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DEFENSE: CUTS AND CHANGES

U. S. total defense expenditures are due to decline about $1 billion in the budget for fiscal 1965 which the Administration has prepared for Congress. Compared to an estimated final grand total of $52 billion for the current fiscal year, 1965's figure will be $51 billion (covering all Pentagon programs and foreign military aid). One of the preview stories on the budget, however, stressed that this year's proposals showed a larger decrease, almost $3 billion, from appropriations requests originally submitted in the last budget, and eliminated or scaled down some new weapons projects. (Wash. Post, 11/31, 1/1)

Sec. McNamara's mid-December announcement that 33 smaller defense bases and depots would be closed renewed controversy over his economy program, despite his emphasis that the shutdown would be gradual and replacement jobs would be available for most of the 8,500 civilians affected. Protests were strongest, locally and from Congressmen, concerning shutdowns in New York (especially 2 upstate facilities) and California (mainly the San Diego Naval Repair Facility). Congressional reaction was also aroused by hints that the Pentagon plan involved shutting one or more large Navy shipyards (Boston, Philadelphia, and San Francisco). Mr. McNamara denied any immediate plan to close these, but stuck to his guns in reiterating that future cuts must be made in "excess" or inefficient defense operations. Reports stress that no further steps are likely this year. However, the ultimate streamlining program favored by Mr. McNamara is unofficially said to involve shutdown of 130-150 facilities, including some large Navy yards and SAC bomber bases, and extensive reorganization of materiel and supply systems. (N. Y. Times, 12/12, 12/13; Wash. Post, 12/15)

On December 21, President Johnson named a high-level interdepartmental Committee on the Economic Impact of Defense and Disarmament, directing it to evaluate and coordinate Federal agencies' studies and plans to cope with shifts or cuts in defense spending. Walter W. Heller, chairman of the Council of Economic Advisers, will head the 9-member group, which will have representatives of the Secretaries of Defense, Commerce, and Labor, and of the AEC, NASA, Arms Control and Disarmament Agency, Office of Emergency Planning, and the Budget Bureau. The President's order appeared to give formal status to the economic impact question and the need to plan ahead "so that appropriate actions can be taken—in cooperation with state and local governments, private industry and labor—to minimize potential disturbance which may arise" from changes in defense spending. (N. Y. Times, 12/22)

Another report noted Pentagon steps to sell the "plan ahead" concept. Defense contractors are being warned or urged to seek civilian uses for their products and technology, while the Pentagon is trying to prepare five-year estimates for unclassified procurement. (N. Y. Times, 12/27)

Meanwhile, at a mid-December meeting of Soviet Communist party leaders, Premier Khrushchev stressed the strength of the Soviet Union's defenses, while suggesting that its defense outlays, and possibly the size of armed forces, might be cut as a "new contribution" to easing world tensions. Soviet budget figures subsequently published showed a defense item $660 million less than the high 1963 level of $14.4 billion. U. S. officials were reported doubtful that the cuts had much significance: the Soviet budget figure is viewed as an unreliable guide to actual defense spending. (N. Y. Times, 12/15, 12/17)

PRICE TO HEAD ACS

Dr. Charles C. Price has been selected as president-elect of the American Chemical Society, to serve during 1965. Dr. Price is Blanchard Professor of Chemistry and chairman of the Chemistry Department at the University of Pennsylvania. A member of the FAS, he served as its former Chairman, and is also a past president of the United World Federalists.

MOON EXPLORATION DELAYED; OTHER SPACE PROGRAMS REVISED

The ever-changing U. S. space program went through another round of contractions, expansions, and reorientations last month. With Congressional passage of a heavily cut $5.1 billion space budget (down by $612 million from the Administration's request) amid indications that funds may not come any easier in future years, NASA has been making some painful decisions on which parts of its program are most dispensable.

