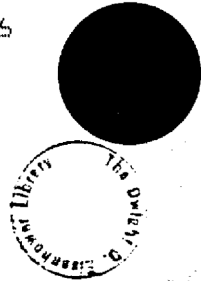


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20 January 1958 407266



MEMORANDUM TO: Mr. F. M. Dearborn, Special Assistant to the President

SUBJECT: Reasons for Further Nuclear Testing

You asked that I write succinctly my reasoning expressed in our Saturday conversations. I find it impossible to analyze succinctly our national policy errors with regard to nuclear weapons, their causes, consequences, and cures. This memo therefore addresses only one element of the problem, the as yet unstated reasons why we must continue nuclear tests for the benefit of all mankind as well as ourselves.

The true justifications for further testing may be divided into considerations of self interest, and moral, political, and military reasons. All confirm the view that we must have clean weapons and smaller weapons than we now do. Some of these true justifications have universal appeal if expressed as a matter of national policy, and should serve to arouse support for further nuclear testing. They are:

SELF INTEREST:

Our own and that of every other world citizen is involved.

Bodily damage from radiation is directly proportional to exposure, double the exposure double the damage, including genetic to future generations. Present weapons produce extensive radioactive debris, in the air for airbursts, on the ground and in the air for ground bursts. Nuclear war with present weapons means unavoidable

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-2-

and heavy world contamination. Resulting hazards are infinitely greater than those of nuclear tests. There is at present no alternative if we stumble into nuclear war. There will be none if tests stop. Clean weapons provide an alternative which we must have for the safety of all, irrespective of Russian actions.

India might accept the slight hazard of present tests to avoid the infinitely greater hazard to Indians if nuclear war erupts. The same for the Japanese if put to them this way. The same for Americans and NATO nationals dependent upon our weapons for defense of their homelands. If we should ask whether they wish clean or dirty weapons for this purpose they would respond, "Clean!!!".

The fear of limited war expanding into unlimited nuclear war is universal. A cogent reason for this well founded fear is the indiscriminate nature of present weapons, even our small ones. If they were clean, and even smaller (truly discriminating), the risk of expansion would be greatly reduced. Even fearful neutrals should understand this.

Energy serves man to the extent he tames it. Nuclear explosives are no exception. If we make them small enough, and clean, - nuclear dynamite will become commonplace, - easier, quicker, and perhaps in time even cheaper than conventional explosives. Test cessation slams this door. We laugh at the thought of nuclear dynamite today, but only because of our present

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-3-

frame of mind. It will change with time.

## MORAL:

To overkill by radioactivity and excessive yield is immoral. Current moral objections to all nuclear weapons are based upon this principle. The question is not academic. There is a latent inspiration in the possibility of a clean nation seeking to fight clean, and able to do so. We cannot now. Nor can we exercise restraint with present weapons, nor have we shown any intent to exercise restraint. We must.

A dirty weapon cannot be made clean without redesign. A basically clean weapon can be made dirty, almost by adjustment. If we had a basically clean stockpile, easily adjustable to dirty, we would lose no deterrent thereby and could fight clean if we chose. The advantages are obvious.



## POLITICAL:

How long will neutrals or friends in areas of limited war remain neutrals or friends after suffering heavy casualties from our indiscriminate weapons? How long will NATO remain NATO if its citizens are destroyed by our weapons? They are already asking these questions in Europe, and getting no answers.

Russia has achieved her objective of banning the bomb. By achieving a massive deterrent of her own she has made all-out nuclear war unacceptable to us. By inciting the fear that any weapon

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-4-

means all-out nuclear war she blocks our use of any nuclear weapons short of all-out war. We can escape this straitjacket only if we promise restraint, and develop the nuclear weapons to carry out that promise - clean weapons, and smaller ones. We must think to do the one, and test to do the other.

## MILITARY:

Hard targets such as concrete runways and buried command posts require high yield surface burst weapons. Vast and deadly areas of nuclear contamination result. Friendly forces, friendly populations, or neutrals may be threatened. It may become a choice between moral, political, and military considerations, and the latter may suffer. Or the others. Either way, clean weapons by greatly reducing the area and degree of contamination, reduce the problem.

It is sometimes necessary to traverse or to occupy such areas shortly after burst. This is much easier if the weapon is clean.

Many weapons, even air burst, may raise local contamination to dangerous levels, as well as increase the world-wide contamination. Clean weapons permit local military operations within such local limits.

