelerated to reach a speed of 1,000 meters a second on impact. It explodes behind the armor plate with a 0.5 millisecond delay.

It can also penetrate 5 meters of earth and 30 centimeters of concrete before exploding. With a hollow-charge rocket, penetration is on the order of 60 centimeters.

With modern fire-control methods, the pilot of an aircraft so equipped can fire accurately at aircraft-target distances on the order of 6,000 meters.

#### Modular Bomb



Modular bomb. Top, under the wing and fuselage of a Jaguar (total, three). Bottom, under the wing of a Mirage-III (total, two).

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Thomson-Brandt is completing, at present, adjustment trials of a specific bomb called modular bomb and proposed in two versions -- 400 kilograms and 250 kilograms -- for use against armored vehicles whose armor is thicker than on VTT (all-terrain vehicles) and armored cars.

The modular bomb serves as a vehicle with three large 100-kilogram modules ejected in succession at predetermined times. Each module projects 700 calibrated 80-gram splinters on impact with the ground at 2,000 meters a second. Each module is dropped at about 200 meters from the preceding one and explodes in a vertical attitude to the ground. Dropping is accomplished at low altitude and very high speed. A dispersal weapon is involved.

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POLITICAL

FEDERAL REPUBLIC OF GERMANY

POLL FINDS GAIN IN CDU/CSU POPULARITY

Allensbach ALLENSBACHER BERICHTE in German No 4, 1981 pp 1-3

[Report by Institut fuer Demoskopie Allensbach: "The Union Parties Have Caught Up: 48.4 Percent--Loss of Confidence in the Federal Chancellor"]

[Text] Allensbach am Bodensee, Early March 1981--"If there were to be Bundestag elections again next Sunday," the German Bundestag would have quite a different configuration from that of 5 months ago after the 5 October elections. Instead of a clear election victory, the government parties would just barely arrive at a stalemate with the CDU/CSU, primarily because of the massive SPD reverses. Only 38.4 percent of those eligible to vote would vote for the Federal chancellor's party at this time (as compared to 42.9 percent in the 5 October elections). The FDP, with a share of 9.9 percent of the votes (previously 10.6 percent), would experience slight losses also. The opposition parties, CDU and CSU, would be the ones to profit from that change of opinion. They could count on 48.4 percent of the ballots (compared with 44.5 percent during the Bundestag elections). This is the present status of the parties, as determined in an FRG-wide poll during February 1981.

The Federal chancellor's standing was impaired also as a result of the Federal Government's initial difficulties and the SPD's crisis of style. Only 43 percent of the FRG's citizens are still in agreement with the chancellor's policies now, instead of the 55-percent approval he had immediately after the Bundestag elections. This does not signify total disenchantment for many: the main increase did not so much occur among those registering definitive "disagree" but primarily among the "undecideds." They are apparently keeping their judgment in abeyance.

Technical Data for the Editor

|                                 |   |
|---------------------------------|---|
| Total number of persons polled: | about 2,000                                       |
| Population represented:         | FRG area including West Berlin; ages 16 and above |
| Duration of the poll:           | February 1981                                     |
| Number of interviewers:         | 358   |
| Questionnaire file numbers:     | 3,093; for the trend: 3,089, 3,090, 3,091, 3,092  |

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Table 1.

| <u>Stand der Parteien</u> (2)   |      | Tabelle 1 (1)<br>Bundesgebiet ohne West-Berlin<br>Wahlberechtigte Bevölkerung |      |        |              |                             |
|---|------|---|------|--------|--------------|-----------------------------|
| (3) FRAGE: "Wenn schon am nächsten Sonntag wieder Bundestagswahl wäre: welche Partei würden Sie dann wählen?" |      |   |      |        |              |                             |
|   |      | CDU/CSU   | SPD  | F.D.P. | (4)<br>Grüne | (5)<br>Sonstige<br>Parteien |
|   |      | %   | %    | %      | %            | %                           |
| (6) 1980, Bundestagswahl von  |      |   |      |        |              |                             |
| 5. Oktober (Zweitstimmen) (7) ..  | 44,5 | 42,9  | 10,6 | 1,5    | 0,5          | 100                         |
| 15. - 24. Oktober .....   | 45,0 | 43,6  | 9,7  | 1,5    | 0,2          | 100                         |
| 31. Okt. - 12. Nov. ....  | 46,2 | 40,4  | 10,5 | 2,5    | 0,4          | 100                         |
| 29. Nov. - 8. Dez. ....   | 46,1 | 39,3  | 11,3 | 2,3    | 1,0          | 100                         |
| 1981, 15. - 31. Januar .....  | 46,6 | 39,7  | 10,1 | 2,6    | 1,0          | 100                         |
| 7. - 19. Februar .....  | 48,4 | 38,4  | 9,9  | 2,7    | 0,6          | 100                         |

Key:

1. FRG Area Exclusive of West Berlin; Eligible Voters.
2. Party Standing
3. Question: "If there were to be Bundestag elections again next Sunday, for which party would you vote?"
4. Greens
5. Other Parties
6. 1980 Bundestag elections
7. Second Votes

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Table 2.

| <u>Das Einverständnis mit dem Bundeskanzler</u> (2)  |                      | Tabelle 2 (1)<br>Bundesgebiet mit West-Berlin<br>Bevölkerung ab 16 Jahre |                                      |
|--|----------------------|--|--------------------------------------|
| (3) FRAGE: "Sind Sie im großen und ganzen mit der Politik von Bundeskanzler Schmidt einverstanden oder nicht einverstanden?" |                      |  |                                      |
|  | (4)<br>Einverstanden | (5)<br>Nicht einverstanden   | (6)<br>Unentschieden,<br>kein Urteil |
|  | %                    | %  | %                                    |
| 1980, Oktober .....  | 55                   | 27   | 18 = 100                             |
| November .....   | 51                   | 26   | 23 = 100                             |
| November/Dezember .....  | 48                   | 26   | 26 = 100                             |
| 1981, Januar .....   | 48                   | 26   | 26 = 100                             |
| Februar .....  | 43                   | 28   | 29 = 100                             |

Key:

1. FRG Area Including West Berlin; Population Age 16 and Older.
2. Agreement with the Federal Chancellor
3. Question: "All things considered, do you agree or disagree with Federal Chancellor Schmidt's policies?"
4. Agree
5. Disagree
6. Undecided; no opinion

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POLITICAL

FRANCE

DEVELOPMENT OF NATION'S AFRICA POLICY REVIEWED

Paris MARCHES TROPICAUX in French 13 Mar 81 pp 647-650

[Article]

[Text] One of the best-informed observers of French policy in Africa has prepared for readers of MARCHES TROPICAUX the following study in which he describes the difficult conversion imposed on France by the accession to independence of its former African possessions.

A Certain Concept of Africa

French policy has not yet fully crystallized with regard to independent Africa. It is a question, in reality, of changing our perspective on a continent where, in an unprecedented way, we have simultaneously held departments that were an integral part of the national [French] territory, protectorates, colonies, mandated countries, and still more recently, an overseas territory. In Egypt, we were at one time successful in cultivating a unique and prestigious economic and cultural establishment. Those forms of presence and those very diverse ties, for all sorts of reasons, are a thing of the past.

