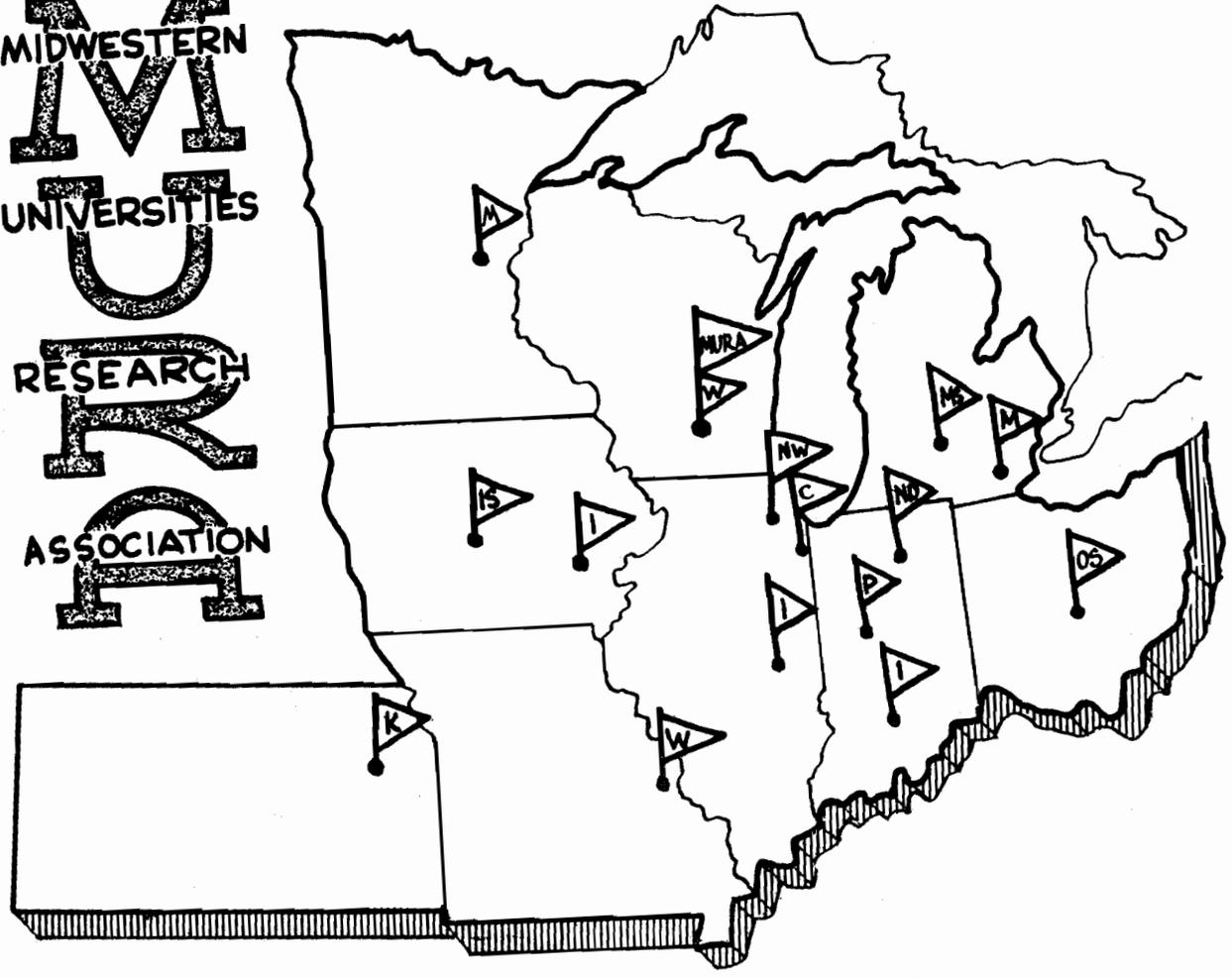


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REPORT

DUCK WADDLE
Program 249
June 26, 1959

NUMBER 476

Internal
Computer Program

DUCK WADDLE

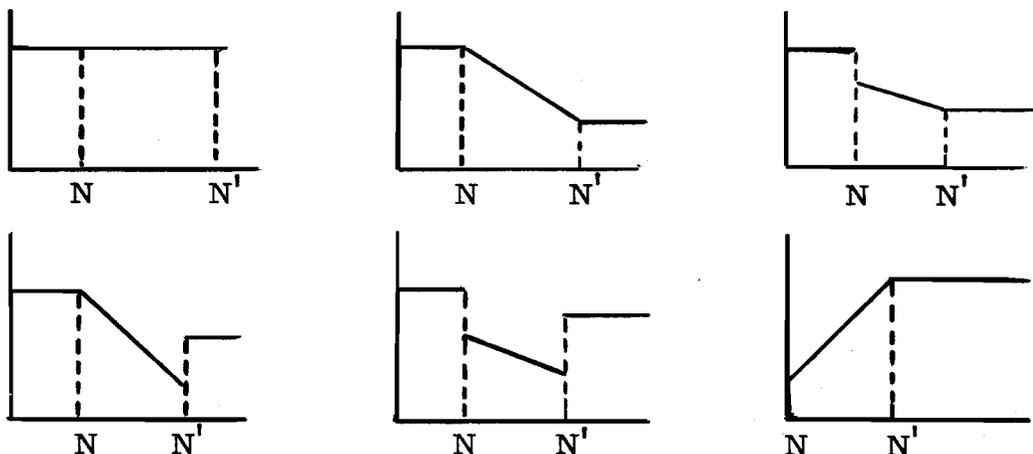
(Program 249)

M. R. Storm

This program is the result of a suggested memo of June 1, 1959, L. Jackson Laslett to M. R. Storm and E. Z. Chapman concerning possible overwrites to the DUCK-ANSWER and ILL-TEMPERED FIVE programs.

The modifications made here apply only to the DUCK-ANSWER and/or INVARIANT DUCK-BUMPS programs. The generality provided allows the user to subject any coefficient in the differential equations solved to a linear variation for any number of prescribed integration steps. To use this facility, one fills out the one DUCK WADDLE agendum sheet and staples it to the front of the appropriate DUCK-ANSWER and/or INVARIANT DUCK BUMPS agenda. The quantities N and N' are integers and represent the limits as expressed in terms of integration steps between which the linear variation prescription is applied to the coefficients. The limits are common to all coefficients, but the initial values and rates-of-change may be different as specified on the agendum sheets. In addition, provision is made to give to any coefficient a previously specified constant value either at the beginning of the N^{th} integration step or at the end of the N'^{th} integration step or both.

Graphically any of the following types of changes are permissible:



