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HASL-S-2

**HEALTH AND SAFETY LABORATORY
ANALYTICAL BRANCH**

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SUNSHINE REPORT

AUGUST 1954

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For The Atomic Energy Commission

H. F. Canale
Chief, Declassification Branch

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SUMMARY

1. World-wide fallout as measured at 111 stations has continued during August. Values range from 0.16 to $\frac{3}{4}$ millicuries per square mile per month (all data extrapolated to January 1, 1955).
2. The results of the monthly composite samples for August will be included in the October monthly report.
3. The comparison of gummed paper with a high-yalled stainless pot continues to show extreme variability during August.
4. The Sr^{90} content of wet and dry milk fairly constant during the early portion of the month showed a slight increase later in the month.
5. The upper air above 80,000 feet during April, May and June showed measureable amounts of Sr^{90} .
6. Upper air total activity during September and October is at a high level. Sr^{90} measurements have not been made as yet.
7. Tap water samples collected during January, February and March showed a range of from .01 to 0.3 Sr^{90} d/m/liter.
8. Urine samples Sr^{90} content are below our limits of detection using a 10 liter sample. The amount of samples will be increased to 50 liters.

II. Fallout of Sr⁹⁰ at selected sites during August.

The results of the monthly composite samples for August will be included in the October monthly report.

III. Comparison of Sr^{90} collection by gummed paper and pot on the roof of HASL during August.

A sheet of gummed paper of the type used for fallout analysis and a 12-gallon pot was exposed for weekly intervals on the roof of HASL. The analyses are added for comparison with previous monthly composites.

Week of	Total Activity $d/m/ft^2/week$		Sr^{90} $d/m/ft^2/week$		Sr^{90} Total Activity	
	Gummed Paper	Roof Pot	Gummed Paper	Roof Pot	Gummed Paper	Roof Pot
8/2	220	350	6.4	2.1	.029	.006
8/9	280	440	1.4	3.1	.005	.007
8/16	310	460	2.2	2.4	.007	.003
8/23	190	150	5.2	1.1	.035	.007
8/30	<u>190</u>	<u>440</u>	<u>3.0</u>	<u>1.4</u>	.016	.003
TOTALS	1150	2220	18.2	10.1		

IV. Sr⁹⁰ contamination of cow's milk in metropolitan New York.

Four quarts of milk are purchased on Monday of each week from a mid-Manhattan grocery store. The milk is wet ashed and analyzed for Sr⁹⁰ and Sr⁸⁹.

A. Wet Milk

<u>Date</u>	<u>Sr⁹⁰ 2/ d/m/qt.</u>	<u>Sr⁹⁰ d/m/qt.</u>
8/2		1.0 ± 0.6
8/9		1.1 ± 0.6
8/16		2.7 ± 0.6
8/23	20 ± 0.7	3.9 ± 0.6
8/30		Lost

