

Chason 2343

THE WHITE HOUSE

WASHINGTON

May 16, 1973

Dear Harold:

Thank you for your letter of April 20 and the suggestions of ways to equip our forces and those of our allies with lower cost weapons, especially the idea of providing allied paramilitary forces with large numbers of inexpensive anti-tank weapons. We have a NATO study underway looking at a wide range of actions to improve NATO capabilities against Pact forces, especially Pact tanks. Your idea is an interesting one and I will ensure that it is considered.

The question of the high unit costs for our new weapons systems and the impact these high costs will have on the size of our forces is of great concern to the President and to me. In fact it is discussed in the Foreign Policy Report (see page 191), a copy of which is enclosed. We have recently asked the Department of Defense for a complete review of their modernization plans and the impact of these costly modernization programs on our forces in the future. I hope this will focus more attention on the problem and lead to remedial action.

I appreciate having your ideas as we review this problem.

Warm regards,



Henry A. Kissinger

Dr. Harold M. Agnew  
Director, Los Alamos  
Scientific Laboratory  
University of California  
P. O. Box 1663  
Los Alamos, New Mexico 87544

MEMORANDUM

NATIONAL SECURITY COUNCIL

May 12, 1973

MEMORANDUM FOR DR. KISSINGER

FROM: Phil Odéen *PO*  
SUBJECT: Letter from Harold Agnew

Harold Agnew has written to you (Tab B) expressing concern over the trend of high unit costs of our new weapons systems and offering some suggestions for arresting this trend. At Tab A is a proposed memorandum from you to Dr. Agnew thanking him for his suggestions and indicating that you share this concern and are seeking ways to alleviate the problem.

I recommend you sign the memorandum at Tab A.

UNIVERSITY OF CALIFORNIA  
LOS ALAMOS SCIENTIFIC LABORATORY  
(CONTRACT W-7405-ENG-36)  
P. O. Box 1663  
Los Alamos, New Mexico 87544

IN REPLY  
REFER TO: DIR

April 20, 1973

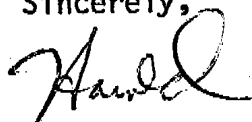
Dr. Henry A. Kissinger  
Special Assistant for National  
Security Council  
The White House  
Washington, D. C. 20500

Dear Henry:

As you are probably aware I have been urging that the DoD consider distributing a million LAW's (Light Antitank Weapon) or equivalent with an inexpensive PAL code feature to paramilitary forces in Europe. To me such a distribution at a total cost appreciably less than the cost of one C5A would add tremendously toward creating a credible deterrent to any would-be aggressor who needs any ground vehicles to implement his attack.

In line with this suggestion I would like to urge that the DoD initiate some studies where the ground rules are entirely different from those which we appear to have today. The ground rule for the study should be that one is allowed to have in his force structure any number of a particular piece of hardware, gun, tank, aircraft, etc., etc., BUT the cost per individual item cannot exceed \$100, \$1000, or \$100,000. So the constraint is cost per individual hardware item but no constraint on number of items. I feel that just having people thinking in these terms would be of great benefit to our national security. If we don't, technology will drive us to a one tank, one aircraft, one ship defense establishment.

Sincerely,



H. M. Agnew  
Director

P.S. I'm enclosing an abstract from a paper by Norman Augustine which shows what is happening in the aircraft business.

cc: Senator Henry M. Jackson, Attn: Dorothy Fosdick

(U) The tenacity with which we have pursued our quest for ever more complex and expensive systems is shown in Figure 12, wherein one sees that the average unit cost of new fighter/strike aircraft has very consistently increased by 6 db per decade ever since the days of

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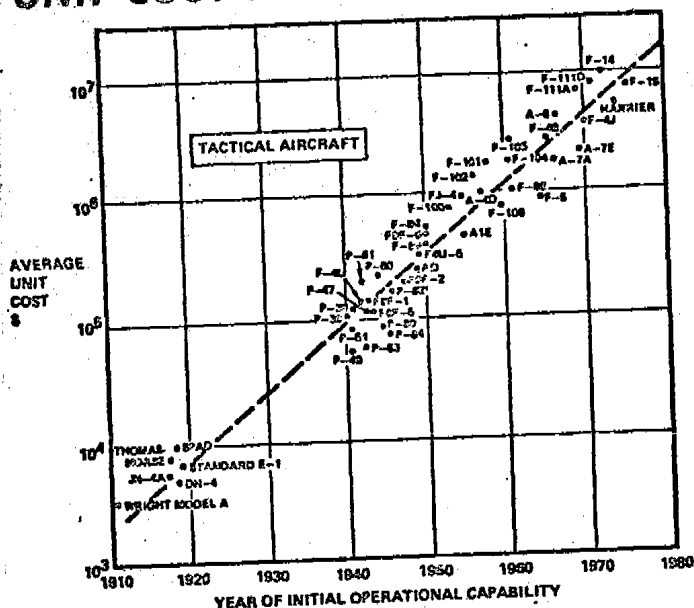


