Courant Institute of Mathematical Sciences
Computer Science Department

The SETL Project Master Catalog

A Comprehensive Listing of Reports, Working Papers, and Computer Readable Document and Program Files Pertaining to Work at New York University on the SETL Set-Theoretic Programming Language

Compiled by Robert Abes

Prepared under Grant # NSF-GJ-1202X with the National Science Foundation

New York University
THE SETL PROJECT MASTER CATALOG

A Comprehensive Listing of Reports, Working Papers, and Computer Readable Document and Program Files Pertaining to Work at New York University on the SETL Set-Theoretic Programming Language

(Complete as of September 1973)

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PREPARED UNDER GRANT # NSF - GJ - 1202X

WITH THE NATIONAL SCIENCE FOUNDATION
THE SETL PROJECT - MASTER CATALOG

PART 1 - MAJOR DOCUMENTS.
PART 2 - SETL NEWSLETTERS.
PART 3 - LITTLE NEWSLETTERS.
PART 4 - ADDITIONAL SETL DOCUMENTATION.
PART 5 - PALM NEWSLETTERS.
PART 6 - THE SETL (CYRILLIC) NEWSLETTERS.
PART 7 - THE SETL ALGORITHMS LIBRARY.
PART 8 - THE SETL TEST PACKAGES.
PART 9 - THE SETL ARCHIVES.

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   J. SCHWARTZ

   INSTALLMENT 1, GENERALITIES,
   JANUARY 1973   VIII+160 PP   PRICE $4.25

   INSTALLMENT 2, THE SETL LANGUAGE, AND EXAMPLES OF ITS USE,
   OCTOBER 1973   VIII+520 PP   PRICE $13.00

   INSTALLMENT 3, EXTENDED FACILITIES OF THE SETL LANGUAGE,
   TO APPEAR

2. A SETL PRIMER,
   H. MULLISH
   1. GOLDSTEIN

   A STEP-BY-STEP TUTORIAL WITH OVER 100 ILLUSTRATIVE PROGAMMETTES,
   JUNE 1973   V+201 PP   PRICE $5.25

3. THE SETL RUN-TIME LIBRARY,

   THIS IS THE RUN-TIME SUPPORT SYSTEM FOR SETL. IT IS
   WRITTEN IN LITTLE AND IS WELL DOCUMENTED INTERNALLY.
   IT SUPPORTS ALL OF THE MAIN SET-THEORETIC PRIMITIVES
   OF SETL AND IS OF PRIME INTEREST TO THOSE WISHING TO
   DEVELOP OR MODIFY THE SETL SYSTEM. THE RUN-TIME
   LIBRARY IS AVAILABLE IN MACHINE READABLE FORM.
PART 1 - MAJOR DOCUMENTS.

4. ASL: A PROPOSED VARIANT OF SETL.

H. WARREN

A PRELIMINARY DESCRIPTION OF AN ALGORITHM SPECIFICATION LANGUAGE, GENERATED AS AN EXTENDED RESPONSE TO A REQUEST FOR CRITICISMS OF SETL. AVAILABLE FREE ON REQUEST.

MAY 1973 XI+326 PP IMM 307

5. OTHER MACHINE READABLE INFORMATION.

THOSE INTERESTED IN ACQUIRING ANY OF THE FOLLOWING DOCUMENTS IN MACHINE READABLE FORM SHOULD ADDRESS AN INQUIRY CONCERNING PRICE TO MISS LENORA GREENE AT THE ADDRESS GIVEN ABOVE.

SETL NEWSLETTER 49 -
DetaileD SPECIFICATIONS OF CERTAIN SETL OPERATIONS.

SETL NEWSLETTER 66 -
BALMSETL USERS MANUAL VERSION 1.0.

SETL NEWSLETTER 70 -
SETL USERS MANUAL.

SETL NEWSLETTER 73 -
USERS GUIDE TO THE SETL RUN-TIME LIBRARY.

FILE SETLBTESTPACKAGES ARCHIVE ITEM 37 -
THE SETLB TEST PACKAGES DESCRIBED IN PART 7 OF THIS CATALOG.

FILE ALGORITHM'SPL -
THE SETL ALGORITHMS LIBRARY INDEXED IN PART 6 OF THIS CATALOG.

ARCHIVE ITEMS 16, 12, 13 -
BALM PRIMER
BALM REFERENCE MANUAL
BALM SYSTEM LISTING
PART 2 - SETL NEWSLETTERS.