The first result has been the cancellation of five flights of unmanned Ranger spacecraft to the moon, at an estimated saving of $90 million. There have been five unsuccessful Ranger shots up to now, and four more still are scheduled. These are intended to take the first close-up pictures of the lunar surface as the capsule approaches its crash landing on the moon. The five cancelled shots were designed to carry out a variety of other experiments: on radiation, radar reflectivity, and seismology, among others. With these cuts, more jobs will fall to the later and more sophisticated Surveyor spacecraft, which are to make soft landings on the moon and study physical and chemical properties of the lunar surface. Seventeen Surveyor flights are scheduled, the first for 1965. Several lunar orbiter flights, designed for high-resolution photography, are also on the agenda. The curtailment of the Ranger program means that design of the two-man Apollo capsule will largely have to precede collection of detailed information on the lunar surface, which is being set back by at least a year. (N. Y. Times, 12/14; Science, 12/27)

Economy has also forced the cancellation of Mariner flights near Venus planned for 1964, and is expected to produce drastic cuts in the Project Rover nuclear rocket program in the 1965 budget. (N. Y. Times, 12/24)

The Defense Department has also been revising its space plans. It has cancelled the much-heralded Dyna-Soar manned space glider program, and replaced it with a less ambitious plan for a manned orbital laboratory (MOL). The MOL will consist of a 25-foot long, 15,000-pound tank hitched to a Gemini capsule. Once in orbit, the two men in the Gemini capsule will enter the tank through a hatch to conduct experiments. Later they will return to earth in the Gemini craft, leaving the tank in orbit. The primary purpose of the MOL will be to determine the effectiveness of manned space stations for photographic reconnaissance of the earth. (N. Y. Times, 12/11, 12/12)

Meanwhile, the Communications Satellite Corporation got its most wanted Christmas present, when A.T.&T. gave assurances that it plans to rely on satellites to meet its future trans-Atlantic channel needs. Comsat has waited several anxious months for A.T.&T., potentially its biggest customer, to decide whether it wanted to lay a new 720-channel transistorized cable or to use satellites. The A.T.&T. announcement gave as chief reason for the decision a wish for diversity of means of communication; i.e. a preference for both satellites and the present cables over either one alone. The initial satellite system is expected to provide several hundred channels, growing later to a capacity of more than a thousand. (N. Y. Times, 12/11)

The Pentagon has announced plans for its own communications satellite system, to provide reliable and jam-proof links with U. S. forces around the world. The system, scheduled to go into full operation in 1966, at least partly supersedes earlier plans for the Defense Department to lease channels from Comsat. (N. Y. Times, 12/16)

FAS COUNCIL MEETING

Details of the FAS Council meetings in New York City are as follows: the Council will meet on Friday, January 24th at 8 p.m. and on Saturday, January 25th at 2 p.m., in the Cornell Room of the Statler-Hilton Hotel, Seventh Avenue and 33rd Street.

McNAMARA WEIGHS U.S. DEFENSE POSITION

(In a major policy speech before the Economic Club of New York last November 18, Secretary of Defense McNamara presented a new evaluation of the relative military strengths of the Western and Soviet blocs. His conclusion, that the West is not only far superior in strategic weapons but also comparably strong in conventional forces, drew much notice in relation to NATO problems and to prospective defense budget cuts. Major portions of the speech are reprinted below.)

Before long this Administration will be presenting, once again, the details of a proposed national defense budget for the consideration of the Congress and the public. Given the importance of these matters, their complexities and uncertainties and the existence of real differences of opinion, a degree of controversy is inevitable, and even desirable.

Some controversies, however, reveal underlying differences in perspective that scarcely suggest the participants are living in the same world. Within the past few weeks, some critics have suggested that we have literally hundreds of times more strength than we need; others have accused us of risking the whole future of the nation by engaging in unilateral disarmament. I would like to believe that criticisms bracketing our policy in that fashion prove it to be rational and sound. But a discrepancy of that order cannot be reassuring. Rather, it indicates that we have failed to convey to some part of our audience even the broadest outlines as we see them, of the problems that our military strategy and force structure are meant to address.

As a prelude, then, to the coming season of debate, I should like to identify and discuss some basic matters on which a considerable degree of consensus seems to me both possible and desirable, although by no means assured.

These include those over-all comparative strengths and weaknesses of the opposing military alliances that form the bold relief in the strategic environment. In short, they are the considerations that seem to have relatively long-term significance compared to the annual budget cycle.