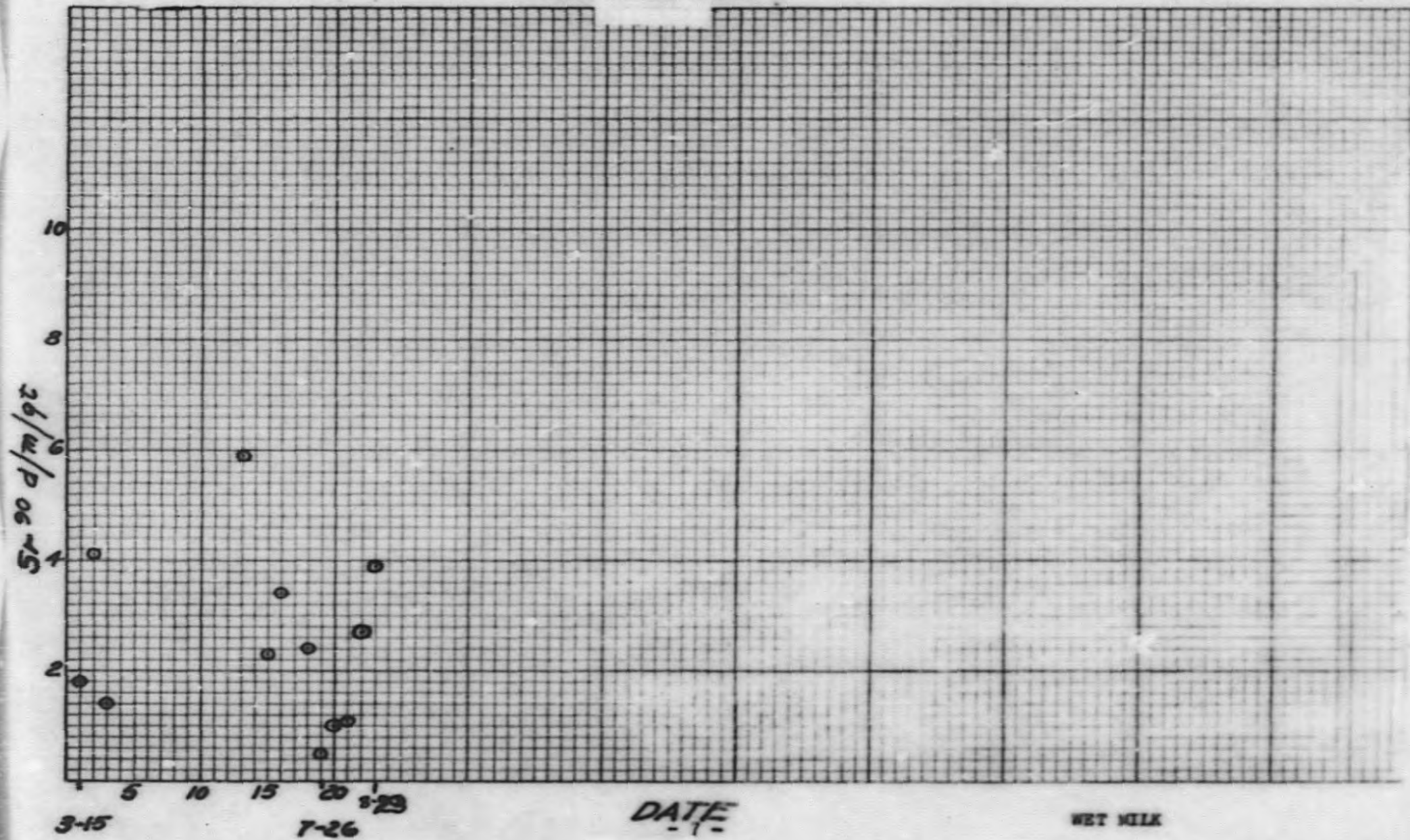
Five pounds of powdered milk removed from each batch processed on Monday of each week is received from a large dairy company in the New York City area. The milk is received from farms surrounding the metropolitan area and is analyzed for Sr⁹⁰ and Sr⁸⁹.

B. Dry Milk

<u>Date</u>	<u>Sr⁹⁰ 2/ d/m/qt.</u>	<u>Sr⁹⁰ d/m/qt.</u>
8/2		1.3 ± 0.6 1.6 ± 0.6
8/9		1.8 ± 0.6 1.3 ± 0.6
8/16		2.8 ± 0.6 1.5 ± 0.6
8/23	61 ± 1.8 Lost	3.5 ± 0.6 3.7 ± 0.6