1. BALM-SETL -- A SIMPLE IMPLEMENTATION OF SETL.
   NOVEMBER 1970   8 PP  M. HARRISON

2. NO LONGER AVAILABLE.

3. MODIFICATIONS AND EXTENSIONS FOR SETL, PART 1.
   NOVEMBER 1970   6 PP  D. SHIELDS

4. AN APL VERSION OF PETER MARKSTEIN'S MCKEEMAN TABLE ROUTINE.
   NOVEMBER 1970   2 PP  P. MARKSTEIN

5. MISCELLANEOUS ALGORITHMS WRITTEN IN SETL.
   NOVEMBER 1970   7 PP  J. SCHWARTZ

6. A REVISED SETL VERSION OF THE MCKEEMAN PARSE.
   NOVEMBER 1970   3 PP  P. MARKSTEIN

7. MODIFICATIONS AND EXTENSIONS FOR SETL, PART 2.
   NOVEMBER 1970   6 PP  D. SHIELDS

8. ADDITIONAL MISCELLANEOUS SETL ALGORITHMS.
   NOVEMBER 1970   4 PP  J. SCHWARTZ

9. IMPLEMENTATION AND LANGUAGE DESIGN.
   DECEMBER 1970   5 PP  N. HAPRISON

10. A SORTING ALGORITHM.
    DECEMBER 1970   3 PP  K. NALY
11. MODIFICATIONS AND EXTENSIONS FOR SETL, PART 5.
   DECEMBER 1970
   J. SHIELDS

12. RECAPITULATION OF THE BASIC PARTS OF THE SETL LANGUAGE.
   JANUARY 1971
   J. SCHWARTZ

13. ADDITIONAL MISCELLANEOUS ALGORITHMS.
    JANUARY 1971
    J. SCHWARTZ

14. ADDITIONAL SYNTAXIC EXTENSIONS.
    JANUARY 1971
    J. SCHWARTZ

15. A PROPOSED SETL IMPLEMENTATION PLAN THROUGH THE END OF THE
    BOOTSTRAP PHASE.
    FEBRUARY 1971
    J. SCHWARTZ

16. SETL 64-CHARACTER SET -- 40-CHARACTER SET / 026 KEYPUNCH -- CDC
    6600 64-CHARACTER SET / 029 KEYPUNCH.
    FEBRUARY 1971
    K. Maly

17. NO LONGER AVAILABLE.

18. PRELIMINARY SPECIFICATION OF BALMSETL CONVENTIONS.
    FEBRUARY 1971
    J. SHIELDS

19. LEXICAL DESCRIPTION OF SETL.
    FEBRUARY 1971
    K. Maly

20. BALMSETL USERS' GUIDE (IN BRIEF).
    MARCH 1971
    J. SHIELDS
21. AN OUTSIDE REVIEW: COMMENTS ON THE SETL DRAFT.
   APRIL 1971 8 PP  ANON. (PUBLISHER?)

22. SOME SMALL AND LARGE LANGUAGE EXTENSIONS FOR CONSIDERATION.
   APRIL 1971 4 PP  J. SCHWARTZ

23. CURRENT STATUS OF BAL/SETL IMPLEMENTATION.
   APRIL 1971 3 PP  J. SHIELDS

24. DESCRIPTION OF A REGISTER ALLOCATION ALGORITHM.
   APRIL 1971 8 PP  K. KENNEDY

25. A PRINT ROUTINE.
   APRIL 1971 3 PP  J. LOERING

26. THE CURRENTLY SPECIFIED FORM OF SETL FROM A MORE FUNDAMENTAL
    POINT OF VIEW.
   MAY 1971 8 PP  J. SCHWARTZ

27. CODE FOR THE POSTPARE SETUP PROCEDURE (POSTPARE METALANGUAGE
    ANALYSIS).
   MAY 1971 15 PP  J. SCHWARTZ

28. AN ALGORITHM FOR COMMON SUBEXPRESSION ELIMINATION AND CODE
    MOTION.
   MAY 1971 10 PP  K. KENNEDY

29. SOME ISSUES CONNECTED WITH SUBROUTINE LINKAGE.
   MAY 1971 3 PP  J. SCHWARTZ

30. SINISTER CALLS.
   MAY 1971 32 PP  J. SCHWARTZ
31. AN ADDITIONAL PRELIMINARY REMARK ON THE IMPORTANCE OF OBJECT TYPES FOR SETL, WITH SOME REFLECTIONS ON THE MOTION OF DATA STRUCTURE LANGUAGES, J. SCHWARTZ MAY 1971 12 PP