Let me recall the earlier period briefly, for comparison. The strategic landscape at the outset of the 'Fifties was dominated by two outstanding features. One was the practical U. S. monopoly of deliverable, strategic nuclear weapons. The other was the Soviet Union and Communist China's virtual monopoly of ground force on the continents of Europe and Asia.

Both of these determinants of Western military policy had changed considerably by the end of the Korean War. The Soviets had produced atomic explosions and had created sizable nuclear delivery capability against Europe, while NATO ground forces had expanded rapidly, and military operations in Korea had greatly tarnished the significance of Chinese Communist superiority in numbers. But the old notions of monopoly persisted as short-cut aids to thinking on policy matters. And they were not so misleading as they came later to be. Soviet armed forces approaching five million men still heavily outweighed the NATO forces in Europe; and Soviet delivery capability against the U. S. was dwarfed by that of SAC. Moreover, tactical nuclear weapons were being heralded as a new nuclear monopoly for the West.

Even as these earlier notions of monopolies grew obsolete, ideas about the feasibility of alternative policies continued to reflect them. So did ideas about how wars might be fought. Nuclear operations, both strategic and tactical, by the U. S. in response to Soviet aggression against our allies were considered to be virtually unilateral. Hence it was supposed the problem of credibility of the U. S. response would scarcely arise, even in the case of relatively limited Soviet aggressions. Western reliance upon nuclear weapons, in particular strategic systems, both to deter and to oppose non-nuclear attack of any size seemed not only adequate but also unique in its adequacy.

That sort of situation is convenient for policy-makers. It makes policy easy to choose and easy to explain. Perhaps that is why throughout most of the 'Fifties, while the Soviets under various pressures decreased their ground forces and the NATO allies built theirs up, and while the Soviets acquired a massive nuclear threat against Europe and laid the groundwork for a sizable threat against the U. S., the picture underlying most policy debate remained that appropriate to 1949. It was a picture of a Communist Goliath in conventional strength facing a Western David, almost naked of conventional arms but alone possessed of a nuclear sling.

But it is time for the maps to change by which policy is charted and justified. The old ones, which assumed a U. S. nuclear monopoly, both strategic and tactical, and a Communist monopoly of ground combat strength, are too far removed from reality to serve as even rough guides. Neither we nor our allies can afford the crudities of maps that tell us that old policies are still forced upon us, when a true picture would show important new avenues of necessity and choice.

NEW MILITARY PICTURE

What most needs changing is a picture of ourselves and of the Western Alliance as essentially at bay, outmanned and outgunned except for nuclear arms no longer exclusively ours. We should not think of ourselves as forced by limitations of resources to rely upon strategies of desperation and threats of vast mutual destruction, compelled to deal only with the most massive and immediate challenges, letting lesser ones go by default. It would be a striking historical phenomenon if that self-image should be justified. We are the largest member of an Alliance with a population of almost 450 million people, an aggregate annual product which is fast approaching a trillion dollars, and a modern and diverse technological base without parallel, facing the Soviet Union and its European satellites with their hundred million fewer people and an aggregate output no more than half that of the West.

And quite apart from ignoring the underlying strengths of the West, the outdated picture I have described takes no account of the military capabilities in being that our investment over the last decade, and specifically in the last few years, have bought for us. If new problems put strong claims on our attention and our resources today, it is very largely because we have come a large part of the way that is feasible toward solving some old ones.

Let me summarize the current status of the balance of strategic nuclear forces, that part of the military environment that has preoccupied our attention for so long. In strictly relative numerical terms, the situation is the familiar one. The U. S. force now contains more than 500 operational long-range ballistic missiles — Atlas, Titan, Minuteman, Polaris — and is planned to increase to over 1700 by 1966. There is no doubt in our minds and none in the minds of the Soviets that these missiles can penetrate to their targets. In addition, the U. S. has Strategic Air Command bombers on air alert and over 500 bombers on quick reaction ground alert. By comparison, the consensus is that today the Soviets could place about half as many bombers over North America on a first strike. The Soviets are estimated to have today only a fraction as many intercontinental missiles as we do. Furthermore, their submarine-launched ballistic missiles are short range, and generally are not comparable to our Polaris force. The Soviets pose a very large threat against Europe, including hundreds of intermediate and medium-range ballistic missiles. This threat is today and will continue to be covered by the clear superiority of our strategic forces. . . .

