



Ground crewmen bring a British RAF Bomber Command Vulcan V-bomber to a high state of readiness. In case of nuclear war bombers of the British V-force would likely spearhead any retaliatory attack. Vulcans, the world's largest delta-wing bombers, carry either conventional or nuclear bombs internally and one Blue Steel standoff weapon externally.

Although there are some misgivings about the future, today's British RAF Bomber Command is decidedly a viable force for the 1960s. Here is a report on the powerful capabilities of the United Kingdom's nuclear aerospace force . . .

SAC'S KISSING COUSINS

By Richard Clayton Peet

THE officer commanding, seated in the War Room of his operational control center, reached for the red phone and spoke an order into it which energized his widely dispersed command. The order was a single word—Scramble!

A small but superbly trained band of men sprang into action. With machine precision, they raced through prescribed checkout procedures, preparing their planes for flight. Jet engines began their roar. Seconds later, hundreds of aircraft were on the roll. In less than two minutes, a giant nuclear retaliatory armada was airborne.

Most Americans would immediately conclude that the situation described was taking place in our own Strategic Air Command. We have become accustomed



Sir John Grandy, Bomber Commander CinC, credits technical innovation and high crew proficiency with keeping Bomber Command a viable force in the 1960s.

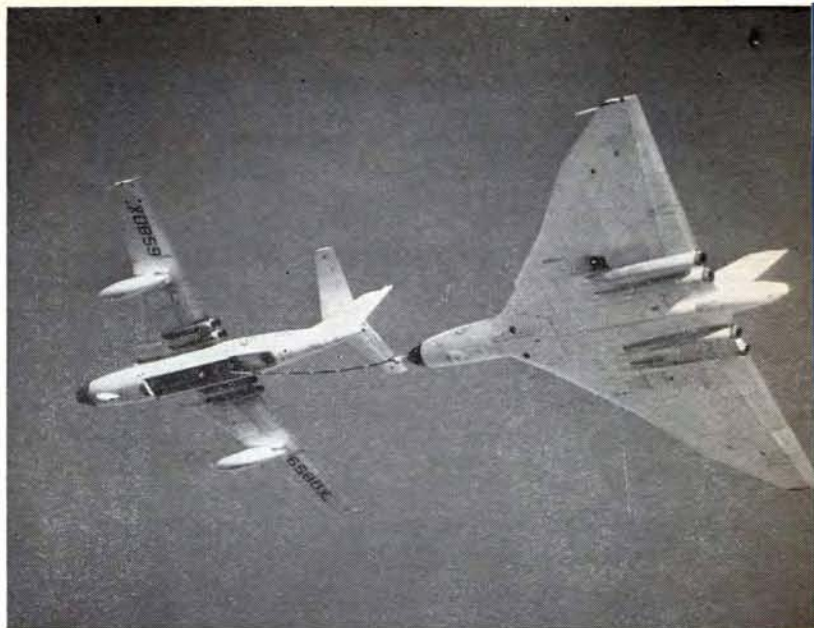
to thinking in terms of SAC alone in the retaliatory role. We overlook the fact that, in the event of actual nuclear hostilities, the first manned strike on Soviet defenses will likely be spearheaded by someone else. Preceding SAC and its B-52s, and perhaps even blasting a path for it, will be the V-bomber force of the RAF—SAC's kissing cousin—Bomber Command.

Kissing cousin is an apt term for the relationship between these two elite organizations. There is a common, almost religious, bond between them. They train together, compete together, target together, and, if need be, are prepared to die together in the performance of their joint mission. Both firmly believe, however, that so long as a credible deterrent and the will to utilize it in defense of freedom are maintained by the West, the danger of nuclear conflagration is remote. In this sense, peace is truly their shared profession.

Bomber Command was assigned its deterrent role in 1957. A Defense White Paper issued that year announced, "Britain must possess an appreciable element of nuclear deterrent power of her own."