32. HYPER-SETL PROCEDURAL LANGUAGES. J. SCHWARTZ MAY 1971 5 PP

33. WHAT IS PROGRAMMING. J. SCHWARTZ MAY 1971 9 PP

34. SYNTAX REVISIONS IN PREPARATION FOR IMPLEMENTATION. J. SCHWARTZ MAY 1971 12 PP

35. A NEW FORM FOR THE IFF-STATEMENT. J. SHIELDS MAY 1971 7 PP

36. NO LONGER AVAILABLE.

37. INITIAL DESCRIPTION OF AN ALGORITHM FOR USE-DEFINITION CHAINING IN OPTIMIZATION. P. OWENS K. KENNEDY JULY 1971 6 PP

38. AN ALGORITHM FOR LIVE-DEAD ANALYSIS INCLUDING NODE-SPLITTING FOR IRREDUCIBLE PROGRAM GRAPHS. K. KENNEDY JANUARY 1972 10 PP

39. MORE DETAILED SUGGESTIONS CONCERNING DATA STRATEGY ELABORATIONS FOR SETL. J. SCHWARTZ MAY 1971 54 PP

40. NO LONGER AVAILABLE
41. ADDITIONAL PLANNING DETAIL FOR THE CURRENT AND NEXT PHASE OF
SETL IMPLEMENTATION.
JUNE 1971
J. SCHWARTZ

42. REVISED CONVENTIONS CONCEPTURING TUPLES.
JUNE 1971
J. SCHWARTZ

43. A PARSING SCHEME FOR FORTRAN.
JULY 1971
S. GRUBER

44. COMPREHENSIVE SETL SPECIFICATIONS.
JULY 1971
K. MARY

45. SEMI-LOCAL SETL OPTIMIZATION.
JULY 1971
U. SHIELDS

46. GENERALIZED NOCAL SPAN PARSING ROUTINE - PRELIMINARY DRAFT.
JULY 1971
J. SCHWARTZ

47. AN OUTLINE FOR A PARSING SCHEME FOR SETL.
JULY 1971
K. MARY

48. TOWARD A DOCUMENTATION OF THE STRING PROJECT'S PROGRAM FOR
PARSING ENGLISH SENTENCES.
AUGUST 1971
J. HOBBS

49. SPECIFICATION OF THE SETL RUN TIME LIBRARY (REVISION ?).
APRIL 1973
H. WAPREN

50. A THREE-PHASE PARSING SCHEME FOR SETL.
SEPTEMBER 1971
K. MARY
PART 2 - SETL NEWSLETTERS.

51. NO LONGER AVAILABLE.

52. COMMENTS ON SETL.
   SEPTEMBER 1971  6 PP  J. FARLEY

53. SETL TO LITTLE TRANSLATOR: A FIRST LOOK.
   SEPTEMBER 1971  26 PP  H. WARREN

54. CURRENT STATUS OF BAISETL.
   SEPTEMBER 1971  5 PP  S. CRUBER

55. SETL SUGGESTIONS AND QUESTIONS.
   SEPTEMBER 1971  5 PP  S. FINKELSTEIN

56. ADDITIONAL COMMENTS ON SOME BASIC SETL OPERATIONS.
   SEPTEMBER 1971  4 PP  J. FARLEY

56A. MORE COMMENTS ON SETL.
   OCTOBER 1971  5 PP  J. FARLEY

56B. MORE SETL COMMENTS.
   OCTOBER 1971  10 PP  J. FARLEY

57. MINIMIZING COPYING IN SETL: PRELIMINARY OBSERVATIONS.
   OCTOBER 1971  3 PP  H. WARREN

58. PHASE ONE OF THE SETL COMPILER.
   OCTOBER 1971  21 PP  K. MALY

59. AN ALGEBRA OF ASSIGNMENT.
   OCTOBER 1971  25 PP  R. KRUTAR

60. SETL COMPILED CODE: CALLS TO SETL PROCEDURES.
   NOVEMBER 1971  48 PP  H. WARREN
61. SYNTACTIC STRUCTURE OF SETL.
   NOVEMBER 1971  14 PP  K. MALY

62. FINAL SPECIFICATION OF SETL AND PARSER.
   DECEMBER 1971  20 PP  K. MALY

63. THE SETL PRINT ROUTINE.
   JANUARY 1972  5 PP  J. FISHER

64. SETL COMPILER WITH ELABORATED DATA STRUCTURES.
   JANUARY 1972  33 PP  K. MALY

65. SOME NOTATIONAL SUGGESTIONS.
   FEBRUARY 1972  2 PP  R. DONIC

66. BALMSETL USERS MANUAL VERSION 1.0.
   FEBRUARY 1972  71 PP  E. MILGROM

67. DATA STRUCTURES OF THE SETL COMPILER FROM THE LITTLE VERSION.
   FEBRUARY 1972  16 PP  K. MALY

68. SOME THOUGHTS ON EFFICIENT PROGRAMMING IN SETL8.
   OCTOBER 1972  5 PP  S. BROWN

69. THE SETL PROJECT - MASTER CATALOG (REVISED 10/73).
   FEBRUARY 1973  37 PP  R. ABFS

70. SETL3 USERS MANUAL.
   FEBRUARY 1972  66 PP  J. SCHWARTZ
71. DEDUCING THE LOGICAL STRUCTURE OF OBJECTS OCCURRING IN SETL PROGRAMS.  
   APRIL 1972  14 PP  
   J. SCHWARTZ