This eclipse, these ruptures, which have sometimes assumed humiliating or even tragic aspects, explain in large part the problems of accommodation which still show through our political comportment with regard to Africa. This is what explains several zigzags which are perfectly excusable in the development of a policy that takes pains to distance itself from the past without however repudiating the positive aspects, and to chart paths well adapted to the new post-independence canvas.

This being the case, our reflexes are often not fast enough in the face of events which only yesterday were by definition inconceivable. We were accustomed, for example, to take for granted the absence of dispute between Morocco, Algeria, and Mauritania. Now such contention undeniably exists today. It is our part, under the circumstances, not to underestimate our ability to serve as mediators. Here as elsewhere we must contrive to adjust our distance with respect to these henceforth independent partners. It continues to happen today that we find ourselves too close to some, or too distant from others. Our concern not to incur the reproach

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of infringing on the prerogatives of sovereignty is only equalled by the generally unpredictable reactions of our interlocutors to the hesitant initiative. What we mean, in the last analysis, is to accept the various governments but to choose our friends.

Soon after the wave of independence, we had the tendency, faced with a newly-freed Africa, to stamp on each country, in filigree, the outlines of its former status. The development of our policy today is in the direction of taking into account the new pecking order which has been established among those states, not in terms of henceforth abolished ties, but rather on the basis of the power relationships and characteristics which rule their unique evolution and the destiny which must be theirs. In order to come more easily to a better perception of this new aspect of things, it might have been better to sweep away very quickly, at the Parisian level, the sometimes skimpy administrative apparatus through which, in theory, our Africa policy was expressed. In reality, most of the work was done in the field, for all, or nearly all, of the responsibilities were found in the hands of resident ministers and governors general.

In the ministry of overseas France, the officials at the head of political affairs provided a modest staffing level and reduced activities. In the department of foreign affairs, one gleans from the diplomatic yearbook of 1937 that the "Africa-Middle East division" consisted of only eight agents and one assistant, responsible "for correspondence and political, commercial, and financial work and disputes regarding Tunisia, Morocco, European possessions in Africa, Egypt, Abyssinia [Ethiopia], Turkey, Syria, Palestine, Iraq, and Arabia." At that time, the "service of French overseas activities" consisted, in truth, of seven people to deal with "questions concerning French intellectual expansion abroad."

This relaxation of our political initiatives in Africa should merit a long commentary. In that regard, events suggested three kinds of analysis: in black Africa, the activities of our high-ranking officials, in the field, undoubtedly played a decisive role in implementing a peaceful process leading to independence. In Morocco, by contrast, when things started to become difficult, it was realized too late that the concept of protectorate had been so emptied in the field of its original content that it could no longer serve the dynamics of independence as had been hoped, but to the contrary it was impeding it, with results we all know. One last mistake, and not the least, for which we have paid a heavy price: the presence, at the head of the three Algerian departments, not of a regional prefect, which would have been normal and useful, but of a "governor general" who ran Algeria out of an overgrown administrative headquarters all of those officials came from the homeland.

Institutional change proved halting: in 1962, for example, a ministry of state for Algerian affairs was created, rather than entrusting them without further delay to the Quai d'Orsay which, it was said at the time, "did not want to hear about it." A lack of realism, a disguised denial? We do not know. That persistent lag between the political realities in which we are living and our mode of approach is probably a defect in old countries. These dead weights, often set out explicitly, still result in the survival of poorly adapted institutions, particularly inadequate for understanding African political problems in their totality. Certainly, some praiseworthy efforts have been made, but nothing convincing has yet seen the light of day.

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It goes without saying that the conditions of disengagement we had to face were, obviously, burdened significantly by the political behavior which came to be ours. Our relations with the Maghreb--whether we speak of Morocco, Tunisia, or a fortiori of Algeria--still bear the imprint of transition periods that were not lacking in confrontations and even tragedy. As soon as delicate subjects are broached, the effects of those traumas reappear and embarrass us. In this connection, our relations with Algeria unequivocally reflect the weight of a still too-recent past.

In black Africa, by contrast, independence was achieved without violence or hatred. This remarkable difference has had a striking impact on French officials and on the general public, at the same time as it has provoked a renewal of interest in the sub-Saharan part of the continent. After having most often won over public opinion and French political observers, the black African countries went through two promotional operations: first, the 1931 Exposition, which aroused French pride and gave birth to the concept of empire; then, the "independence" process which, indubitably, excited a form of attention that was not without the stale flavor of somewhat retrograde colonialism, but was still sympathetic enough to hold its own against empire-building. People say ecstatically or with a knowing air that "they have not changed the way they regard us." No, of course not. But the times, however, have indeed changed.

Now that Africa is closer to us, thanks to the facilities now provided by the airlines, we consider that Africa is now in an accessible environment. We give it a special place in the ranking of our political concerns. For we continue to have the feeling--not without foundation--that our interests are there, more than elsewhere, along with our means. The widely known and even homely image France has on this continent derives from the multiplicity and quality of our personal relations, and from the political, economic, and cultural ties we have come to sustain and develop.

It remains for us to liberate our perspective still further from a certain historical framework, in order better to balance our field of action; to make ourselves better understood in some countries, without for all that neglecting our longstanding friends.

The Francophone Dogma and the Taste of Bilateral Action

On the list of reactions and motivations of which we have just been speaking, the notion--or rather, the criterion--of "francophoneness" has had a preponderant influence on the quality of the ties we have decided to maintain in Africa. This "hexagonal" dimension, which pervades the choices we have made, led to forming the ministry of cooperation, which implements the bilateral accords which have been signed with 26 countries, 21 of which are on the African continent. The geographic jurisdiction of this department, which extends from the Indian Ocean to the Caribbean (economic investments in Haiti) is characterized by fairly wide dispersion. This absence of homogeneity is in part compensated by methods of work and an approach that give French assistance its uniqueness and, it must be said without false modesty, an often enviable record of effectiveness. The times, geographic realities, and political connections have justified French authorities



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in a prudent and limited extension [of assistance activities] beyond groups in which our language is predominant. Thus accords have been signed in recent years with Portuguese-speaking countries such as the Republic of Cape Verde, Guinea-Bissau, and Sao-Tome, as well as with the formerly Spanish Equatorial Guinea.

It must be recognized that the francophone base on which most of our aid rests leads one to identify disparities between certain contributions which belie the relative importance of the countries concerned, when taken apart from the francophone consideration. Thus Togo, for example, is getting from France (the ministry of cooperation) six times as much assistance as the ministry of foreign affairs pours out to the Nigerian Federation. As for the Republic of Djibouti, it enjoys French assistance which in total is some 50 times what we are allotting to Kenya. Another feature of the homogenous treatment given to francophone countries: the existence of a monetary zone covered by the franc and which gives its members some not insignificant advantages: integral convertibility and fixed parties with respect to the franc, special drawing rights, "domination of the CFA Fr over neighboring currencies barred from any quotation and whose real value is considerably below the official rates.

This relatively closed facility, which contrasts openly with the worldwide concept adopted--one might say, preserved--by the British in their Department of Overseas Development, which deals with more than 100 countries, seems to justify the French concern to make certain kinds of bilateral aid privileged.

The decade just ended saw France increase, sometimes significantly (one thinks of the UNDP), its total subscriptions to groups promoting multilateral aid. But still in the last analysis it seems clear that this type of activity continues to repel us, precisely because of its cumbersome procedures, its anonymity, and the factitious but basically inconsequential prestige these organizations boast.

