FROM BRADBURY CLEAR CREEK  TO GENERAL GROVES WASHINGTON LIAISON OFFICE WASH DE
RUSH RUSH RUSH

PROFESSOR HANS BETHE, DEPARTMENT OF PHYSICS, CORNELL UNIVERSITY,ITHACA, N Y
DEAR PROFESSOR BETHE,

THERE ARE CERTAIN FEATURES OF THE APPROACHING TESTS OF THE ATOMIC BOMB BY THE NAVY WHICH WORRY ME, AND I AM WRITING TO FIND WHETHER THERE ARE FACTORS WHICH I HAVE OVERLOOKED, OR WHETHER YOU CAN THROW ANY FRESH LIGHT ON THE SITUATION IN GENERAL.

OF COURSE I HAVE TO LOOK AT THE SITUATION AS AN OUTSIDER. HOWEVER, FROM THE VANTAGE POINT OF AN OUTSIDER CERTAIN FEATURES MAY APPEAR IN DIFFERENT PERSPECTIVE THAN TO ONE CLOSER BY.

WHAT IS WORRYING ME IS THE POSSIBILITY THAT IF THE BOMB IS EXPLODED IN THE OCEAN THE HYDROGEN MAY BE CONVERTED TO HELIUM WITH AN ASTRONOMICAL RELEASE OF ENERGY. IF THE ONLY CONSIDERATION WAS THE ENERGY RELATIONS, THE REACTION WOULD RUN. THE ARGUMENT THAT THE REACTION WILL NOT RUN MUST INVOLVE OTHER CONSIDERATIONS. AS FAR AS I CAN SEE THESE OTHER CONSIDERATIONS MUST BE CONSIDERATIONS OF DETAIL, SUCH, FOR EXAMPLE, AS THAT THE SIMULTANEOUS COLLISION OF FOUR HYDROGENS IS AN EVENT OF TOO GREAT IMPROBABILITY. WHATEVER THE
PRECISE ARGUMENT IT WOULD SEEM THAT IT MUST BE OF THE GENERAL FORM
THAT NO KNOWN OR CONCEIVABLE PROCESS HAS SUFFICIENT PROBABILITY TO
PERMIT THE REACTION. BUT THIS IS ESSENTIALLY AN ARGUMENT FROM
IGNORANCE, AND INVOLVES A TERRIBLY LONG RANGE EXTRAPOLATION. IF THE
HISTORY OF PHYSICS TEACHES ANY ONE THING, IT IS THAT LONG RANGE
EXTRAPOLATIONS AND HAZARDOUS, EVEN THE BEST HUMAN INTELLECT
AS NOT IMAGINATION ENOUGH TO ENVISAGE WHAT MIGHT HAPPEN WHEN WE
PUSH FAR INTO NEW TERRITORIES IN THE PRESENT SITUATION THE HAZARD OF SUCH
AN EXTRAPOLATION IS MADE MORE VIVID BY THE RECENT ARTIFICIAL PRODUCTION
OF MESONS OF VARIOUS MASSES WHEN ENERGIES ARE PUSHED TO NEW HIGH
VALUES.

TO AN OUTSIDER THE TACTICS OF THE ARGUMENT WHICH WOULD JUSTIFY
RUNNING EVEN THE SLIGHTEST RISK OF SUCH A COLLOSAL CATASTROPHE
APPEARS EXCEEDINGLY WEAK. IT SEEMS TO ME THAT EVERYTHING POSSIBLE
SHOULD BE DONE TO MINIMIZE THE RISK. I WOULD LIKE TO SEE PRELIMINARY
EXPERIMENTS IN WHICH A BOMB IS EXPLODED IN ISOLATED MASSES OF
WATER OF LIMITED SIZE, AS IN A WATER TANK OR SMALL POND.

THERE IS ANOTHER ASPECT WHICH SHOULD BE CONSIDERED. WHAT THE
RIGHT COURSE OF ACTION IS IS DETERMINED BY WHAT WE KNOW NOW, NOT
BY HOW THE EVENT ACTUALLY TURNS OUT. IF I AM RIGHT IN THINKING THAT
THE TACTICS OF THE ARGUMENT IS WEAK, THEN IT WOULD BE WRONG TO DROP
THE BOMB WHETHER OR NOT THE OCEAN EXPLODES. SUPPOSE THE BOMB IS DROPPED
As at present planned, the ocean does not explode, and that later it should become known to the general public that the argument had been weak and that the scientists had permitted the taking of a stupendous chance without doing everything in their power to safeguard all possibilities. There might well be a reaction against science in general which would result in suppression of all scientific freedom and the destruction of science itself. This appears to me as cause for greater concern than the blowing up of the ocean, which after all would not very much affect a world of dead men.

Are there considerations of which I am not aware, or which I have overlooked question?

Yours sincerely,

P W Bridgman

Ref TP 3971

Corr.....22nd line 2'd WD shld be ARE - also 24th line 5th WD shld be TERRITORY.

End win

Pls deliver immediately------