72. AN INTRODUCTORY EXPLANATION OF SETL: A STATUS REVIEW AND PROFILE OF THE SETL USER GROUP.  
   APRIL 1972  13 PP  
   J. SHIELDS

73. USER'S GUIDE TO THE SETL RUN-TIME LIBRARY.  
   APRIL 1972  33 PP  
   K. WILLY

74. PROJECT PLAN FOR FIRST STAGE OF IMPLEMENTATION.  
   (PARTIAL TRANSLATION FROM THE RUSSIAN)  
   MAY 1972  3 PP  
   V. GORODNAYA

75. SOME THOUGHTS ON THE USE OF BALSAM TO IMPLEMENT SETL.  
   (THIS IS ALSO BALSAM BULLETIN NO. 13)  
   JUNE 1972  7 PP  
   E. MILGROM

76. SEMANTIC DEFINITION MATTERS.  
   MAY 1973  91 PP  
   J. SCHWARTZ

77. TRANSFERRING SETL TO OTHER MACHINES.  
   SEPTEMBER 1972  1 PP  
   J. SCHWARTZ

78. EXECUTING BALSAM AND SETL AT N.Y.U. COURANT.  
   SEPTEMBER 1972  2 PP  
   J. PAIGE

79. NO LONGER AVAILABLE.

80. ALGORITHMS IN THE SETL TEST PACKAGE.  
   SEPTEMBER 1972  3 PP  
   K. CURTIS
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Date</th>
<th>Pages</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>81</td>
<td>MEMORY SIZE OF SETL RUNS</td>
<td>SEPTEMBER 1972</td>
<td>1</td>
<td>J. SCHWARTZ</td>
</tr>
<tr>
<td>82</td>
<td>TIMING COMPARISON BETWEEN SETL AND FORTRAN</td>
<td>OCTOBER 1972</td>
<td>2</td>
<td>E. DESAUTELS</td>
</tr>
<tr>
<td>83</td>
<td>USER EXPERIENCE AND HUMAN FACTORS</td>
<td>NOVEMBER 1972</td>
<td>16</td>
<td>J. SCHWARTZ</td>
</tr>
<tr>
<td>84</td>
<td>PLAN FOR A LIBRARY OF ALGORITHMS</td>
<td>NOVEMBER 1972</td>
<td>16</td>
<td>J. SCHWARTZ</td>
</tr>
<tr>
<td>85</td>
<td>ESTIMATE OF MINIMUM RUNNING SIZE FOR THE NEXT SETL SYSTEM (REVISION 1)</td>
<td>APRIL 1973</td>
<td>6</td>
<td>H. WARREN</td>
</tr>
<tr>
<td>86</td>
<td>PROPOSAL FOR A TEMPORARY, BUT EASILY IMPLEMENTED, SOFTWARE PAGING SYSTEM</td>
<td>NOVEMBER 1972</td>
<td>7</td>
<td>J. SCHWARTZ</td>
</tr>
<tr>
<td>87</td>
<td>WORKPLAN FOR THE NEXT PHASE OF SETL IMPLEMENTATION</td>
<td>NOVEMBER 1972</td>
<td>7</td>
<td>J. SCHWARTZ</td>
</tr>
<tr>
<td>88</td>
<td>A SCHEME FOR BULKSETL MEASUREMENTS</td>
<td>NOVEMBER 1972</td>
<td>2</td>
<td>J. SCHWARTZ</td>
</tr>
<tr>
<td>89</td>
<td>USER INFORMATION FOR LEXICAL SCAN SETUP PACKAGE</td>
<td>NOVEMBER 1972</td>
<td>2</td>
<td>E. GUTH</td>
</tr>
<tr>
<td>90</td>
<td>PRELIMINARY REFLECTIONS ON THE USE OF SETL IN A DATABASE CONTEXT</td>
<td>DECEMBER 1972</td>
<td>18</td>
<td>J. SCHWARTZ</td>
</tr>
</tbody>
</table>
91. A GRAMMARLESS PARSE AND A RELATED METHOD OF RETRIEVAL BY SIMILARITY.  J. SCHWARTZ
   DECEMBER 1972  24 PP