But given the kind of force that the Soviets are building, including submarine-launched missiles beyond the reach of our offensive forces, the damage which the Soviets could inflict on us and our allies, no matter what we do to limit it, remains extremely high.

That has been true for our allies ever since the middle and late 'Fifties. Soviet acquisition of a sizable delivery capability against the U. S., and more significantly their acquisition of relatively protected forces, submarine-launched or hardened, has been long and often prematurely heralded. Its arrival at last merely dramatizes the need to recognize

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FERMI AWARD TO OPPENHEIMER

Dr. J. Robert Oppenheimer received the Enrico Fermi award, the AEC's highest honor, from President Johnson at a White House ceremony on December 2. In presenting the $50,000 award, the President praised Dr. Oppenheimer as a "leader" who by his example had set "high standards of achievement" for the nation. The presentation came just ten years from the date of President Eisenhower's order suspending Dr. Oppenheimer's security clearance. Those present at the ceremony included members of the AEC, Congressmen, past winners of the Fermi award, and a representative of the FAS.

that strategic nuclear war would under all foreseeable circumstances be bilateral — and highly destructive to both sides.

Larger budgets for U. S. strategic forces would not change that fact. They could have only a decreasing incremental effect in limiting somewhat the damage that the U. S. and its allies could suffer in a general nuclear war. In short, we cannot buy the capability to make a strategic bombing campaign once again a unilateral prospect.

That must, I suggest, be accepted as one of the determinants affecting policy. Another is that the same situation confronts the Soviet leaders, in a way that is even more intensely confining. In fact, enormous increases in Soviet budgets would be required for them to achieve any significant degree of damage-limiting capability. The present Soviet leaders show no tendency to challenge the basis of the U. S. strategic deterrent posture by such expenditures.

In the last two years alone, we have increased the number of nuclear warheads in the strategic alert forces by 100%. During that period we have more than doubled the megatonnage of the strategic alert forces. The fact that further increases in strategic force size will at last encounter rapidly diminishing returns — which is largely an effect of the very large investments the U. S. has made in this area — should be reflected in future budgets. The funding for the initial introduction of missiles into our forces is nearing completion. We can anticipate that the annual expenditure on strategic forces will drop substantially, and level off well below the present rate of spending. This is not to rule out the possibility that research now in progress on possible new technological developments, including the possibility of useful ballistic missile defenses, will require major new expenditures. In any event, there will be recurring costs of modernization.

In the field of tactical nuclear weapons, the picture is in important respects similar. The U. S. at present has in stockpile or planned for stockpile tens of thousands of nuclear explosives for tactical use on the battlefield, in anti-submarine warfare and against aircraft.

Finally, there is the area of what we call our general purpose forces. Within the last two years, we have increased the number of our combat-ready Army divisions by about 45%, from 11 to 16. There has been a 30% increase in the number of tactical air squadrons; a 75% increase in airlift capabilities; and a 100% increase in ship construction and conversion to modernize the fleet.

COMPARISON OF CONVENTIONAL FORCES

But, it might be asked, what is the significance of all this for the realistic security problems of the United States and its allies? To what contingencies are these forces expected to contribute, and how effective might they be, measured against the strength of opposing forces? How meaningful is it to talk of 16 or 20 or 30 divisions in opposing the ground armies of the Soviet Union and Communist China?

Such questions are often meant to be merely rhetorical, in view of the supposed masses of Communist troops. The fact is that they are serious, difficult questions, to which I shall suggest some tentative answers. But it is difficult to encourage realistic discussions of specific contingencies so long as the shadow of the Communist horde hangs unchallenged over the debate. The actual contingencies that seem to be to me most likely and most significant are not those which would involve all, or even a major part, of the Soviet Bloc or Chinese Communist armed forces, nor do they all involve Europe. Hence, aggregate figures of armed strength of NATO and the Warsaw Pact nations are not immediately relevant to them. But it is useful to make these over-all comparisons precisely because misleading or obsolete notions of these very aggregates often produce an attitude of hopelessness toward any attempt to prepare to meet Communist forces in ground combat, however limited in scope.