N may have the value zero, so that the change-provision commences immediately. If it is desired not to cause a discontinuous jump at N or N^i , merely leave blank the corresponding entry for the coefficient in question. Note that blank here means no change. If the user wishes to specify zero, then a zero must be entered on the agendum form. In order to indicate which coefficients are to be affected, one cites in the spaces provided their original addresses from the DUCK-ANSWER forms. Their respective amounts of change per integration step are entered in order beginning at address 4918. At present this program permits up to twelve (12) coefficients to be subjected to the linear-secular-change feature. All quantities are held from run to run so that one can do a series of runs where the coefficients go through exactly the same secular change in each run of the series.

The printed output is similar to that of the INVARIANT DUCK BUMPS program except that the number 00249 appears where the former number 00077 printed indicating the number of the program.

A sample agendum form is attached.

DUCK WADDLE AGENDUM
(Program 249)

Are INVARIANTS desired? Sense switch 3 down

Are BUMPS desired? Sense switch 4 down

Addresses of Coefficients		Remark
1		held from run to run
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
Address	Value	
4901		N
4902		N'

This is integer data and should be placed with DUCK-ANSWER integers.

List in order the amts. each coefficient is changed per integration step		Assign the listed value to coefficients at N th integration step		Assign the listed value to coefficients at N' ^(th) integration step	
Address	Value	Address	Value	Address	Value
4918		4933		4948	
4919		4934		4949	
4920		4935		4950	
4921		4936		4951	
4922		4937		4952	
4923		4938		4953	
4924		4939		4954	
4925		4940		4955	
4926		4941		4956	
4927		4942		4957	
4928		4943		4958	
4929		4944		4959	