92. SOME EXPERIMENTS WITH SETL PROGRAMS.  K. CURTIS
   JANUARY 1973  9 PP

93. A NOTE ON OPTIMIZATION AND PROGRAMMING STYLE IN SETL.  K. CURTIS
   JANUARY 1973  2 PP

94. AN ALGORITHM TO REPRESENT A COLLECTION OF SETS AS INTERVALS ON A LINE.  J. JENNINGS
   JANUARY 1973  9 PP

95. GENERALIZED LOCAL SPAN PARSE ROUTINE, CORRECTED VERSION.  Y. FEINROTH
   JANUARY 1973  10 PP

96. POINTERS AND VERY HIGH LEVEL LANGUAGES.  L. MINSKY
   JANUARY 1973  3 PP

97. SETL EXTENSIONS FOR OPERATING SYSTEM DESCRIPTION.  P. MARKSTEIN
   FEBRUARY 1973  24 PP

98. REFLECTIONS ON P. MARKSTEIN'S NEWSLETTER ON SETL EXTENSIONS FOR OPERATING SYSTEM DESCRIPTION.  J. SCHWARTZ
   JANUARY 1973  9 PP

99. PAGING, THE QUICK AND DIRTY WAY.  (THIS IS ALSO EALM BULLETIN NO. 21)  D. BROHN
   JANUARY 1973  4 PP

100. MAKING SETL DEBUGGING RUNS.  H. WAPREN
    FEBRUARY 1973  11 PP
101. HOW TO PROGRAM IF YOU MUST (THE SETL STYLE).
   MARCH 1973          15 PP
   J. RONIC

102. REDUCTION IN STRENGTH USING HASHED TEMPORARIES.
   MARCH 1973          12 PP
   K. KENNEDY

103. PRELIMINARY PLAN FOR BALM-TO-LITTLE TRANSLATOR.
   APRIL 1973          8 PP
   J. SCHWARTZ

104. AN ALGORITHM TO REPRESENT A COLLECTION OF SETS AS A DIRECT
     PRODUCT OF INTERVALS ON THE LINE.
     MARCH 1973          9 PP
     J. JENNINGS

105. A SETL PROGRAM FOR A BASIC BLOCK OPTIMIZER AND AN EXTENDED BASIC
     BLOCK OPTIMIZER.
     APRIL 1973          11 PP
     J. SCHWARTZ

106. USER VARIATION OF THE SEMANTICS OF FUNCTION AND SUBROUTINE
     INVOCATION.
     MAY 1973            3 PP
     J. JENNINGS

107. LINEAR FUNCTION TEST REPLACEMENT.
     MAY 1973            5 PP
     K. KENNEDY

108. APL - SETL, AN EXTENSION OF SETL ACHIEVED FROM USER VARIED
     SEMANTICS.
     MAY 1973            34 PP
     J. JENNINGS

109. FASTER EXECUTION FOR THE LITTLE BASED BALM SYSTEM.
     JULY 1973            4 PP
     J. BROWN

110. MORE ON SEMANTIC DEFINITION MATTERS.
     IN PROGRESS
     J. SCHWARTZ
111. GLOBAL DEAD COMPUTATION ELIMINATION.
K. KENNEDY
AUGUST 1973 2 PP

112. AN ALGORITHM TO COMPUTE COMPACTED USE-DEFINITION CHAINS.
K. KENNEDY
AUGUST 1973 2 PP

113. LITTLE CODE GENERATION FROM THE BALM COMPILER.
S. BROWN
AUGUST 1973 10 PP

114. A SETL8 TO PUBLICATION SETL TRANSLATOR.
A. GETZLER
AUGUST 1973 7 PP

115. A SETL REPRESENTATION OF THE MARYLAND GRAL GRAPH-MANIPULATION LANGUAGE.
G. WEINPERGER A. TENENBAUM
AUGUST 1973 32 PP

(This is also SETL(C) Newsletter 11.)
A. FRSHOV ET AL
AUGUST 1973 5 PP (NOVOSIBIRSK GROUP)
## PART 3 - LITTLE NEWSLETTERS