Cooperative Action in Which Creative Imagination Must Conquer Routine

This is not the place for us to detail the various forms assumed by our initiatives or to make the more or less convincing judgments on the record; but rather we will limit ourselves to judging the direction of our progress, its ability to adjust itself to the pace of development, its pitfalls.

The grand objectives remain training, self-subsistence, improvement of administration, financial balance, and security. The major threats are termed demographic pressure, unemployment, negligence, financial problems, overt or larval conflicts. One must give separate consideration to political instability, the causes of which are the subjects of analysis and not identifiable problems capable of being resolved through external activities. Finally, the predicament of the poorest countries constitutes, in the eyes of our country, a matter which now, more than ever, requires special attention, or in other words specially tailored forms of assistance.

Before going further, it would not perhaps be irrelevant to emphasize that in Africa--and still today--the mode [of assistance] offered is of greater importance than either the value or the volume of what is offered. The gift given wisely becomes a pledge of friendship and even a talisman. In this connection, it is

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appropriate to keep in mind that drilling a well could easily rival the grant of a hundred scholarships, in terms of psychological impact.

This scale of values, rather foreign to our own, presents a dimension of our activities that should not be neglected.

With respect to training, our personnel effort in the teaching corps has far and away the highest priority (more than 8,000 out of a total of 11,000 aid personnel). This privileged calling that is entrusted to us must in no way be underestimated; the weight of its impact is only equalled by the uncertainty of the consequences of this vast "acquisition of knowledge" operation. Too often the beneficiaries find themselves in channels not well adapted to supplying the country with the dynamism desired. We can do nothing, or very little, about the danger of growing unemployment among intellectuals. Unless we decide to adopt a policy which would be exerted in a particular direction at the start, and which would consist in reserving a significant percentage of the requests for teachers and scholarships to positions with institutions of technical education and, more generally, to training leading to qualifications other than purely intellectual ones. President Senghor decided one day to "hunt out the law graduates": he returned empty-handed and gave up restricting their proliferation. These options and these orientations, for lack of restraining their anarchic development, are preparing perilous tomorrows for the African countries. In this especially sensitive field, it is rarely expedient to give lavish advice, even to one's best friends.

The efforts made in rural development are tied to the problem of reaching self-subsistence, with its corollary, a controversial subject, food aid. The multiple efforts to improve the level of productivity in these countries are part of a pattern inside which are hidden the essence of Africa: its customs, its superstitions, the very roots of its birth. One must not forget the primordial role of "possessors of the land" in the state structures of pre-colonial Africa. That is to say the place occupied, both physically and socio-culturally, by those immense rural areas on which most of the human potential of Africa still lives. A world of slowness and the precision of ritual acts, an atemporal world where every effort to change shakes an edifice of unimaginable dimensions the largest part of which remains invisible. The colonial administration, aware of the fortress-like nature of even the most humble rural bush community, applied itself to a course of action that was both prudent and cautious. The actual establishment of mutual benefit associations which ultimately became an effective network of protection against drought years and the vagaries of harvests were concrete expressions of the success of an activity which offered the double advantage of physical presence and continuity.

One could of course mention the spectacular agricultural developments achieved in Africa under European colonialism: the French and Italians in North Africa, the British in Zimbabwe and Kenya, the Portuguese in Angola, and the Boers in South Africa. But the natural tendency to compare these successes with the modest performances of the independent states would be no more fair than the idea of comparing the results obtained by those colonists to those obtained by an Ardechois or Breton smallholder.

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The administrative and financial mechanisms these countries have created leave much to be desired, both from the point of view of their design and from that of their operation.

Inadequate most of the time, they respond poorly in the hands of newly trained officials whose basic comportment and consequently whose scale of values corresponds at best very imperfectly to the administrative norms which those institutions are supposed to apply and enforce. A single example should suffice to illustrate the serious harm caused by the use of regulations conceived in accordance with a certain definition of tasks which most often is very distant from local notions: thus the idea of a wage, in Africa, does not express, at least not yet, the idea of reward for labor, but is instead tied to the concept of a periodic contribution, the regularity of which is enviable and sought after, and which does not involve them, as beneficiaries, in a corresponding obligation in the form of service rendered with the same regularity. This gives rise to the negligence which marks most administrations. One could assuredly dwell at length on irritating instances of this state of affairs, to which a number of palliatives have been applied, without conclusive results. It suffices, however, to recall that this is a problem linked to the notion of authority, and consequently to the idea of sovereignty, to be able to realize without going any further that there is no practical solution, and that progress basically depends on the pace of development itself.

A day will come when the western models will have undergone enough modification to become the unique systems required by the African countries. We, along with our partners, should never lose sight of this process of adaptation which all too often, it must be admitted, yields to a purely outward mimicry and inefficient routine that consists in preserving arrangements that have come from elsewhere.

Among the major concerns of developing countries--and some continue to be astonished by it--is security. It seems, in fact, that this concern, which is proper to any government, is still resented, here and there, as a reprehensible, even unhealthy concern to procure arms and practice some sort of intemperate militarism instead of devoting themselves peacefully, in the bucolic manner, to the tasks of progress. This kind of angelic behavior, which no developed country can justify in his own country's behavior, cannot withstand the sometimes anguishing realities that inspire the anxiety of the countries concerned. Both internally and externally, these states need to provide themselves with means of safeguarding public order and guarding their borders. The euphoria of the first years of independence is already long gone. Now it is a question of reckoning with subversion, attempts at destabilization, the appetites of the most powerful. Events long ago, as well as others more recent, confirm the fact that these worries are well-founded and the risks are real.

French cooperation, for its part, has taken the measure of this problem and is trying, in accordance with its means, to respond to the demands for technical assistance that are made of it in this particular field. One might recall, in this connection, that in the very first days after Algerian independence, our partners made haste to ask, as the first expression of Franco-Algerian cooperation, for a police academy with French instructors, which was set up in great haste at Sidi-bel-Abbes, in a still-disorganized country.

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To help these countries in establishing their security forces does not mean providing them with unsuited armaments that are costly and difficult to use.

Nonetheless, this order of concerns is an integral part of the imperatives of development, because it is so true that nothing can be achieved under the sway of fear or in a climate of insecurity. It is, in fact, to do justice to a lucid notion of independence and a modern conception of aid to new countries when one agrees to work with them on improvements that both psychologically and practically respond to a certain ethic of order, respect for law, and territorial integrity. The taboos on subjects of cooperation only exist to the degree that they are defined together and classed as such.

To complete the outline of this hastily traced sketch of French aid, there remain to be said a few words about the least developed countries, with emphasis on the attention France intends to devote to them, in hopes of dividing that interest-- which can be justified and sustained for a number of reasons--among the greatest possible number of donor states. There are, in reality, in the present state of affairs, forms of destitution which tend to be permanent. This process must be broken, and, to that end, means other than the procedures that have become standard for almost all the donor countries and specialized institutions must be used. To arrest this spiral of poverty, one must necessarily transcend the accepted rules, in order to apply a treatment that is capable of attacking the very sources of the malady. It is no longer a question, in fact, of financing some particular rural project or training program, but rather of trying to save states that are adrift, whose foundations are endangered. One must hope that the conference on the LLDC's (least developed countries), which is to be held in Paris in September 1981, will be able to tackle this subject clearly and resolutely.

The Political Climate of Today's Africa

In today's Africa, France must simultaneously define its objectives, measure the extent of its possibilities, and express its political will by identifying, as events unfold, its points of application.