Up until then, she had none. Though her scientists had made significant early contributions to atomic theory (it was an Englishman who first split the atom) and had cooperated closely with scientists of this country in the development of the original atomic bomb, Britain did not embark on her own nuclear-weapons program until 1949. Progress thereafter was swift, however. On October 3, 1952, the British conducted their first atomic tests in the Monte Bello Islands, off Australia, and on October 11, 1956, the RAF air-dropped Britain's first operational atomic bomb over Maralinga, Southern Australia. And, a few months later, on May 15, 1957, Britain successfully tested her first H-bomb over Christmas Island in the Pacific.

But bombs alone do not make a deterrent. Effective delivery systems are also required. Knowing this, the British government embarked upon a concurrent pro-



Valiant, first V-bomber, today is used primarily as a tanker. Here a Valiant refuels one of the Vulcans that made the first nonstop flight of 11,500 miles from UK to Australia in 1961.

gram to develop its own strategic medium bombers. The result was the V-bomber force of Valiants, Victors, and Vulcans which became operational in the mid-1950s.

First of the series was the Vickers Valiant. Entering squadron service in 1955, it was a Valiant that carried Britain's first air-dropped A- and H-bombs. Because of its lower performance it was phased out of the strike role some time ago, although it continues to render yeoman service as an aerial tanker and also serves as a tactical bomber for NATO.

Next came the Vulcan, the world's first large bomber of deltawing configuration. Manufactured by Avro, the Vulcan B.1 entered squadron service in 1957 with the B.2 following along in 1960.

Third of the V-bombers was the Handley Page Victor. It became operational in 1959 with its B.2 model entering service in 1962. It was the biggest and heaviest, as well as the last, of the series. Victor features a readily identifiable crescent or cusp-shaped wing.

The average radius of action of the V-bombers is beyond 1,500 nautical miles without in-flight refueling. This brings them within range of seventy percent of the important targets in the USSR, including most cities with more than 100,000 population.

Currently, the Mark I series of Victors and Vulcans is being replaced by more advanced models. New from the ground up and equipped with more powerful engines, the Mark 2 versions boost over-all performance significantly. They are more maneuverable and can fly higher (as high as a U-2) and faster than our own B-52s.

Originally designed to carry free-falling bombs, the V-force is in the process of transition to the Blue Steel standoff air-to-surface missile. With a nuclear warhead in the megaton range, Blue Steel enables launching aircraft to attack targets without having to penetrate the close defenses surrounding them. Inertially guided, Blue Steel's liquid-fueled rocket engine propels it at

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Avro Vulcans. In time of international crisis, Bomber Command's entire V-force would be dispersed to the more than fifty operational-readiness bases throughout the UK.



Biggest and heaviest of the V-bombers is Victor, characterized by crescent-shaped wing. Like Vulcan, it carries either nuclear or conventional bombs or Blue Steel missile.

SAC's KISSING COUSINS

more than twice the speed of sound. Range has not been released but is said to be in the neighborhood of 150 miles.

Is today's Bomber Command a viable force in the 1960s?

"Decidedly," asserts its new boss, Air Officer Commanding in Chief, Air Marshal Sir John Grandy. The Air Marshal's confidence appears to be solidly based. Through technical innovation and advance and a tremendously high state of crew proficiency, both ground and air, Bomber Command has kept its V-force of 180 of the world's most modern aircraft at least one step ahead of its competition. That is all it needs to be to perform its mission.

From its inception, Bomber Command built with viability in mind. "If the deterrent influence of the bomber force is to be effective," declared the Defense White Paper of 1958, "it must not be thought capable of being knocked out on the ground." Acutely aware of its vulnerability, British planners concentrated on the problem of keeping the V-force alive in the event of hostilities.

Their thinking proceeded on certain assumptions. The chief of these was that, in the event of nuclear attack, the United Kingdom would not be the only target. The US would also be assaulted. Interdependence in this sense was taken for granted.

Accordingly, joint procedures have been worked out to ensure that the retaliatory forces of both nations survive even a surprise nuclear assault. Although it is deemed highly unlikely that one could be launched without prior warning from political or intelligence sources, such a possibility has been taken into account. An elaborate electronic warning network has been constructed around the periphery of the USSR. BMEWS, the DEW Line, and other early-warning devices assure both nations tactical warning of atomic attack. A minimum of four to eight minutes notice, perhaps as much as fifteen, will be provided Britain by the system. For Bomber Command, that will be enough.