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Author</th>
<th>Date</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I/O CONVENTIONS AND PROPOSAL; QUOTED STRINGS; OCTAL CONSTANTS; USER INFORMATION FOR IMPROVED MACROPROCESSOR.</td>
<td>A. STERN</td>
<td>October 1971</td>
<td>8 PP</td>
</tr>
<tr>
<td>2.</td>
<td>FILES FOR THE LITTLE PROJECT.</td>
<td>D. GOLDBERG</td>
<td>October 1971</td>
<td>3 PP</td>
</tr>
<tr>
<td>3.</td>
<td>POSSIBLE FUTURE EXTENSIONS TO LITTLE.</td>
<td>J. SCHWARTZ</td>
<td>November 1971</td>
<td>16 PP</td>
</tr>
<tr>
<td>4.</td>
<td>A LITTLE MACHINE.</td>
<td>J. SCHWARTZ</td>
<td>November 1971</td>
<td>11 PP</td>
</tr>
<tr>
<td>5.</td>
<td>USER INFORMATION CONCERNING THE LITTLE-TO-FORTRAN TRANSLATOR.</td>
<td>J. SCHWARTZ</td>
<td>November 1971</td>
<td>3 PP</td>
</tr>
<tr>
<td>6.</td>
<td>EXTENSION TO LITTLE TO IMPROVE CHARACTER STRING PROCESSING.</td>
<td>J. SHIELDS</td>
<td>January 1972</td>
<td>3 PP</td>
</tr>
<tr>
<td>7.</td>
<td>LITTLE FOR MINICOMPUTERS.</td>
<td>T. STUART</td>
<td>March 1972</td>
<td>26 PP</td>
</tr>
<tr>
<td>8.</td>
<td>USE OF COMMENTS IN LITTLE.</td>
<td>J. SHIELDS</td>
<td>March 1972</td>
<td>2 PP</td>
</tr>
<tr>
<td>9.</td>
<td>SOME SUGGESTIONS FOR SIMPLIFYING THE PREPARATION OF SETL AND LITTLE TEXT; KEYBOARD AND LEXICAL MACROS.</td>
<td>J. SHIELDS</td>
<td>March 1972</td>
<td>6 PP</td>
</tr>
<tr>
<td>10.</td>
<td>INTERSPERING MACROS.</td>
<td>J. SCHWARTZ</td>
<td>April 1972</td>
<td>9 PP</td>
</tr>
</tbody>
</table>
11. INPUT / OUTPUT STATEMENTS FOR LITTLE.  
   R. ADES  
   H. WARREN  
   E. MILGROM  
   APRIL 1972 21 PP  

12. NEW CONVENTIONS FOR LITTLE: COMMENTS, USE OF SEMICOLON AS A STATEMENT TERMINATOR.  
   J. SHIELDS  
   JUNE 1972 2 PP  

13. MACRO CAPABILITIES FOR STRUCTURED PROGRAMMING.  
   R. ADES  
   H. WARREN  
   JULY 1971 15 PP  

14. MASS STORAGE UTILIZATION IN LITTLE.  
   P. MACLEAN  
   JULY 1972 9 PP  

15. PARTIAL MULTI-WORD FACILITY FOR THE FORTRAN VERSION OF LITTLE.  
   A. STEIN  
   JULY 1972 2 PP  

16. SOME TIMING STATISTICS FOR LITTLE.  
   J. SHIELDS  
   OCTOBER 1972 10 PP  

17. TEST PACKAGES FOR THE LITTLE COMPILER.  
   R. ADES  
   NOVEMBER 1972 1 PP  

18. A NEW ARRAY OPTIMIZATION FOR BASIC BLOCKS.  
   J. SCHWARTZ  
   NOVEMBER 1972 4 PP  

19. LITTLE USERS GUIDE  
   I. BRENNER  
   MAY 1973 21 PP  

20. REMARKS ON THE STRUCTURE OF THE LITTLE RUN TIME LIBRARY.  
   J. SHIELDS  
   NOVEMBER 1972 5 PP
21. SOME PROPOSALS FOR IMPROVING THE ACCESSIBILITY OF THE LITTLE COMPILER.  
   DECEMBER 1972  9 PP  
   J. SHIELDS

22. EXAMPLES OF LITTLE-GENERATED CCDF.  
   DECEMBER 1972  5PP  
   J. SHIELDS

23. NAMEJETS: A NEW WAY TO HANDLE GLOBAL VARIABLES IN LITTLE.  
   JANUARY 1973  6 PP  
   J. SHIELDS

24. PROPOSALS FOR THE NEXT STAGE OF LITTLE DEVELOPMENT.  
   MARCH 1973  6 PP  
   J. SHIELDS

25. PROPOSED EXTENSIONS TO LITTLE.  
   JUNE 1973  25 PP  
   J. SHIELDS

   AUGUST 1973  3 PP  
   J. SCHNORRUD

29. A MEDIUM-LEVEL SEMANTIC ENVIRONMENT BASED ON LITTLE.  
   SEPTEMBER 1973  20 PP  
   J. SCHWARTZ
PART 4 - ADDITIONAL SETL DOCUMENTATION.