The life of the continent arouses sustained interest on the part of the media. Taking the place, in a manner of speaking, of the once habitual chronicle of South American revolutions, Africa gets sensational treatment and big headlines, though perhaps fabricated. Even Asia and its spectacular misfortunes--one thinks of the boat-people--have had some difficulty in staying on the front pages of the newspapers. This attention tends to set up a sort of screen, between the public and the reality of things, on which pell-mell appear wild beasts, fantastic tyrants, murderous famines, illustrated by unbearable photographs, etc. Behind this chronicle, from which one mostly retains the anecdotal and exotic aspects, Africa's political relations with the rest of the world are woven, strained, strengthened. Responsible French authorities, for their part, are regularly called to account for their actions, either by the government or on the demand of the mass media. Only a few years ago, an Englishman claimed that out of 10 people questioned at random on the streets of London, at least half maintained that India was still a part of the British Empire. In France, no question posed about francophone Africa, no matter who the author, is entirely free of a certain feeling of haughty proprietorship.

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To act as in the colonial times, to do "something," to do nothing at all: those are, in essence, the most frequently recorded questions. In his January 27 press conference the president of the republic stated, at the start of the event, that up to a certain point he felt the need, every time a question on francophone Africa was posed, to confirm the unspoken assumptions that still pervade the public--and even the specialists.

Another burden which weighs on that Africa policy which the French expect of their leaders, it is true, is the set of material and moral responsibilities entrusted forever to the old colonizers, always deliberately invoked by our ex-charges, particularly at the instigation of the progressive countries, always invoked by the Soviet bloc, to elude any commitment on development. Though one must naturally reject any feeling of culpability, it is not dishonorable--quite the contrary--to imagine that in our behavior toward Africa the idea of moral commitment remains present and active.

More, perhaps, than the British, the Belgians, or the Italians, we have retained from our overseas adventure an emotional imprint, most probably due to the fact that the relative poverty of our ex-colonies led us to concern ourselves above all with the living conditions of their inhabitants.

It is for all these reasons that our policy shows itself to be the most compact, or, if one prefers, the most integrated. Its register extends from drilling a well to armed intervention.

Its complexity allows some to fault it for not being "French" enough, for being rather too "African," or vice versa. It is hard to say who is right. One fact remains: this policy occupies a place all its own in our network of foreign relations. It is no longer the apanage of a specialized ministry, but an integral part of our international mission.

#### The Incisive Thrust of Islam

But we are not alone in our interest in Africa's development. This continent has welcomed, in varying degrees of enthusiasm, several ideological and political options which are given free rein there. Marxism, patiently offered by the Soviets, wherever they happen to be, has ended up finding some openings and succeeded, here and there, in at least partially positive demonstrations: some African leaders are discovering in it--at least until disproved--a means of holding on to power; they also draw from it a style of relations with the people which seems comfortable for them, to the extent that everything that is accomplished, for good or for ill, arises from the initiative and on the responsibility of the people. Also, the Soviets offer--in addition to weapons, which are always appreciated--scholarships that permit young Africans to go to the USSR and satisfy, at least initially, their taste for travel.

In the field, among all the "sub-contractors" used by Moscow, the East Germans--one should have expected it--who have shown themselves most effective.

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This promotion of collectivism gladly shelters itself behind the particularly incisive thrust of Islam, which has found a standard-bearer in the person of the Libyan leader Moammar El Qadhdhafi.

Next year the 1350th anniversary of the death of the Prophet will be celebrated. Some are already thinking about celebrating the beginning of the 15th century after the Hegira with special pomp. This Muslim renewal is accompanied by a pan-Arabism in the face of Israel, and by its petrodollar wealth. This conquering face of Islam and its proselytizers is appearing over the whole central part of Africa, in a singular manner, along the sub-Saharan border, at the level of the 13th parallel. This exaggerated kind of proselytizing which is nibbling away on its northern limits is worrying the blacks, and more especially the Christian and animist communities. It cannot be forgotten that Islam's implantation in black Africa occurred in close connection with the development of the slave traffic.

In the midst of these currents which refer to an anachronistic and sometimes fraudulent interpretation of Marx and the Koran, one comes to realize that the most innovative ideas are probably those that belong in the framework of a liberal doctrine of ideas derived from the Declaration of the Rights of Man. In a society strongly marked by superstition and magic, the magic of words included, modern notions of liberty and equality are, in the last analysis, much more revolutionary than Marxist principles or the "populist" concepts preached by Qadhdhafi in his Yamahiriya. In this regard, it is remarkable that we have been able in several cases to contain Soviet penetration primarily because of economic success which bore fruit in spite of the weakness and the paralyzing reflexes of the political and administrative apparatus inspired by the collectivist ideology. Beyond doctrinal options, it seems clear that African countries are first of all searching for the personalization of a principle of authority without which the state could not survive. This results, in many cases, in the responsibility for government being assumed by the soldiers: Niger, Upper Volta, Mali, Togo, Congo, Ghana, Benin, Liberia, and Mauritania.

In the complexity of the African political climate, we cannot pass over in silence the "apartheid" system that exists in the South African Republic. Expressly opposed by the ethical principles of the Rights of Man which prevail in the West, which clearly denounces it at every opportunity, it is also denounced by the Eastern bloc of countries, on the basis of the same principles. The Pretoria regime is, naturally, pilloried by all the countries of the Third World. Now the hierarchy of caste is still flourishing in India; similarly, in some African countries the practice of household prisoners and even slavery\* still persists.

What Political Evolution?

Throughout the different tendencies which coast along, blend into each other, and sometimes oppose each other, it is easier to note symptoms than to predict the political evolution of the continent. No one believes, however, that there will be a progressive withdrawal of Africa back into itself, a settling of local or

\* Officially abolished by the Islamic Republic of Mauritania less than a year ago.

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regional accounts that would in effect leave Africa entirely in the hands of the Africans. Already one finds among the Libyans, the Nigerians, and the Algerians a mission as the policemen of Africa. The Chad affair seems to lend credence to this hypothesis. One fact remains: history past and present confirms that the black countries on the coast are nourishing apprehensions when they see fresh signs, in the Sahara, of the symptoms of Islamic dynamism from which they expect no good to come.

The opposition which that expansion toward the south will encounter is showing itself to be measured, careful, and not without evasions. It is not unthinkable, moreover, to imagine that the Islamic flood may recede by itself. A successor to Colonel Qadhdhafi does not seem guaranteed, for he is linked to a series of zealots drawn from a small number of molds: the Sudanese Mahdi and the Algerian Bou Maza preceded him, creating problems that were both violent and ephemeral.

Another sign of evolution or reflection of assimilation: on this new political chessboard of Africa, rules of the game based on convenience and necessities are already being accepted without reservation. The former, of an ideological nature, are on the left, with nonalignment, the "natural" ally of the socialist countries, the constant attacks against neocolonialism, racism, etc. The latter, of a practical nature, invoke the longstanding ties with the western world, its technicians, its lending institutions, its capacity to give. The effects of this double allegiance are particularly felt in international bodies where a Third World style of discourse prevails, (and one must regret it in passing) which contributes in an unfortunate way to locking in the North-South positions by embedding them in formulations that leave little room for negotiation. Thus the Group of 77 ended by sterilizing, from the start, any effort toward discussion, once the great mass of poor countries, who listen in silence to the spokesmen for their leaders, were lumped all together.