As with SAC, a portion of the V-force is always on Quick Reaction Alert. It can be scrambled in a matter of minutes. Additionally, the flexibility of the readiness plan enables the AO CinC to quickly bring his whole command, or any part of it, to full alert condition. An immediate-link system enables him to communicate directly with crews on the ground or in the air. In times of rising international tension, the entire V-force can be scattered to bases throughout the United Kingdom. More than fifty of these bases are in a state of operational readiness. Such dispersal would pose severe targeting problems for a nuclear aggressor.

No more than four bombers would be assigned to any one base. The sites themselves are designed with survivability in mind. Aircraft are stationed on Operational Readiness Platforms directly adjacent to runways which eliminates taxiing delays. Aircrews are housed in caravans (trailers) nearby. In times of crisis, crews are stationed at cockpit readiness. All four jet engines on V-bombers can be started simultaneously. Ground, servicing equipment automatically falls away as aircraft begin to roll. These features, plus tremendous aircrew proficiency, enable Bomber Command to react with remarkable agility. Its average four-element scramble time in 1963 was one minute, thirty seconds.

The V-bomber retaliatory force, which incidentally can deliver conventional as well as nuclear weapons, was assigned to SACEUR (Supreme Allied Commander, Europe) in May 1963. Although national control in peacetime is still maintained by Britain, the V-force in the event of war will follow SACEUR's nuclear, strike plan. After seeing his new command on exercise in Britain not long ago, Gen. Lyman Lemnitzer called his visit "a very impressive experience."

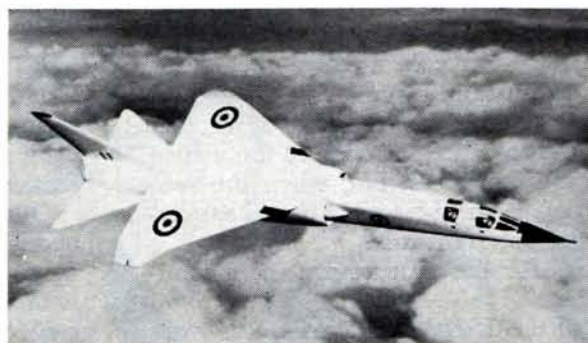
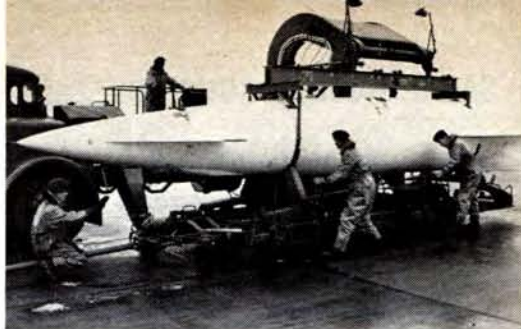
Bomber Command's ability to reach the targets assigned it is equally impressive. To get there, it has a number of extremely difficult penetration problems to surmount—an elaborate early-warning net, an abundance of day fighters and all-weather interceptors armed with air-to-air missiles, ground-to-air anti-air-



The TSR-2 is scheduled for rollout early this year. Its highly sophisticated electronic systems will enable it to hug the ground at high speed and in total darkness.

Artist's conception of TSR-2 in flight shows sleek lines of the new jet, which will be able to fly at either Mach 2 at 60,000 feet or at close to Mach 1 at ground level.

The principal armament of V-force is the Blue Steel standoff, air-to-surface missile, which is guided inertially, has megaton-range warhead.



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craft missiles in profusion, plus the system of tactical controls which coordinates the lot. In typical fashion, it has set about finding counters for each. It has come up with a mixed bag of Electronic Countermeasures (ECM) calculated to confuse, upset, jam, or neutralize the defensive forces unleashed against it. Every V-bomber is equipped with ECM devices. So powerful is some of the equipment that the RAF has never been permitted to turn them all on at one time in any exercise over England for fear of causing a total communications blackout.

Other devices relied upon to assist target penetration include evasive routing of strike aircraft, the Blue Steel standoff weapon, the disruptive effect that would be wrought on Russian defenses by US ICBMs, and, last but certainly not least, retaliation from the deck up.