Clear thought and changed nuclear and national policies will not cure all our ills. But confusion in these matters has confounded our friends and delighted our enemies who so greatly benefit

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therefrom. Only when we modify present nuclear national policies in the light of changed conditions, know ourselves as a nation what they are, and express them with obvious resolution to the world can we hope to regain the initiative. Test cessation is the immediate, the obvious, and the most disastrous threat.

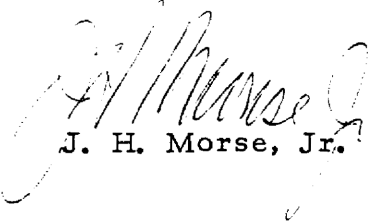
Experience shows the justifications we have used for continuing tests to be ineffective. I have listed them in Annex I, together with the reactions which they evoke. I do not concur myself with all these reactions, but they frequently arise.

Many of our highest government officials as well as our own citizens are not convinced that we must continue tests. Many of those who still support our official position do so on faith rather than by conviction. It has been my experience that doubters are invariably convinced by the kind of approach outlined in this memo. Consequently I hold that until the highest policy levels use these arguments we will continue to lose on the test issue, and that cessation is a matter of time.

Our own official disarmament position reacts to our testing disadvantage. By agreeing to test suspension at all and under any conditions we admit tacitly that tests are bad and should be stopped. By tying them into a package we appear to be using an issue that affects the health of all mankind, (according to effective Russian propaganda) as sugar to make our package more palatable to the Russians, a package so complex and devoid of public understanding that even our own

negotiators plead for its untying. They will have their way in the end, unless we change, and tests will stop to the detriment of mankind.

We may expect objections and denials to this reasoning, mostly from within the government itself. I have listed the more important of these objections with answers I believe effective in Annex II.

  
J. H. Morse, Jr.



Enclosures:

- Annex I
- Annex II

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ANNEX I

Listed below are the ineffective justifications we have used to date for further nuclear tests, and the reactions which they invite: (not my own views)

- a. We test to retain nuclear superiority in the absence of disarmament.

What kind of superiority? Both sides now have enough to destroy each other and the world. Why seek more, and what good is superiority in destruction when both die?

We consistently proclaim that we do excel. Mutual cessation would maintain American superiority, since clandestine Russian tests can always be detected even by our present methods. We never deny that they can. Russia, though inferior, will stop. Why not we? Particularly when tests are harmful to all life.

- b. Past tests have brought great progress. We must test for more progress.

Toward what end? More destruction? We have enough.

- c. We must test to develop defensive weapons.

What are they? Any weapon is defensive if so used. We never define the term or explain what we mean.

- d. We must develop discriminating weapons, whose effects are confined to military targets.

This begins to make sense, but what are the implications of such weapons? The military never talks in terms of discrimination or restraint, but always in terms of destruction. They are not really interested in discrimination, and we civilians therefore cannot trust

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-2-

them with such power for world holocaust, no matter how much the Atomic Energy Commission may talk of discriminating weapons. It is a trick to justify more tests for more destruction.

e. We must test to retain our laboratories and weapon scientists.

Many do not believe it, and many believing, do not care. The nuclear weapon is necessarily a horrible weapon of utter destruction which threatens mankind, and anything that hinders its development or refinement is inherently good.

f. Nuclear tests do little bodily harm and should be tolerated to avoid another war which would be much worse.

How will further testing avoid war? By adding to mutual deterrents? You already have enough destruction.

Besides, Albert Schweitzer, universally revered, and Eleanor Roosevelt, and Dr. Linus Pauling, and many other highly qualified humanitarians say tests are dangerous and must stop. Who are Dr. Libby and Dr. Dunham who say that they are not. They are representatives of the Atomic Energy Commission which has a vested interest in continued tests.

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## ANNEX II

Listed below, with answers, are the questions or objections frequently encountered with regard to the development of clean weapons in all yields, and smaller weapons:

a. Do we share clean weapon technology when developed, and if not, what do we say when Russia demands that we do?

No, we do not share with our probable enemy, we may eventually with our friends, but this can be settled later. In the meantime we use clean technology as a psychological and political weapon to regain lost initiative, reiterating constantly that we will use nuclear weapons only in defense, and then clean. We intend to fight clean. But we can fight dirty and will, if we must, accepting reluctantly the terrible risk involved for mankind because forced by the enemy to fight dirty. We thus marshal world pressure upon Russia as the aggressor equipped only with dirty weapons to threaten civilization.

When Russia sees the initiative which this gives to us, and the psychological, political and military advantages of clean weapons, she will hasten to develop her own.

b. Military need for clean weapons is slight. The job can be done with present designs. Clean weapons weigh more than normal ones. They are more expensive in nuclear materials. Why pay penalties in the absence of need?