It is fashionable to predict, in the medium or long term, the development of unique political models able to reflect and express the essential characteristics of these countries that are so anxious to read more clearly into their future. For the moment, and for a long time to come, African reactions can scarcely be expected to free themselves from the atavistic weight of the pre-colonial past. Africans indeed might well embrace that phenomenon observed many times throughout the continent, as long as we can remember, which consists in countenancing the perpetuation of sociopolitical systems that put in a dependent status communities of a size totally incommensurate with the numbers of those imposing the rules. Before, during, and after colonization, that principle has been confirmed. One recent example: Liberia took more than a century to shake off the hold of a Negro-American oligarchy which had confiscated power. The wide spaces and the great size of the rural masses partly explain this apparent paradox. For Africa, the era of active minorities and subject majorities seems far from ended. It will come gradually to an end with progressive development in the peasant world which, it cannot be doubted, holds--without being fully aware of it--both the deepest secrets of ancestral Africa and most of the keys to its destiny.

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POLITICAL

ITALY

THREE POTENTIAL SUCCESSORS TO LAMA AS CGIL HEAD

Milan IL MONDO in Italian 20 Feb 81 pp 24-25

[Article by Alessandro Caprettini: "Three Dauphins for Lama"]

[Text] It is not possible to replace the secretary general at present, but it is necessary to prepare for his successor. There are three candidates, but one starts out as the favorite...

Even if one cannot actually speak of a small boat (there were more than 4.5 million members in 1980; a huge apparatus of 7,500 employees; a budget of approximately 7 billion last year), the prevalent view that is circulating in labor union centers is that the CGIL [Italian General Confederation of Labor] is a ship at the mercy of big waves. A tarnished image, an aged leadership staff and with few replacements, a certain lack of innovative purpose, combined with the attacks that now arrive daily from the Botteghe Oscure and from the rank and file communist staffs (especially in the North), have recently given quite a jolt to the Italian General Confederation of Labor. It has never been in such a state of crisis, not even in the dark years of the cold war, as on this eve of its 10th Congress, planned for this coming 16-21 November, in Rome.

"Problems? Of course, but as in all of the labor unions," minimize those in the red building on Corso [main street] Italia in Rome, the location of the main offices of the confederation. But they all agree that it is necessary to impart a sharp, sudden turn to the course of things. And conflicts on this very change in course were aired in recent days in a series of more or less private meetings which, in addition to planning for a date for the congress, are supplying the input for the strategy of future years. Two very closely related main questions are under discussion: men and the political line.

However, there is no talk of a replacement at the top for Luciano Lama. The following factors work in favor of the 60-year-old labor unionist from Romagna, who has been at the head of the CGIL since 1970 (and in spite of the letters of protest from the rank and file and the open outbursts at the Montecitorio of a PCI [Italian Communist Party] supporter, who spoke of him as one "who has racked his brain!"): the need to avoid rough jolts, to not let relations with the socialists in the confederation wither (definite signs of opposition to PCI pressure for a change have already emanated from the offices of Agostino Marianetti); but above all the lack of an official heir, and the shock that resulted from the



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calling in question of democratic centralism, which duplicated in the CGIL the same divisions that are divined to be in the PCI.

In addition to Lama's line (Lama is an orthodox supporter of Enrico Berlinguer regarding national unity, but on the other hand is always more at odds with the communist leader because of a "too great quest for autonomy by the party" and now on positions very close to those of Giorgio Napolitano), there are currently at least three other trends.

The first ("a veteran Stalinist one," maintain some of the CGIL young blood) is headed by 58-year-old Rinaldo Scheda, of Bologna, always strictly in conformity with the positions of the PCI for which, according to a statement by Agostino Novella some time ago, he enjoys an unquestionably pre-eminent position in the labor movement.

However, apart from the small group of supporters in the labor union (in Emilia, in Milan, and in some categories), Scheda does not seem to enjoy the credit needed from the top levels of the communist apparatus. Up to now, Berlinguer has not accorded him his support. Listening to him, Napolitano allegedly pointed out that "it is necessary also for politicians and labor unionists to retire in dignity"; and there have been no openings from the Ingrao leftist files.

Bruno Trentin, on the other hand, does not lack the last-mentioned support. He is 55 years old; was born in France, but is of Venetian descent; is a former secretary of the metalworkers federation and considered by quite a few as the most brilliant ideologist (along with Eraldo Crea, CISL [Italian Confederation of Labor Unions]) of the entire labor union movement. Trentin's "programmatic" line demands a labor union change in the sense of a greater opening for the new emerging classes (young people, women, the unemployed) combining the whole in a program.

In the political field, Trentin has always counted on a very close relationship with Pietro Ingrao, but recently, because of the Salerno turning point, he is said to have also won back a standing in the secretariat, for which he might even become the connecting link with the left in a possible evolution of the internal situation.

However, two factors may work against him: the image that he has created of himself within the CGIL ("an ideologist, yes, and even a very good one," admit some supporters in the directorate, "but when it comes to management, he would not be able to manage even a porter's lodge") and a certain opposition from CISL and UIL [Italian Union of Labor] circles, where some have already announced that they are against "the pernicious hypothesis of a return to the TBC (Trentin, Giorgio Benvenuto, and Pierre Carniti who, together, were at the head of the metalworkers federation in recent years).

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Third, and for now also the last of the three lines that the CGIL is now experiencing, is that of 55-year-old Sergio Garavini, already municipal counselor of the PCI in the chief city of the Piedmont and at the head of the textile federation (FILTEA) from 1970 to 1976. Garavini, who last week was assigned the task of opening the committee debate on congressional topics, also asks for a renewal, but always in the wake of the choices that have been pursued up to now. More cautious than Lama in the quest for autonomy and unity with the CISL and UIL at all costs (precisely in last week's meeting he did not hesitate to deliver a harsh attack against Carniti and the CISL), in the view of many has "bet on the victory of the Salerno line, which moreover suits his labor union view of labor unionism." And Berlinguer, himself, now appears to be mentioning him in political circles, obtaining quite a few supporters in the apparatuses of the Botteghe Oscure and of Corso Italia.

The only negative aspect that can be attributed to him is insufficient experience at the top levels of management categories. But there might already be a ready solution for this. In fact, according to a prevalent rumor that is circulating within the CGIL, at the next congress Garavini is to head the metalworkers federation (FIOM) [Federation of Those Employed in Metallurgical Industries], which is still in a state of shock after the FIAT event and the critical remarks of the PCI because of the adherence in the international federation of a category close to the CISL. "No retrocession, let this be clear," says a socialist representative of the metalworkers, "but maybe an apprenticeship that is necessary in view of the succession to Lama who could disappear at the next political elections."

If one may therefore still speak of lines ("but this does not mean that they cannot be intersected by time...", say some sources close to those concerned), when it comes to the men, the cards seem to have been already selected--and not only for the determination of an heir to Lama. Aware of having to renew their image on the outside, the CGIL top level people are preparing to shuffle the cards that are to be presented precisely at the congress and that are to cause at least two new communist names to enter the secretariat. At the moment, there are no official candidates, according to what one hears, but they will all be young labor unionists, quite combative, with labor union experience, like the regional secretary of the Piedmont, Fausto Bertinotti; the Milan labor union secretary, Antonio Pizzinato; the secretary of the transportation federation, Lucio De Carlini; and Silvano Ridi, secretary of the Campania region.