Both SAC and Bomber Command have turned to the multilevel pattern as Russian defenses against the high-level attack have improved. By coming in with a portion of their force at extremely low altitudes, they hope to underfly Soviet early-warning radar. But hot-rodding Vulcans, Victors, and B-52s—which were designed to fly at 50,000 feet and higher—at 500 feet and lower is not without its problems. Fatigue increases markedly. Extensive structural beefing-up of all three aircraft has been required.

Air Marshal Grandy says, "Penetration by aircraft of Bomber Command of areas covered by the most modern and sophisticated air-defense systems could not be successfully prevented."

But how long will this ability last?

The immediate outlook is good. A new, longer-range, low-level version of Blue Steel is in the works. It should push viability beyond the mid-1960s. And that was the time the Skybolt was due to take its place in the lineup.

Slated to be carried by the Vulcan (one slung under each wing), Skybolt would have constituted a major addition to the British deterrent. Its 1,000-mile range from a highly mobile, nearly undetectable launching

platform made it a near perfect weapon for the RAF. It could even be launched from points over Britain itself. There was a possibility that Skybolt would be wedded to a military version of the VC-10 long-range jet transport. Six missiles were to be carried by each aircraft. A fleet of thirty VC-10s were to be procured. The plan was for one-third of them to be airborne at all times. This would have brought Bomber Command close to its ideal of an invulnerable deterrent.

For these reasons, the RAF could not have been keener on Skybolt. Its cancellation was a severe blow.

Skybolt was only one of a series of disappointing decisions in recent years which tend to cloud the future of the British deterrent. The Statement of Defense in 1957 was the kickoff. It dashed RAF hopes to develop a supersonic bomber by substituting in its stead the Blue Streak missile. In 1960, Blue Streak, too, was canceled (partly, it is speculated, because of the Skybolt deal, executed that year, with the United States). The final blow in the series occurred at Nassau.

But Britain is not out of the deterrent business—not by a long shot. Scheduled to roll out early this year is a new aircraft, the TSR-2.

Designed to penetrate at ground level so as to skim under enemy radar, the TSR-2 is powered by two Bristol Siddeley Olympus turbojets with each developing 33,000 pounds of thrust. These are the same engines that will be used in the Anglo-French Concorde SST. Possessing a short-field capability, TSR-2 will be able to fly at more than twice the speed of sound at altitude (60,000 feet) and at close to Mach 1 on the deck. A sophisticated electronics system will enable it to hug the ground at high speeds in total darkness. Armament will consist of a short-range nuclear guided missile carried internally.

Announced ferry range is several thousand miles without in-flight refueling. Range at low level has not been released. It is a safe bet, however, that despite the fact that fuel consumption is reputed to be less

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than in comparable engines, the range penalty for low-level operations will be severe. The radius of operations on such missions is not expected to exceed 1,000 nautical miles.

The TSR-2 gives promise of being a highly versatile weapon system. While its initials indicate its mission is Tactical Strike/Reconnaissance, it is capable of another role. This was described by the Secretary of State for Air, Sir Hugh Fraser, in a recent speech:

"With its long range it can be employed, if need be, to attack strategic targets. Thus, the TSR-2 will not only help to close the so-called gap before the arrival in service of Polaris submarines, but, when the submarines are on station, it will be a most useful supplement for them in the deterrent role."

Current plans call for the procurement of a minimum of fifty aircraft.

The emergence of the TSR-2 as a strategic-delivery system has been followed with great interest in NATO circles. A "growing belief" is reported to exist that TSR-2s could form the nucleus of a far better MLF than the vaunted but vulnerable Polaris surface fleet.

Beyond TSR-2, prospects for Bomber Command look grim. At present, no successor aircraft are planned. British thinking on manned systems in recent years has closely paralleled our own. A fascination with missiles as an end-all in weaponry has prevailed. But just as over here, this outlook is slowly changing. There is a growing awareness that we may have jumped the gun in eliminating man from the strategic-weapons picture. Increasingly, the view expressed by Air Marshal Grandy that "there will always be a future for manned aircraft" is gaining acceptance. His reasoning that only manned systems provide the "degree of flexibility, discretion, choice of target and accuracy" needed in today's strategic arsenal has begun to make sense to even the most enamored of missile men.