NOTE: 2/ extrapolated

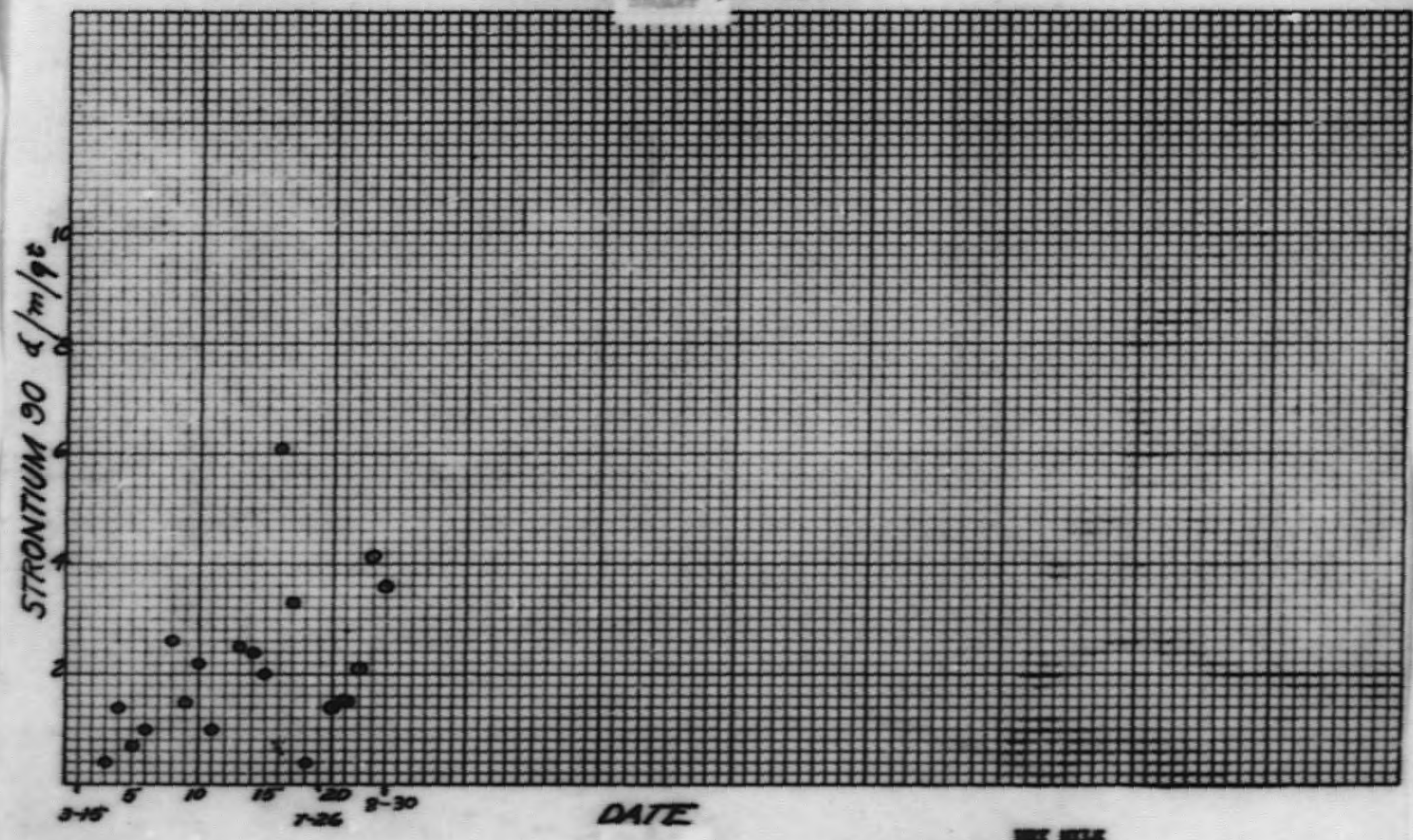
WET MILK



WET MILK

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POWDERED MILK



C. Control Milk

One hundred pounds of powdered milk processed on June 21, 1954 was purchased for control studies of analytical methods in Sr⁹⁰ determinations. Samples are analyzed monthly, in duplicate, along with routine milk samples.