Paradoxically (after the many criticisms that have been directed at the CGIL) there does not seem to be hopeful talk from the CISL and UIL with respect to this revolution that is being prepared on Corso Italia. "I think that the situation is deteriorating," says a UIL secretary, "because it does not seem to me that the now quite apparent choice of Garavini can lead us to any greater unity that what we have today."

"The truth," in turn booms Pietro Merli Brandini, secretary of the CISL confederation, "is that the CGIL once more seems to prefer to run after the siren of the politician. But the PCI, too, must be very careful: like Medea, it risks not surviving, even though she did kill her children..."

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MILITARY

FRANCE

FUTURE OF GROUND FORCES AVIATION EXPLORED

Paris AIR & COSMOS in French 28 Feb 81 p 31

[Article by Jean de Galard: "Ground Forces Air Tactical Support in 1981"]

[Excerpts] In this issue of AIR & COSMOS we are publishing the first two installments in a series of three articles devoted to ALAT, Ground Forces Tactical Air Support, commanded by Major General Maurice Cannet. ALAT has changed in recent years, and its units were reorganized after a reorganization of the Army itself. This change was accompanied by radical change (General Cannet does not hesitate to call it a revolution) in the methods of instruction and training of students at Dax, where the Specialization School of Ground Forces Air Tactical Support, ESALAT, is located.

General Cannet was asked about the evaluation that might be made today of a plan of action that was drawn up in 1977 and was to be gradually implemented by 1980. General Cannet said answered that some of its objectives had been met or were soon to be met. This category could no doubt include everything concerning problems of materiel and personnel use (ALAT has 6,000 men, including 3,000 recruits) and instruction. In other areas concerning operations--night flying, flying on instruments, for example--real progress has been made, but there is still a lot to do, even though a recent demonstration of firing Hot missiles at night from an Aerospace Dauphin helicopter makes it possible to look forward to future good results.

As for the deployment and choice of future materiel, it can be said that the delay that has been incurred is due in part to the new conditions of tank vs helicopter combat.

We summarize here the ALAT commanding general's point of view as he explained it in the journal DEFENSE NATIONALE. Three facts have modified the conditions of tank-helicopter duels: the deployment of helicopters armed with automatic cannon; the inescapable disappearance of the advantage that the helicopter has had over the tank: being practically undetectable at 3,000 meters and yet being able to discover combat vehicles quickly from this altitude from its stable position (it will not be long before tanks will be able to spot helicopters first); and the increasing capacity that land units will have to equal or surpass helicopters in firing range through the use of self-guiding missiles working on higher frequencies than they now do.

General Cannet analyzed the characteristics of both categories of projects intended to meet the problem: multipurpose heavy helicopters and light antitank helicopters; he then summed up the debate:

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"Two main categories of solutions are open to the armies that want to keep an air-borne antitank capacity beyond the 1990's.

"The first category leads to the formation of two types of antitank helicopters: first, heavy machines protected against medium-caliber missiles and capable of shooting down enemy helicopters with cannon fire as well as firing antitank missiles day or night; second, possibly light surveillance helicopters manned by observation teams to spot and identify targets.

"...The second category tends to extend the tactical concept chosen by the French Army, which integrates different kinds of helicopters and crews to ground forces."

The two categories, according to General Cannet, lead to very different kinds of helicopters. The choice will depend on both the technological optimism of the decision-makers and the financial effort that each branch of the armed forces can make.

"All the countries that have equipped themselves with modern helicopters are finding out how much it costs to keep them in shape.

"For the next generation of antitank helicopters, if we keep on equipping them at the present rate, it is reasonable to estimate that the annual cost of maintaining them in operational condition will correspond to 20 or 25 percent of the purchase price.

"Cost analysis shows that cost is proportional to both the mass of the helicopters and the number of crews aboard them. This factor is obviously going to favor the development of the second kind of helicopter described above."

#### Night Operations

ALAT has been studying for a few years now various kinds of materiel intended to facilitate night operations and used in troop training.

Originally the goal was to have crews whose average night-flight experience was greater than 120 hours. This goal has been met by Puma pilots and will be met by the end of the year by light helicopter pilots. ALAT command wants its pilots' night-flying experience to average ultimately 250 hours for about 2,300 daylight flying hours.

Experiments made so far lead to some practical conclusions: (1) training is an essential factor in night flying; (2) no crews are specialized in night flying; (3) instrument flying aptitude is indispensable for night flying; (4) nighttime antitank combat is very different from daytime antitank combat; (5) more equipment--and this is going to add to the cost of the fleet--is necessary: ALAT, for one, has equipped its Gazelles and Pumas with an automatic pilot, two artificial horizons and a radio altimeter.

At the moment, ALAT's specifications for everything concerning night operations can be summed up as follows:

(1) for observation and target acquisition, periscope sights are needed; observation mechanisms are needed above the rotor;

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(2) the combat helicopter must be reduced in size and its configuration adapted to limiting its detection and targeting by enemy self-guiding missiles;

(3) at first, helicopter night piloting will be done with third-generation light-intensifying glasses; heat imaging will be used later on;

(4) missile firing capacity is needed either from easily heliportible ground points or from an antitank helicopter that need show itself only at the moment of firing;

(5) a radar warning light is desirable.

But when it comes to equipment, General Cannet notes, there ought not to be too much, and its cost should be kept reasonable. We in the Army intend to remain "country boys."

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FRANCE

CURRENT STATUS OF GROUND FORCES AVIATION REVIEWED

Paris AIR & COSMOS in French 28 Feb 81 pp 32-34

[Article by Jean de Galard: "ALAT's Activities in 1980"]

[Text] As of 31 December 1980, ALAT's air force included a few more than 100 planes, 50 of which were operational (35 L-19's and 15 Broussards) and 580 helicopters, 510 of which were operational.

These aircraft flew more than 171,000 hours last year, more than in 1979 (see AIR & COSMOS No 800). The total flying time breaks down as follows: 14,000 hours for planes and 157,000 hours for helicopters (with 11,860 hours at night). The helicopter force is made up of: 190 Alouette II's; 170 SA 341's (Gazelles) about 40 of which are equipped with Hot antitank missiles; 19 SA 342's (Gazelles) equipped with Hot missiles; 70 Alouette III/SS-11's; 133 Puma SA 330 tactical helicopters.

In percentages, the 1980 share in the four main helicopter activity areas in ALAT was as follows: tactical forces 54.5 percent (a little more than the year before); schools 28.01 percent (a little less than in 1979); security forces 14.44 percent (the same as in 1979); and overseas missions 3.05 percent (a little less than in 1979).

In the combat helicopter regiments, activity in percentage of flying hours was divided thus: 32.2 percent for light helicopters; 36.5 percent for armed helicopters (Alouette III/SS 11's; SA 341/Hot's and SA 342/Hot's) and 31.3 percent for tactical helicopters.

Diversified Activities

ALAT units' activities in 1980 was marked by the diversification of missions: overseas presence (e.g. in Chad, Cameroon, the Central African Republic and Tunisia); participation in various exercises in France and abroad; instruction, training, practice and specialization; civilian missions, and humanitarian assistance missions.

Once again, ALAT's participation in foreign action on behalf of countries tied to France by cooperation agreements has demonstrated the high level of readiness and the quick reaction time of all the units participating in these actions; the reliability of the materiel in operation has also been proved by these actions.