The announced total of Soviet armed forces for 1955 was indeed a formidable 5.75 million men. Today that figure has been cut to about 3.3 million; the Warsaw Pact total including the Soviets is only about 4.5 million. Against that, it is today the members of NATO whose active armed forces number over five million. The ground forces of NATO nations total 3.2 million, of which 2.2 million men are in Europe, as against the Soviet ground combat forces total of about 2 million men, and a Warsaw Pact total of about 3 million. Both the Soviet Union and the U. S. forces of course include units stationed in the Far East. In Central Europe, NATO has more men, and more combat troops, on the ground than does the Bloc. It has more men on the ground in West Germany than the Bloc does in East Germany. It has more and better tactical aircraft, and these planes on the average can carry twice the payload twice as far as the Soviet counterparts.

These facts are hard to reconcile with the familiar picture of the Russian Army as incomparably massive. The usual index cited to support that picture is numbers of total active divisions, and the specific number familiar from the past is 175 divisions in the Soviet Army.

This total, if true, would indeed present a paradox. The Soviet ground forces are reliably estimated to be very close to two million men, compared to about one million for the U. S. How is it that the Soviets can muster ten times the number of active, combat-ready, fully-manned divisions that the United States has manned, with only twice as many men on active duty? The answer is simply that they do not. Recent intensive investigation has shown that the number of active Soviet divisions that are maintained at manning levels anywhere close to combat readiness is less than half of the 160-175 figure.

What remains is a large number, but even that is misleading. For one thing, U. S. divisions have about twice as many men in the division unit and its immediate combat supporting units as comparable Soviet divisions.

I do not wish to suggest that such aggregate comparisons are by themselves a valid index to military capabilities. But they are enough to suggest the absurdity, as a picture of the prevailing miltary strengths on which new efforts might build, of David and Goliath notions borrowed from 1949.

None of this is to say that NATO strength on the ground in Europe is adequate to turn back without nuclear weapons an all-out surprise non-nuclear attack.

But that is not in any case the contingency toward which the recent and future improvements in the mobility and capabilities of U. S. general purpose forces are primarily oriented. Aggression on that scale would mean a war about the future of Europe and, as a consequence, the future of the U. S. and the USSR. In the face of threats of that magnitude, our nuclear superiority remains highly relevant to deterrence. The Soviets know that even non-nuclear aggression at that high end of the spectrum of conflict so threatens our most vital interests that we and our allies are prepared to make whatever response may be required to defeat it, no matter how terrible the consequences for our own society.

The probability that the Soviet leaders would choose to invoke that exchange seems to me very low indeed. They know well what even the Chinese Communist leaders must recognize upon further reflection, that a nuclear war would mean destruction of everything they have built up for themselves during the last 50 years.

The fact is that at every level of force, the Alliance in general, and the U. S. Armed Forces in particular, have greater and more effective strength than we are in the habit of thinking we have — and with reasonable continued effort we can have whatever strength we need.

The most difficult questions arise over the best means for meeting a variety of dangerous intermediate challenges in many parts of the world: those which threaten the possibility of sizable conflict while still not raising the immediate issue of the national survival of ourselves or of any member of our alliances. Conflicts might arise out of Soviet subversion and political aggression backed up by military measures in non-NATO areas in Europe, Latin America, the Middle East and Africa. There is a range of challenges that could arise from Communist China and its satellites in the Far East and in Southeast Asia. Most dangerously, ap-

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The FAS, founded in 1946, is a national organization of scientists and engineers concerned with the impact of science on national and world affairs.