And so, after a hiatus of several years, new manned systems are being seriously discussed again on both sides of the Atlantic. Pervading these conversations in Britain, however, is the realization that unless something radical occurs, Bomber Command's deterrent days are numbered. While its viability is vouchsafed through the 1960s, thereafter the major deterrent role shifts to the Royal Navy. Needless to say, the Admiralty looks forward to its impending prominence with pleasure. It has never liked being out of the deterrent picture. Deprived of its senior strategic status a decade ago by Bomber Command, it was delighted with the Nassau agreement which put it back in the picture again. When Polaris becomes operational, the Royal Navy will be top dog once more.

The RAF's attitude toward playing a back-seat role is exemplary. One high-ranking officer summed it up in this way: "No one minds such a change, so long as there are sound military reasons for it."

But outside Whitehall, not everyone is happy with the Polaris decision. Some analysts feel that the submarine-delivery system, even with the advanced Polaris A-3, is overrated—not for today, but for the 1970s when the first of the British fleet is scheduled to enter service. One critic summed up his reservations thus:

"Polaris became operational in 1960. It will be extraordinary if, in this age of rapid fire technology, it is able to survive a decade without an effective counter."

"All through history, for each new weapons development, a successful counter has been found. I cannot bring myself to believe that the development of Polaris signaled the end of history."

Some Polaris detractors even question its viability today. Patrick Gordon Walker, the Labor Party's shadow Foreign Secretary, has described it as "a small, second-strike weapon." It is relatively inaccurate, he claims, and "wholly inadequate" as the backbone of Britain's deterrent force.

Other critics point out that, since the seas are free and open to everyone, nothing could stop an aggressor from dispatching a fleet of killer subs to lie in wait at harbor entrances where Polaris submarines are serviced. When they put to sea, they could be followed. While nuclear subs would be required for the job, the awkward Polaris subs' shape assures that killers would have little trouble keeping up with them.

Even in peacetime, one or two vessels could be disposed of in this fashion. Who could question their disappearance? Who knows how the *Thresher* was lost? And you can't start a nuclear war on suspicion alone. Yet the loss of just two submarines in this way, they point out, would constitute the loss of half the British deterrent.

These arguments and others like them have opened up Pandora's box. Opponents have seized upon them to call into question the whole future of British deterrence. Some urge that the nuclear arsenal be scrapped immediately. Others, while more reasonable in their criticism, profess to see no future at all for the UK in the deterrent game.

Unfortunately, the controversy has been injected into politics. A Parliamentary election must be held sometime this year. As the campaign warms up, it appears that one of the most important issues, perhaps the major issue, will be the future of the deterrent. Championing the antiposition is the opposition Labor Party. It has always had a vocal minority which favored unilateral disarmament and banning the bomb. But responsible elements in the Party take a more cautious view. They hold that an independent deterrent while desirable, has become too expensive for a country of the UK's limited resources. They point out that at present, seven percent of the gross national product is allocated for defense purposes. Of this amount, roughly ten percent is spent on the V-force. But the exploding cost of technology will require larger and larger outlays in the future, if credibility is to be maintained. In Labor's view, the UK simply cannot afford it. And so the Party looks forward to easing Britain out of the deterrent business.

The Conservatives generally favor the retention of a deterrent capability. Despite the high esteem and genuine affection felt for the United States, they shudder at the idea of entrusting their destiny totally to us. They are convinced that if Britain is to continue to play a major role in world affairs, strategic-nuclear

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forces must be maintained. They see them as the ticket to the conference table. Perhaps the most eloquent defense of the Party's position was made by the aging but ageless Winston Churchill:

"Sometimes in the past we have committed the folly of throwing away our arms. Under the mercy of providence and at great cost and sacrifice we have been able to recreate them when the need arose. But if we abandon our nuclear deterrent there will be no such second chance. To abandon it now would be to abandon it forever."

One of the most appealing arguments of the antis is that unilateral disarmament by Britain will tend to inhibit the spread of nuclear weapons. Proponents scoff at such claims. One prominent pro voiced his reservations in this way: "The fact that we pull our nuclear teeth will not make a whit of difference to France, India, Red China, Israel, or any other nation seeking to grow its own. Nuclear nationalism," he asserted, "is a virus that cannot be stopped by example alone. Furthermore," he added, "think of how humiliating it would be if, after our grandiose gesture, we ended up a simple pawn in a three-way nuclear chess game between the US, Russia, and France."