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Last year three ALAT units participated in troop exercises. The 5th RHC [Helicopter Combat Regiment] logged 203 flight hours in June in a French-Spanish exercises named Gallia VII in the Salamanca region. The 2nd RHC logged 300 flight hours in the Pegasus exercises, which took place in December and in which elements of the 3rd DB [armored division] took part. But the most hours on maneuver, 1,670, were put in by the helicopters of the 1st Army Corps reinforced by elements of the 2nd RHC in the Marne 80 interservice exercise of 6-9 October.

At various demonstrations, the 5th RHC logged 160 hours in one day (with 15 light helicopters, 9 armed helicopters and 12 tactical helicopters) and the 3rd RHC, 100 hours (with 16 light helicopters, 24 armed helicopters, and 18 tactical helicopters).

"Instructional" activity at school accounted for a little less than 30 percent of the total flight hours in 1980 in ALAT, and this activity also took place in the units. A future issue of AIR & COSMOS dated 14 March 1981 will deal with the new conditions under which the instruction and training of helicopter pilots is done at the ALAT school in Dax.

Experiments were also made on new materiel in the units last year. Units equipped with SA 342 Gazelle/Hot's were satisfied with the performance of their arms system, while the evaluation of night-sight materiel (light intensification glasses) continued under satisfactory conditions. It may be recalled at this point (see AIR & COSMOS No 845) that the first night firing of Hot antitank missiles from a Dauphin helicopter equipped with a Venus night aiming system and manned by a pilot wearing BNL [ expansion unknown ] hovering 15 meters above the ground took place successfully on 20 and 21 January 1981.

ALAT helicopters and personnel were again assigned to help civilian organizations last year and did so considerably.

For highway assistance, the helicopters of the 1st, 2nd and 5th RHC's at Montpellier, Dijon, and Toulouse carried out about 100 ambulance missions with 172 flying hours. Under the Polmar plan, the helicopters of the 3rd GHL [Light Helicopter Group] in the Tanio mission flew more than 150 hours and carried out about 40 reconnaissance missions and transportation errands for various authorities. In fighting forest fires in July and August 1980, 3 Puma SA 330's transported 95 firefighters, 3.2 tons of water and 800 kg of materiel in 8 flying hours. The beginning of 1981 was also marked by a new use of ALAT helicopters: on 5 and 6 January, forest fires in the Nice region caused two Pumas to be mobilized; they flew 13 hours. From 12 to 17 January, the implementation of the Orsec plan in the Pyrenees-Orientales department and Aude department following heavy snowfalls took 35 flying hours and resulted in the movement of 30 tons of rescue materiel by two Pumas.

Two important humanitarian missions were carried out in 1980, and ALAT played a large part. In January, two Pumas from the 5th RHC at Pau and the ALAT detachment in Djibouti were detached to Reunion Island to assist the population in the wake of typhoon Hyacinth. They flew a total of 110 hours, transported 128 tons of medicine, food, bedding and construction materials, and they evacuated 1,655 people.

In June, three Pumas from the 6th and 2nd RHC flew almost 80 hours on a technical assistance mission for the Republic of Sierra Leone.

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In August, two Pumas brought in by Transall and Boeing 747 flew almost 200 hours, of which 190 hours were operational, on a humanitarian mission to bring food and medicine to Uganda. They flew out about 20 people on ambulance missions and carried nearly 175 tons of medicine and food.

## High Readiness

ALAT helicopters' average overall readiness was greater in 1980 than in 1979: 76.8 percent against 74 percent in 1979 and 73.6 percent in 1978.

The number of maintenance hours per flight hour appears in the following table:

| types of helicopter | 1979 | 1980 |
|---------------------|------|------|
| Alouette II         | 2.46 | 2.22 |
| Alouette III        | 5.10 | 4.81 |
| Gazelle SA 341      | 3.46 | 4.48 |
| Puma SA 330         | 8.54 | 9.27 |

There is an appreciable decrease in the number of mechanics' hours per flight hour for older equipment, the Alouette II and III's. This decrease is due to better knowledge of the devices mounted in these kinds of aircraft. On the other hand, when it comes to more modern equipment, the Pumas and Gazelles, the maintenance to flight-hours ratio increased in 1980 over 1979. This increase is due to the installation aboard these helicopters of new equipment requiring initial installation and adaptation work and routine maintenance: installation of the Athos observation scope on the Gazelles, increasing the power of the SA 341's and the SA 341/Hot's, transformation of the Puma SA 330B with metal rotor blades to Pumas SA 330Ba with composition blades, and installation of automatic navigation equipment on the Pumas.

## A Still Satisfactory Level of Safety

Let us review the definitions of aerial accident and serious aerial incident as formulated in ALAT.

An aerial accident is one in which materiel is destroyed or a crew member is mortally injured. A serious aerial incident is one in which there is serious material damage (requiring 4th-echelon intervention) or serious injuries to a crew member.

In 1980, ALAT had four accidents (SA 341, Alouette II, Puma and Broussard), two more than in 1979, which had been an outstanding year in this respect. Considering the number of flying hours, 1980 registered 0.23 accidents for 10,000 flying hours, which was greater than in 1979 (0.12). However, this rate is still less than the average between 1973 and 1980: 0.25 accidents for 10,000 flying hours. No accident happened last year during night flying.

ALAT officers responsible for flight safety are particularly interested in three kinds of accidents: night flying, collisions with cables and accidents resulting from motor breakdowns.

From 1973 to 1976, only one serious aerial incident happened in 7,286 night flying hours; the strict orders given to the units were effective.



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From 1973 to 1980, 16 cable accidents were noted in 75,330 flying hours. The risk of an accident happening by hitting a cable is much higher than by motor breakdowns. The cost of an accident of this type, it has been found, is generally very high: materiel destroyed and aircraft occupants killed. The 16 accidents mentioned above left 11 dead and 7 wounded; 6 helicopters were destroyed. But contrary to what flight security officers had thought, tactical flights had no accidents caused initially by hitting a cable with a rotor blade or the cabin. In fact, there has never been an accident caused by hitting a cable during tactical flights, which is no doubt explained by both the crew's watchfulness and its knowledge of the terrain in which it is flying.

In any case, ALAT is interested in all means of protecting equipment, especially cable cutters (see AIR & COSMOS No 97, p 2) and cable detectors.

While cable cutters do not eliminate the risk of a collision, they may be very effective, and their mass is not too great a handicap.

Accidents due to motor breakdowns are generally very rare: 0.043 accidents per 10,000 flying hours, and they come to barely 10 percent of all the accidents noted in the 1.2 million flying hours from 1973 to 1980.

Generally speaking, we can say that in the last 8 years only 20 percent of the accidents had a cause of mechanical origin; the other 80 percent were caused by the personnel, and this has led ALAT command to insist on quality instruction, of course, from the very beginning of training on. This quality will become apparent to our readers in the article we shall print in a future issue concerning the ALAT specialization school at Dax.

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GENERAL

FRANCE

LACK OF GOOD MECHANICS SEEN SLOWING TECHNICAL PROGRESS

Paris LE NOUVEL OBSERVATEUR in French 16 Feb 81 pp 42-43

[Article by Gerard Bonnot--passages enclosed in slantlines printed in italics]

[Text] Nuclear energy, solar energy, data processing, biological engineering: the "musts" of French industry could collapse unless we create a new generation of "mechanics."