NEW BREEDER REACTOR SUCCESSFUL

Achievement of an important step toward the national goal of inexpensive electricity from atomic energy has been announced by the AEC. An experimental fast-breeder reactor, designed to generate electricity and at the same time produce more nuclear fuel than it consumes, achieved a self-sustaining chain reaction at the testing station near Idaho Falls, Idaho. The $35-million reactor is the first device directed primarily at establishing the technical feasibility of fast-breeder reactors for central power plants. The new reactor started its activity with expensive nuclear fuel, uranium 235, but produces more of a different fuel, plutonium, than it consumes, and can be operated later on the self-produced plutonium. The AEC said the reactor eventually will produce some 20 million watts, enough for the power needs of a town of 20,000 people. The Commission has said that the ability to develop and use breeder reactors would play a key role in the AEC's hopes and expectations that nuclear power can be made competitive with conventional power throughout most of the country during the 1970's. (Wash. Post, 11/12)

NEW STUDY OF SMOKING AND HEALTH

Although the Surgeon General's report on smoking has been delayed until 1964, the first report of the American Cancer Society's prospective study on smoking was given at the annual clinical meeting of the AMA by Dr. E. Cuyler Hammond. (N. Y. Times, Dec. 5)

The study begun October 1, 1959 will eventually deal with over one million people. Critics of previous statistical studies have felt that smokers and non-smokers differed from one another in fundamental ways other than smoking habits. To avoid this objection, this report deals principally with thirty-four months' experience with 36,975 pairs of men who were matched in each of sixteen respects. They were matched for age; race; height; country of birth; rural or urban residence; extent of occupational exposure to dusts, fumes, vapors, etc.; religion; education; marital status; alcoholic consumption; sleep and exercise habits; presence or absence of severe nervous tension; use of tranquilizers; health or sickness at time of questionnaire; and family history of cancer and/or heart disease. The members of each pair differed in their smoking habits; one never having smoked regularly, while the other smoked twenty or more cigarettes a day.

The total number of early deaths in each age group was much higher for smokers than for non-smokers: overall about two to one (1385 vs. 662 total figures for smokers and non-smokers). The principal cause of death was coronary heart disease which accounted for half the total deaths (654 vs. 304). In the 40-59 age group, coronary artery disease killed 1.95 times as many smokers as non-smokers. The next most common cause of death was cancer (261 vs. 96)—especially cancer of the lung (110 vs. 12). Heavy smokers had a death rate due to lung cancer eighteen times that of non-smokers. The rate for average smokers was eleven times that of non-smokers. Fifteen smokers compared with one non-smoker, died of emphysema. The greater the exposure to tobacco smoke (degree of inhalation and age when smoking began), the higher was the death rate. Men who had given up smoking for a year or more had lower death rates than those who were smoking at the time of enrollment in the study.

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proaching the upper end of the spectrum, there is the possibility of limited Soviet pressures on NATO territory itself, along the vast front running from Norway to Greece and Turkey. Both the flanks and the center contain potential targets. And always, of course, there are the contingencies that could arise in relation to Berlin.

It is difficult to say just how probable any of these circumstances might be, although they must be regarded as more likely than still larger aggressions. What one can say is that if any of these more likely contingencies should arise, they would be highly dangerous. Inaction, or weak action, could result in a serious setback, missed opportunity or even disaster. In fact, if either a nuclear exchange or a major Soviet attack should occur, it would most likely arise from a conflict on a lesser scale, which Western capabilities had failed to deter and which an inadequate Western response had failed to curb in time.

Since World War II, the expansionist impulse of the Communist Bloc is clear, but equally clear is its desire to avoid direct confrontation with the military forces of the free world. In Greece, in Berlin, and in Cuba, Communists have probed for military and political weakness but when they have encountered resistance, they have held back. Not only Communist doctrine has counselled this caution, but respect for the danger that any sizable, overt conflict would lead to nuclear war. It would follow that no deterrent would be more effective against these lesser and intermediate levels of challenge than the assurance that such moves would certainly meet prompt, effective military response by the West.

Given a tough-minded sense of reality about the requirements of combat readiness, it should be possible for the United States not only to maintain but to expand this increased strength without overall increases in our defense budget. As our national productivity and our gross national product expand, the defense budget therefore need not keep pace. Indeed, it appears likely that measured in relative—and perhaps even absolute — terms, the defense budget will level off and perhaps decline a little.

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