1. SET THEORY AS A LANGUAGE FOR PROGRAM SPECIFICATION AND
   PROGRAMMING. J. SCHWARTZ
   September 1970 97 pp

2. ABSTRACT ALGORITHMS, AND A SET-THEORETIC LANGUAGE FOR THEIR
   EXPRESSION. (THE SETL MANUSCRIPT) J. SCHWARTZ
   December 1970 296 pp
<table>
<thead>
<tr>
<th>Part</th>
<th>Title</th>
<th>Date</th>
<th>Pages</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>PART 5 - BALM NEWSLETTERS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>INTRODUCTION</td>
<td>JUNE 1971</td>
<td>3 PP</td>
<td>I. HARRISON</td>
</tr>
<tr>
<td>2.</td>
<td>THE BALM MACHINE</td>
<td>JUNE 1971</td>
<td>11 PP</td>
<td>I. HARRISON</td>
</tr>
<tr>
<td>3.</td>
<td>THE BALM SIMULATOR ON THE CDC 6600.</td>
<td>JUNE 1971</td>
<td>5 PP</td>
<td>I. HARRISON</td>
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<td>4.</td>
<td>STATUS OF BALM4.0</td>
<td>JUNE 1971</td>
<td>3 PP</td>
<td>I. HARRISON</td>
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<td>5.</td>
<td>BALM4.0 SYSTEM LISTING</td>
<td>JUNE 1971</td>
<td>13 PP</td>
<td>I. HARRISON</td>
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<tr>
<td>6.</td>
<td>ONGOING IMPROVEMENTS, MODIFICATIONS AND ASSOCIATED PROJECTS</td>
<td>JULY 1971</td>
<td>2 PP</td>
<td>I. HARRISON</td>
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<td>7.</td>
<td>SUGGESTIONS FOR NEW BALM INSTRUCTIONS</td>
<td>JULY 1971</td>
<td>1 PP</td>
<td>I. HARRISON</td>
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<td>8.</td>
<td>STATUS AUGUST 1971 AND SOME COMPARISONS OF BALM3 AND BALM4</td>
<td>AUGUST 1971</td>
<td>3 PP</td>
<td>I. HARRISON</td>
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<td>9.</td>
<td>CHANGES WHICH ARE IN BALM4,1.</td>
<td>OCTOBER 1971</td>
<td>3 PP</td>
<td>I. HARRISON</td>
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<td>10.</td>
<td>FASTER EXECUTION</td>
<td>NOVEMBER 1971</td>
<td>10 PP</td>
<td>I. HARRISON</td>
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11. FACILITIES FOR NON-SEQUENTIAL PROCESSING.
   NOVEMBER 1971  8 PP  I. HARRISON

12. BALM EDITOR.
   MARCH 1972   3 PP  S. BROWN

13. SOME THOUGHTS ON THE USE OF BALM TO IMPLEMENT SETL.
   JUNE 1972   7 PP  E. MILGROM

14. COMMENTS ON BULLETIN 13.
   JUNE 1972   5 PP  I. HARRISON

15. PROBLEMS IN BALM4.
   JULY 1972   3 PP  I. HARRISON

16. REAL NUMBERS IN BALM.
   SEPTEMBER 1972  5 PP  S. BROWN
   P. MAURIELLO

17. PAGING WITHIN BALM.
   OCTOBER 1972  4 PP  I. HARRISON

18. PAGING PRIMITIVES.
   NOVEMBER 1972  2 PP  S. BROWN

   NOVEMBER 1972  2 PP  S. BROWN

20. NO LONGER AVAILABLE.
21. PAGEING, THE QUICK AND DIRTY WAY.
   JANUARY 1973       4 PP
   S. BROWN

22. REFLECTIONS ON PALM.
   JANUARY 1973       30 PP
   E. PFEFFER

23. LANGUAGE-ORIENTED INSTRUCTION SETS.
   FEBRUARY 1973      19 PP
   H. HARRISON

24. PALM-66 TRANSLATOR.
   MARCH 1973         49 PP
   R. PAIGE

25. TOP-DOWN META-PARSER USER'S GUIDE.
   SEPTEMBER 1973     19 PP
   S. BROWN
PART 6 - THE SETL (CYRILLIC) NEWSLETTERS.

***

THE SERIES OF NEWSLETTERS IN RUSSIAN CONCERNING SETL, BEING WRITTEN AT THE NOVOSILIRSK COMPUTING CENTER, IS DESIGNATED IN THIS CATALOG AS THE SETL (CYRILLIC) OR SETL (C) SERIES.