Will we be seeing a "Mister Mechanic" in the government tomorrow, as in the past we have had a "Mister Prostitution" or a "Mister Noise"? For the Academy of Sciences, which ordinarily does not get involved in public affairs, the measure is mandatory. It said so to the president of the republic in the report it turned in last winter on France's industrial future.\*

In reality, mechanics, that /"science of the laws of motion and balance and the application of those laws to construction and the utilization of machines,"/ as Pierre Larousse wrote in his "Great Dictionary of the Nineteenth Century," in 1973, is not just another science. In a world transformed by technology, and dominated by industry, it has also become an affair of state.

France and Europe want their share of the space markets of the future. But the second prototype of the Ariane rocket, which is the vehicle of their ambitions, was destroyed in flight on 23 May 1980, 108 seconds after launch. Combustion instability in the form of high-frequency vibrations, appeared. It caused the break-up of the thin covering of liquid fuel that protected the injector and refrigerated the nozzle. It was a mechanical problem, and a difficult one, which does not at the moment admit of a theoretical solution a priori and which took the Americans 18 months to solve on the engines of the Saturn rocket.

The trend is toward electronics. We are assured that more and more it is going to replace traditional mechanical or electro-mechanical appliances used in everyday life. Doubtless. But, to perfect its revolution, electronics itself needs replaceable parts. By way of example, the Academy of Sciences report details the stages in the production of magnetic bubble memories. Depositing a magnetic layer on a garnet base. Depositing a material of high magnetic permeability on top of that layer. Putting into this layer, by means of photogravure, a network of patterns with a precision greater than one micron (a thousandth part of a millimeter). Superposing patterns made of a conducting material on this network. And

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so on. To perform all these operations new machines are required which are themselves run by computers and calling for revolutionary machine-finishing techniques, which at present French mechanics would be hard pressed to provide.

The report does not claim to reduce all industrial activity to mechanics. It confines itself to emphasizing that there can be no real industry, even in the vanguard of development,--whether in solar energy, data processing, or biology--without some mechanics. And especially mechanical invention.

The Quality of the Individuals

For mechanics, even if it was the first of the exact sciences to define, in the Seventeenth Century, its principles and methods, is in no way a closed discipline, finished, obsolete, in which all problems can be solved by simply consulting the archives. It is continually evolving, becoming more complicated, diversifying, along with the new problems it is asked to solve. The meter used to be defined as a fraction of latitude represented by a bar of irradiated platinum. Today, it has become a multiple of the wavelength of the radiation of a krypton atom in a vacuum. Even in a field as traditional as large-scale construction, the appearance of a new material is enough to change the rules of the game. Thus, "reinforced" earth, like reinforced concrete, patented by a French engineer in 1963, is used today in 32 countries.

France is gambling on the advanced-technology industries. Without denying the importance of political will, financial boldness, and commercial dynamism in this strategy, the report points out convincingly that success depends above all on the quality of the individuals and the level of their skill. Because there can be no advanced-technology industry without advanced-technology mechanics.

How well do French mechanics measure up? The assessment put together by the Academy of Sciences is not reassuring on first inspection. Though we have excellent specialists in optics, we do not know how to manufacture photographic apparatus. Or typewriters. Or the scientific measuring and analyzing equipment used in medicine and laboratories. We export conventional machine-tools and we import sophisticated machinery. In digital-control machinery and robots we are not only behind the Japanese and the Americans, but even behind the Italians.

In a field, however, where we have proven our ability--the automobile--we are beginning to lose ground to the Americans and Japanese in the battle against pollution, and to the Japanese in engine and driver assistance electronics. We know how to make diesel engines, but we have not mastered injection systems.

In reading the report, one is struck by the number of mechanical sub-specialities in which France does not shine, or indeed in which specialized training cannot even be obtained in France.

/"It is not as bad as it could be,"/ according to the permanent secretary of the Academy of Sciences, Paul Germain, himself a specialist in fluid mechanics, former director of the National Office for Aerospace Studies and Research (ONERA), which played a decisive part in the preparation of the report. /"The field of mechanics is immense, and France's resources necessarily limited,"/ he says. /"If need be, we could always send our students to study abroad, and buy the licenses for the

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processes which we have still not mastered. This is the policy which Japan has been following for 20 years and you see the results today."/

The danger, as he sees it, is elsewhere. /"What does not work,"/ he says, /"is for the teaching of sciences in the high-schools to remain purely theoretical, without ever putting the French youth into contact with the physical reality, for our future engineers to be selected exclusively on their ability to pass abstract mathematical tests, for the most brilliant students in our big colleges to be oriented toward careers in administration or commerce rather than devoting themselves to research and technology."/

In France, one never finds successful researchers heading companies as they do in the United States, Germany, and above all in Japan; one finds only financiers and former officials. The government had to enact a special tax to force companies to finance professional community research centers, and many of these centers are vegetating. There is no big association in France, as there is in the United States, where all those involved in mechanics--in the university, in the laboratory, in the factory--could meet, discuss their ideas and needs, and protect their interests. One finds only associations of specialists, whose activities are generally confidential. /"What is wrong," Paul Germain concludes, /"is that France has not yet understood the fundamental role of mechanics and does not give it the place that rightfully belongs to it."/

One War Behind

An indifference which is all the more regrettable because, despite appearances, he does not think French mechanics is doing all that poorly. /"Ever since the war, whenever a large company or the state decided to make a serious effort to solve a problem that industry did not know how to resolve, they ended by finding the men and the means to solve it,"/ he observes. And as examples he cites, in no particular order, liquid sodium pumps for breeder reactors, the compressors in uranium enrichment plants, the inertial navigation systems found on our combat aircraft, and the aerodynamic research on supersonic flight for the Concorde.

Overall, French mechanics contributes a net plus to our commercial balance. Aero-spatiale's helicopters are as good as those of the Americans. The Michelin radial tire has beaten all competitors. Before the war, the teleprinters used in France were all of foreign make; today, France is the world's second largest exporter of teleprinters. The first cars of the future high-speed train (TGV) are rolling at 260 kilometers per hour. Now for 10 years the Japanese have been unable to go beyond 220 kilometers per hour, apart from which the stability of the vehicles is becoming very difficult to maintain. Also, the French train can sustain considerably more weight on its axles, and consumes less energy, than the Japanese trains.

It is true that we often give the impression of being one battle or one war behind, the Academy acknowledges in its report. But it must also not be forgotten where we started, 30 years ago. While we were struggling to catch up with our most advanced competitors, these latter were not standing still waiting for us. They continued to move ahead. Overall, the gap seems to be closing, rather than widening.

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Only nowadays the inspired Jacobin methods which up to now have brought us success in big, high-prestige projects will no longer suffice. For one cannot isolate mechanics from the entirety of industrial activity. It is like the blood that circulates in an organism. To finish catching up, France must now completely renovate its industrial network, convert small and medium-sized enterprises to research, train people, create vocations. One of the weaknesses in the Airbus program, at present, is the problem Aerospatiale has in recruiting competent specialists.

And this is where the shoe pinches. The Academy of Sciences has taken the measure of a problem which extends far beyond the habitual field of its activities. Its diagnosis is excellent. But, to remove the impediments which are still holding back the take-off of French industry, it will take much more than one report, even if it is written with lucidity and without complacency. Nothing will have been accomplished until public opinion is mobilized and convinced that mechanics, as much as data processing or biology, merits becoming a national priority.

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