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Group Ref: TMG-M20

This document consists of 9 pages
No. 3 of

March 7, 1952

MINUTES OF THE TWENTIETH MEETING OF THE THEORETICAL MEGATON GROUP

5 March 1952

1. The twentieth meeting of the TMG convened at 9:00 AM on Wednesday, March 5, 1952 in the W-Division Conference Room. Those present were:

G. Bell
H. A. Bethe
A. A. Broyles
W. Bouricius
F. de Hoffmann
B. E. Freeman
W. B. Goad
R. W. Goranson
G. M. Grover
M. G. Holloway
F. C. Hoyt
R. M. Landshoff
C. L. Longmire
J. C. Mark, Chairman
N. Metropolis
H. L. Mayer
L. W. Nordheim
W. E. Ogle
L. G. Peck
F. Reines
J. R. Reitz
R. D. Richtmyer
J. L. Tuck
S. M. Ulam

2. The exponential in the first formula on page 4 of the previous minutes should read [ ]

DOE b(3)

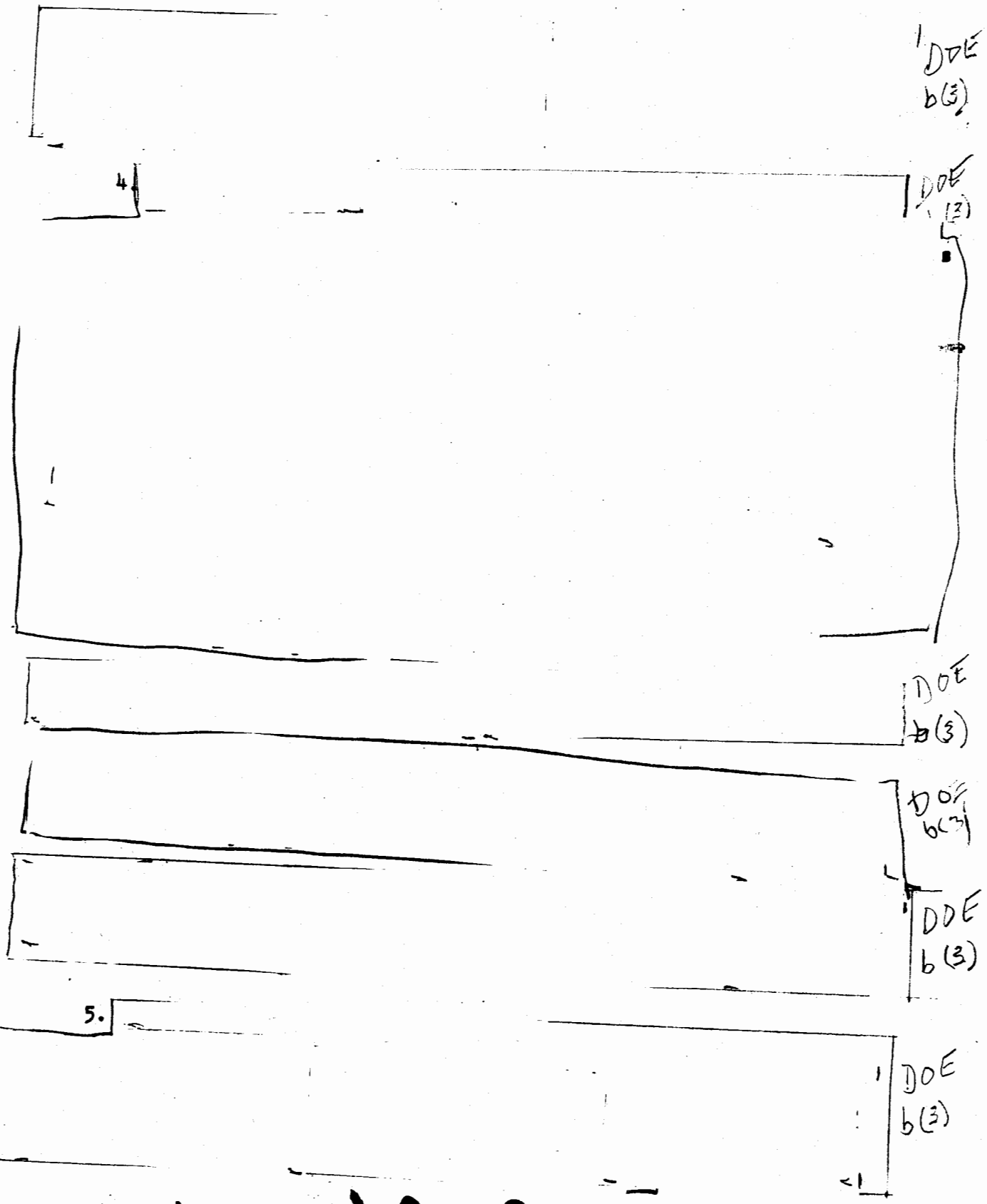
3. SEAC problems for study of wall hydrodynamics.

SEAC Problem M-1

[redacted]

DOE b(3)

SEAC Problem M-3



Bethe presented the following considerations.