This almost universal reaction by military men overlooks the fact that moral, political, and wartime tactical considerations may impose crippling limitations upon military freedom of action. A little reflection and imagination will uncover many possible situations. The military is accustomed to no restraint in such matters, and does not yet realize that universal fears of the nuclear weapon have already imposed restraints damaging to our national interest. Greater restraints may be imposed in war. Or lesser. We do not know which. Political leaders and civilians are reluctant to trust the power of nuclear weapons in military hands, primarily because there has been no trend toward self-restraint. Restraints will ease to the extent the public comes to respect military judgment, intent, and capability to use minimum nuclear force as required to stop Russian aggression.

As for penalties involved in clean designs, they are temporary - if we apply the same development effort as went into nuclear weapons from the start. We may expect the same rate of progress in the clean field, and have just started.

- c. We cannot fit these heavier weapons into current delivery vehicles without reducing our striking power.

Careful analysis of the destruction now planned will disclose that reductions imposed by clean weapons are slight if they exist at all, except in the field of radioactivity. But most military plans are based upon destruction from instantaneous effects alone, counting radioactivity as a bonus, not effective for several days and therefore of little value in immediate reduction of the threat.

Military planners have been spoiled by rapid weight-for-yield reductions. A few years ago radioactive weapons weighed much more than present clean ones of equal yield.

Military planners can adjust to the far lesser penalties involved in clean weapons of tomorrow, if they will.

- d. Why worry about radioactivity when the instantaneous effects of nuclear weapons create utter destruction?

This rests on two unsound assumptions:

- (1) there will be no survivors from the instantaneous effects of nuclear weapons, and
- (2) that nuclear weapons will be used only in all-out war.

There will be many survivors of all-out nuclear war if clean weapons are used. Probably none if we use present weapons. And limited nuclear wars are possible and even probable, certainly more so than all-out war.

e. We cannot divert development to clean weapons or to small weapons because we must retain superiority over Russia.

In what area? Higher yield weapons of present radioactive designs for more deterrent? Deterrent exists so long as Russia cannot be sure of stopping almost all of our weapons. This is difficult now, impossible with the advent of ICBM, IRBM, Polaris and NATO stockpiles. The Russian planner deciding upon all-out attack will find the question of relative superiority a hazy one for years to come. He will never be sure of getting or stopping all U. S. weapons before they strike,

barring a scientific breakthrough to achieve absolute defense. A very small number of our present weapons burst on the ground will kill a nation, perhaps a continent. Russians are aware of this. Bulganin's recent letter to the Turkish Prime Minister bears heavily upon this point in threatening the Turks. We now have and will have massive deterrent even if we stop advances in high yield, dirty, weapons or in reducing their size to fit delivery vehicles yet undesigned.

f. The hazard of radiation is exaggerated. Who says so with assurance? What scientist? Some of us may believe this hazard less than that of Russian aggression. But perhaps it only seems less because we are accustomed to thinking in such terms and see the Russian threat more clearly. Perhaps we overlook that of radiation through ignorance. Three times within the last few years the limits of exposure for nuclear workers have been changed - always downward. This week the Washington schools are shifting from TB X-ray to inoculation to avoid radiation.

- g. All nuclear weapons are devastating and therefore immoral. Anything which hinders the further development of armaments is inherently good.

Which is more immoral, slightly hazardous tests to provide means by which man may be spared the consequences of his own folly, or to stop now and thereby assure ~~the~~ death or suffering for all mankind if nuclear war occurs? Stopping tests will not prevent the holocaust. The means by which it can occur already exist.

- h. Why fight clean if Russia fights dirty?

Many reasons, self-interest primarily. We will have at least a 50-50 share in the nuclear energy released in all-out war, we hope. Radiation damage is proportional to amount of radiation (contamination). If we halve it, we halve the damage to our survivors, or to ourselves if we survive. The issue may be decided within hours after exchange begins. It does us little eventual good, except to provide revenge, if we destroy all of Russia and our friends as well, with radioactivity, which kills only after we ourselves have been mortally wounded.

In defense there is no reason why we should defend ourselves with anything other than clean weapons, except

that we knew no alternative until recently, and our first glimpse of the alternative has lead us to believe incorrectly that clean weapons will be too heavy or too expensive.

Finally, because of the moral, political and military advantages accruing to the possessor of clean weapons over the side that does not.

The Atomic Energy Commission has announced that it already knows how to make clean weapons. The presumption is that they are now in stockpile. Why do you need further tests of clean weapons?

We cannot yet make clean weapons in all yield ranges.

What we can do is classified.