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Symbol: TM-39

Group Ref: TMG-M17

This document consists of 5 pages
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February 14, 1952

MINUTES OF THE SEVENTEENTH MEETING OF THE THEORETICAL MEGATON GROUP

13 February 1952

1. The seventeenth meeting of the TMG convened at 9:00 AM on Wednesday, February 13, 1952 in the W-Division Conference Room. Those present were:

H. M. Agnew	R. M. Landshoff
G. Bell	R. B. Lazarus
H. A. Bethe	C. L. Longmire
W. Bouricius	J. C. Mark, Chairman
A. A. Broyles	N. Metropolis
F. de Hoffmann	L. W. Nordheim
J. J. Devaney	L. G. Peck
B. E. Freeman	J. R. Reitz
D. K. Froman	A. Rosenbluth
W. B. Goad	J. L. Tuck
G. M. Grover	S. M. Ulam
F. C. Hoyt	G. M. Wing

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW
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2ND REVIEW-DATE: 9/2/97
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2. CLASSIFICATION CHANGED TO:
3. CONTAINS NO DOE CLASSIFIED INFO
4. COORDINATE WITH:
5. CLASSIFICATION CANCELLED
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7. OTHER (SPECIFY):

2. [redacted]

A second casting has proved to be free from this defect.

DOE b(3)

3. Implosion and Burning Calculations on the SEAC. No new results from the 100 mass point coding now being perfected have as yet been received in Los Alamos.

[redacted] It is expected that this Matterhorn study of burning and propagation will be completed in a matter of weeks.

DOE b(3)

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4. [redacted] de Hoffmann reported on a calculation now being set up in cooperation with Rand which will give quick results, by hand computation, for the temperature in the implosion channel as a function of position and time. [redacted]

DOE b(3)

DOE b(3)

5. [redacted]

DOE b(3)

[redacted] The results obtained, which still contain uncertainties due to imperfect statistics with only 1016 neutron samples, agree with the earlier estimates to within about 10%. [redacted]

DOE b(3)

6. [redacted]

DOE b(3)

8. Preliminary Planning for an Alarm Clock Test. Mark reported on current thinking in the Laboratory Director's Office on the scheduling and philosophy of an eventual alarm clock test. [redacted]

DOE b(3)

1) It was erroneously reported in the 15th Minutes that a disintegration cross section of .1 barn was included in these Rand calculations. Actually, a calculation including disintegration of the deuterium has not yet been carried out.

(2)

DOE b(3)

[redacted] The objective should be to test the design of a weapon giving the largest yield consistent with delivery from an existing aircraft or one that will be available at a predictable date.

9. Airplane Characteristics. Some pertinent information on the types of military aircraft that should be considered for delivery of a thermonuclear bomb such as the alarm clock was presented by Agnew and is summarized in the accompanying table.

As a guide to military planning and delivery of a thermonuclear bomb, the following specifications on weight and size have been tentatively proposed: Weight 50,000 lbs; length 20'; diameter 6'. The "compatibility" in the last column of the table is with respect to these specifications.

There are expected to be about 200 B-36 D planes available in 1953-54. The YB 60 and XB 52 will become operational during 1954, with 10 of each in operation. The B-47B is operational at present, though the modifications necessary to carry the 50,000 lb. bomb load are not yet incorporated.

Frank C. Hoyt

Frank C. Hoyt

Type	Gross wt at take-off in lbs	Bomb load in lbs	Weight of fuel in lbs	Combat radius in nautical miles	Bombing altitude in feet	Cruising speed in knots (maximum speed)	Compatibility with thermonuclear bomb
B-36 D	357,500	50,000	131,043	1,920	40,000	290 (360)	Fits
	357,500	86,000	91,489	1,485	25,000	190 (325)	Fits
	357,500	10,000	170,000	2,870	40,000	(353)	Fits
YB 60	410,000	50,000	221,000	2,550	42,500	400 (440)	Fits
	410,000	72,000	197,498	2,125	42,500	399 (440)	Fits
	410,000	10,000	260,800	2,910	44,800	400 (440)	Fits
XB 52	390,000	50,000	180,450	2,460	45,000	457 (480)	Requires fuel tank modification.
	390,000	10,000	219,240	3,070	46,500	457 (480)	
B-47 B	185,000	50,000	50,360	<1,000	<40,000	445	Redesign of fuselage required.
	180,000	10,000	87,300	2,130	41,000	445	
		50,000		4,000*			

*One way, with two refuelings.

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