4

DOE b(3).

DOE b(3)

Some adverse conclusions to be drawn from this are the following:

(a) [redacted]

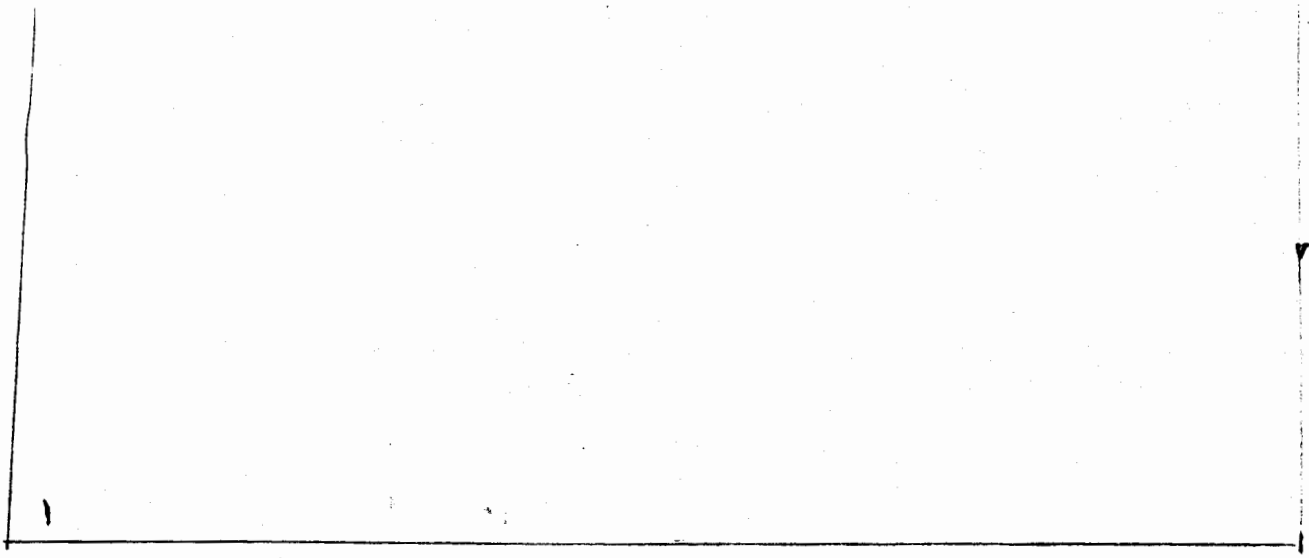
DOE b(3)

(b) [redacted]

The above assumes that a steady state equilibrium has been established. [redacted]

DOE b(3)

5.1) As a check on the reliability of Bethe's approximation, Rosenbluth fitted two similarity solutions together. From conservation of momentum:



DoE b(3)

Varying the temperature does not help matters because at low temperatures radiation flow and heat capacity each vary about as T^3 so that the time required for heat flow, which depends on their ratio, will be unchanged. At higher temperatures radiation flow varies as T^2 and heat capacity as T^3, with consequent loss.

DOE b(3)

Bethe, Broyles, and Freeman will prepare a problem for either CPC or SEAC operation which is expected to give a good treatment of propagation along the channel.

7. Experiments planned for Snapper.

J-Division's primary interest is to investigate experimental techniques proposed for the Ivy test.

Zero time would be obtained from an external phosphor.

The streak cameras have, in principle, a 2 shake resolution time but the over-all time uncertainty was expected to be perhaps 10 shakes. Framing cameras with 1/3 μsec resolution will obtain over-all pictures of the gadget.

The uncertainties discussed in the above sections have enhanced the interest of TMG in this experiment. In consequence, during a discussion following the regular meeting, certain modifications of the original design were requested.

Certain other kinds of observations and other observational positions were discussed but no final decisions on these were reached at this meeting. It was first stated that 8 to 10 observational spots was a maximum; it appeared later that by avoiding some duplication this number could be extended if desirable.

R. W. Goranson

Distribution:

1A - H. H. Barschall
2A - H. A. Bethe
3A - W. Bouricius
4A - N. E. Bradbury
5A - S. W. Burriss
6A - B. G. Carlson
7A - F. de Hoffmann
8A - B. E. Freeman
9A - D. K. Froman
10A - R. B. Gibney
11A - R. W. Goranson
12A - A. C. Graves
13A - L. E. Hightower
14A - M. G. Holloway
15A - F. C. Hoyt
16A - E. R. Jette
17A - R. M. Landshoff
18A - R. B. Lazarus
19A - C. L. Longmire
20A - J. C. Mark
21A - H. L. Mayer
22A - N. Metropolis
23A - L. W. Nordheim
24A - W. E. Ogle
25A - L. G. Peck
26A - F. Reines
27A - J. R. Reitz
28A - R. D. Richtmyer
29A - M. Rosenbluth
30A - R. W. Spence
31A - P. R. Stein
32A - E. Teller
33A - J. L. Tuck
34A - S. M. Ulam
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