As the British election draws nearer, the debate grows more heated. But heat does not necessarily generate light. Oftentimes, the proliferation of comment serves more to confuse and confound than it does to explain. Yet the controversy has brought out several points of great interest over here. They relate to aspects of the problem not generally appreciated or taken into account by us. They should be studied.

The first concerns the size of the British deterrent as suggested by Air Marshal Sir Dermot Boyle in a lecture last March:

"The size of a deterrent force must be related to the value to an enemy of the prize being protected. For example, suppose, I repeat, suppose Russian leaders were prepared to sacrifice half their country in exchange for the removal of the USA from the competitive scene. Then, for the American deterrent to be viable, it would have to be demonstrably capable of destroying far more than half Russia in retaliation. But Russia would not be prepared to accept anything like the same damage in exchange for the removal of the United Kingdom. Therefore, a much smaller retaliatory force can give us as much or greater security than the USA achieve with their vast nuclear capability."

Another factor worth heeding over here is the growing mistrust of the United States which is being manifested by both major parties. With Labor, this takes the form of a reluctance to rely on us as a supplier of weapons. Skybolt is cited to show that the only deterrent worth having is one that is of the home-grown variety.

A simmering mistrust of American intentions also permeates Conservative thinking. It furnishes the theme for a quite different hypothesis, however. It was summarized by the Defense Correspondent of the *London Times* recently:

"The official view, which bears a remarkable similarity in essence to that of General de Gaulle, is that

the American guarantee of European security may possibly lose, at least in Russian eyes, its force and effectiveness at some time in the future. Until effective political union can be achieved either in European or Atlantic terms—and British defense planners believe the latter, at least, to be some way off, national nuclear capabilities are regarded as valuable."

One final point. Underlying the mistrust of America's intentions is the belief, widely shared, that the US wants Britain out of the nuclear business altogether. This has led to a suspicion in some quarters that we deliberately set about creating the current deterrent crisis. Rightly or wrongly, we are blamed for furnishing the antis with the only "intellectual" support they have. It is thought that not until Secretary McNamara's Ann Arbor speech formally adopting the doctrine of counterforce did they have a strategic leg to stand on. The counterforce doctrine gave them one. Although it may not be appreciated in this country, Britain is one big city as the H-bomb flies. Accordingly, counterforce has little application or appeal. Air Marshal Sir John Slessor's caustic comment perhaps best sums up British reaction to it. "Thermonuclear incineration," he wrote, "is a rose that smells no more sweet under the other name of counterforce retaliation."

The Ann Arbor speech tended to undermine British faith in the whole concept of deterrence. The shock of Skybolt's cancellation did not improve matters. Nor did our espousal of MLF. It is believed that from these acorns, the deterrent issue grew.

Advocates of an independent deterrent ask whether any nation, committed as we are to nuclear weapons, can legitimately aspire to inhibit the UK from possessing or maintaining them in its own national interest? Besides resentment, there is a strong feeling that such policies are dangerously shortsighted. A British deterrent compounds the problems of both offense and defense for the Soviet Union. In addition, it relieves this country of the sole moral responsibility for the possible use of nuclear weapons.

The trouble with any debate on deterrence is that it inevitably leads to an Alice in Wonderland of suppositions and hypotheses. One can never see with total clarity; nor does one ever emerge into a state of absolute certainty.

Yet, the quest for credibility must continue. It is a never-ending pursuit.

Whether or to what extent Britain will remain in the deterrent game is not yet clear. But what is certain is that the game will go on—with or without her.—END

The author, Richard C. Peet, recently returned from England, where he interviewed Air Marshal Sir John Grandy and other members of Bomber Command, the RAF, and the British Defense establishment. A lawyer by training, Mr. Peet has held professional positions on both Capitol Hill and in the Executive Branch of government. He has devoted considerable time to study and writing on defense matters. A graduate of Tulane University, he is a former Reserve officer in the Air Force.