<u>Date Analyzed</u>	<u>Sample Number</u>	<u>Sr⁹⁰ d/m/gt.</u>	<u>Sr⁹⁰ d/m/gt.</u>
7/29/54	276	31 ± 2.7 ✓	2.7 ± 0.9
	276	27 ± 10.8 ✓	1.8 ± 1.0
11/1/54	276	11 ± 0.6 11/	2.2 ± 0.6
	276	14 ± 0.6 11/	2.2 ± 0.6

NOTE: ✓ extrapolated to 7/1/54
11/ extrapolated to 11/1/54

V. Sr⁹⁰ content of the upper air during April, May and June.

Samples of the upper air collected by electrostatic precipitator, described in Report NYO-4571, were analysed for Sr⁹⁰ content.

<u>No. Stages Analysed</u>	<u>Altitude by feet</u>	<u>Date</u>	<u>Sr⁹⁰ d/m/m³</u>	<u>Sr⁹⁰ d/m/m³ λ/</u>
5	80,000	4/22	0.040 \pm 0.002	0.18 \pm 0.02
6	90,000	4/27	0.0032 \pm 0.0010	0.047 \pm 0.011
6	90,000	5/5	0.003 \pm 0.0010	0.049 \pm 0.010
6	85,000	5/12	0.0071 \pm 0.0020	0.12 \pm 0.02
6	87,200	5/25	0.0020 \pm 0.0010	0.050 \pm 0.008
6	82,000	5/2 [*]	0.0029 \pm 0.0010	0.071 \pm 0.009
5	85,000	6/2	0.003 [*] \pm 0.0010	0.047 \pm 0.008
4	?	6/ [*]	0.0034 \pm 0.0010	0.036 \pm 0.008
6	80,000	6/22	0.0036 \pm 0.0010	0.036 \pm 0.008
2	80,000	7/7	0.0053 \pm 0.0010	0.0049 \pm 0.0053

NOTE: λ / extrapolated to date of sampling.

VI. Total activity measurements of the upper air after the Castle Tests series.

A cooperative test program of sampling the upper air at 40,000 feet is in progress under the direction of H. F. Plank of Los Alamos Scientific Laboratory. The results below represent a filter paper from left and right tanks from each flight. The samples will be analysed for total radiostrontium and Sr^{90} .

<u>Date</u>	<u>d/n/sample</u>	<u>d/n/m²</u>
9/29	98,000 left tank	17.5
	29,000 left tank	5.17
9/29	38,000 right tank	6.78
	33,000 right tank	5.88
10/7	5,000 left tank	0.89
	4,000 left tank	0.71
10/7	5,000 right tank	0.89
	4,000 right tank	0.71
10/13	28,000 left tank	4.99
	17,000 left tank	3.03
10/13	25,000 right tank	4.46
	19,000 right tank	3.39
10/21	6,500 left tank	1.16
	5,200 left tank	0.93
10/21	6,200 right tank	1.10
	4,800 right tank	0.86
10/27	15,000 left tank	2.67
	11,000 left tank	1.96
10/27	18,000 right tank	3.21
	14,000 right tank	2.50

VII. Sr⁹⁰ content of tap water at HASL before the Castle Test series.

Fifty liter samples of tap water from HASL were analysed biweekly for Sr⁹⁰ content.

<u>Collection Period (1954)</u>	<u>Sr⁹⁰ μm/liter</u>
1/19 - 1/25	.04 ± .03
1/26 - 2/4	.05 ± .03
2/17 - 2/23	0.30 ± .03
3/1 - 3/10	0.06 ± .03
3/10 - 3/20	0.01 ± .03
3/16 - 3/20	0.02 ± .07

VIII. Sr^{90} content of urine and fetal bone in the metropolitan New York area during August.

A. Urine

Ten liters of a pooled urine sample collected from laboratory personnel was analyzed for Sr^{90} content. This program is to be continued with fifty liter samples of pooled urine.

<u>Collection Date</u>	<u>Sr^{90} d/m/liter</u>
9/16 - 9/29	0.0 \pm 0.5
9/30 - 10/13	0.0 \pm 0.5

B. Fetal Bone

A pooled fetal bone sample consisting of 13.0 grams of ash was analyzed for Sr^{90} content.

1. 0.2 \pm 0.1 d/m/gram
2. 0.7 \pm 0.4 d/m/gram/Ca

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END