FIGURE 12

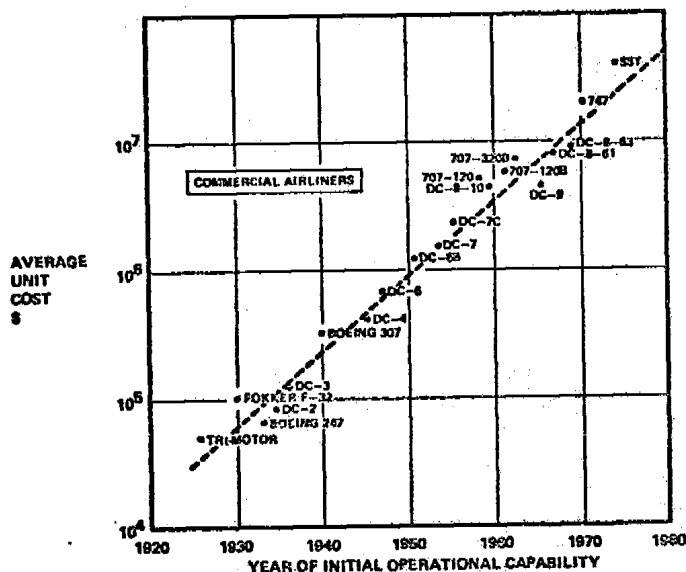


FIGURE 13

**UNIT COST INCREASE WITH TIME**

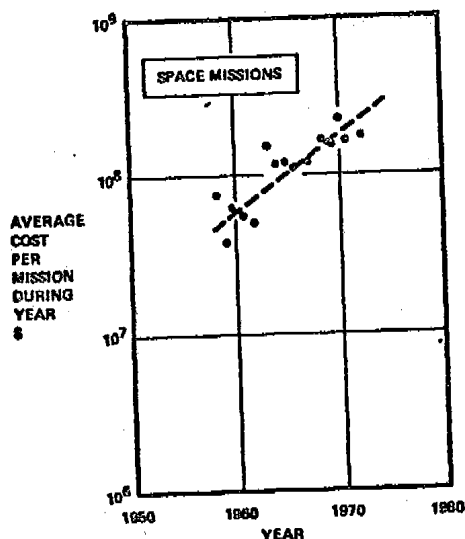


FIGURE 14

the Wright Brothers! Experience with commercial airliners (Figure 13) and with space missions (Figure 14) follows precisely the same trend, also with a 6 db slope. This has led to the formulation of "Augustine's Law," now widely unknown, which states that the cost of new military hardware is determined simply by calendar time! One might have expected that the cost of an airplane would be largely a function of such parameters as the number and type of engines it employs, the types of materials used, etc. Instead, it turns out that the cost of an airplane merely obeys the following equation:

$$\text{unit cost } (\$) = \frac{c}{2} (4^{t/10}) \cdot 10^{-6}$$

and is thus determinable purely as a function of the number of years,  $t$ , having transpired between the IOC of the aircraft in question and the date when Messrs. W. and O. Wright expanded the product lines of their bicycle shop to include heavier-than-air aircraft (1903). The constant,  $c$ , in the cost growth equation is, appropriately, the speed of light ( $10^9$  ft/sec).

(U) One can use this law to extrapolate the unit costs of future aircraft, thereby making possible comparisons of the resulting dollar figure with the total funds which are projected to be available for the procurement of aircraft. If it is assumed, for example, that the defense budget will continue to remain roughly constant, by the year 2036 (not really that far away ... some students now here at the Air Academy will probably still be alive), our Air Force will consist of precisely one airplane! (It is presumably in preparation for this event that the President has elected to name his own aircraft "Air Force One.") Fortunately, by sharing this sole airplane with the Navy three days a week, it will be possible, barring accidents, to replace it with a duplicate every 15 years.

(U) If one wishes to question the above conclusion on the basis that it assumes a fixed defense budget, it is necessary to wait only an additional 83 years until the cost of a single airplane will equal the projected gross national product.