***

1. PHASE 1 IMPLEMENTATION PROJECT.
   9 PP
   J. LEVIN
   .. CHERNYEROD

2. A CONCEPTUAL REVIEW OF THE SET-THEORETIC LANGUAGE SETL.
   41 PP
   .. CHERNYEROD

3. LISPSETL USERS' MANUAL, VERSION 1.
   25+21 PP
   .. CHERNYEROD

   29 PP
   J. LEVIN

5. THE SYSTEM BALM-BESM/6.
   19+37 PP
   J. LEVIN

6. SETL: SOURCE LANGUAGE OF AN EXPERIMENTAL IMPLEMENTATION.
   22 PP
   J. LEVIN

7. INTERNAL REPRESENTATION OF SETS AND AN EXPERIMENTAL IMPLEMENTATION OF SET-THEORETIC OPERATIONS.
   34 PP
   J. LEVIN

8. THE SETL/BALM SYSTEM AND A PRELIMINARY IMPLEMENTATION OF SETL.
   10 PP
   J. LEVIN
9. DECOMPOSITION OF SETL PROGRAMS.
   15 PP

10. INTERACTION OF DATA TYPES.
    30 PP

11. CATALOG OF SETL(C) NEWSLETTERS 1 - 12.
    (THIS IS ALSO SETL NEWSLETTER 116.)
    3 PP

12. PARALLEL PROGRAMMING AND HIGH LEVEL LANGUAGES.
    6 PP
PART 7 - THE SETL ALGORITHMS LIBRARY.

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***

A LIBRARY OF SUBSTANTIAL, IMPORTANT ALGORITHMS CODED IN SETL CURRENTLY RESIDES ON THE FILE ALGORITHMS.PL. THE ADDITION OF OTHER ALGORITHMS TO THIS LIBRARY, AND THE IMPROVEMENT OF THE DOCUMENTATION AND PERFORMANCE OF THE ALGORITHMS THAT HAVE BEEN ESTABLISHED, IS AN ONGOING PROJECT. CONTENTS ARE AS FOLLOWS.

***

1. DECK BIRRES (413 CARDS)  AN AUTOMATIC THEOREM PROOF OPERATING ON STATEMENTS IN THE SENTENTIAL CALCULUS, PRODUCES SHORTEST PROOFS VIA A BREADTH FIRST TREE SEARCH WHEN THE BINARY RESOLUTION PRINCIPLE IS USED, OR LONGER PROOFS IN LESS TIME WHEN HYPER-RESOLUTION IS EMPLOYED.

DECK HYPRES (133 CARDS)  Coder: R. SCHONBERG

2. DECK TYPEVAR (543 CARDS)  GIVEN THE GRAPH OF A PROGRAM AND SOME INFORMATION ABOUT ITS ASSIGNMENT STATEMENTS, THIS ALGORITHM FINDS THE TYPES THAT A VARIABLE CAN ASSUME DURING THE EXECUTION OF THE PROGRAM. ONE OF THE MORE IMPORTANT SETL COMPILER OPTIMIZATIONS WILL BE BASED ON EXPERIMENTATION WITH THIS ALGORITHM.

CODER: K. ABDALI

3. DECK MATCHUP (147 CARDS)  A MODIFICATION OF MARSHALL HALL'S ALGORITHM FOR THE MARRIAGE PROBLEM WHICH WILL YIELD A MAXIMAL SYSTEM OF DISTINCT REPRESENTATIVES (MAXIMAL MATCHING).

CODER: G. WHITEHEAD

4. DECK TOPDATA (112 CARDS)  A TOP-DOWN PARSER AND ITS INPUT DATA; COMPLETE WITH A BOOTSTRAPPING META_COMPILER THAT OPERATES ON AN EXTENDER BACKUS NORMAL FORM DESCRIPTION OF THE LANGUAGE.

CODER: S. MARATECK  S. BROWN
5. Deck McKeman (531 cards)  Generates the McKeman tables (a series of generalized precedence tables) using Backus normal form grammar as its input. Sample input data is included.

6. Deck Chomsnf (164 cards)  Removes null variables from a context free input grammar (described by its productions) and puts it into Chomsky normal form. Sample input data is included.

7. Deck Genispf (478 cards)  Deck Genisphd (7 cards)  A generalized nodal span parser, with attributes. Sample input data is included.

8. Deck Eulerup (117 cards)  A SETLB coding of L. Euler's graph tracing algorithm usually associated with the bridges of Koenigsberg.

9. Deck Lexgena (477 cards)  Deck Lexgenph (65 cards)  Deck Lexgenec (43 cards)  A FORTRAN program which is a working lexical scanner for the descriptive language, complete with token file and error message generators.

10. Deck Heurmac (29 cards)  Deck Heura (202 cards)  Deck Heurb (376 cards)  Deck Heurc (91 cards)  Deck Heurd (92 cards)  Deck Heure (82 cards)  Five complete independent heuristic search procedures, mostly due to Nilsson, preceded by a deck of macros which they all use. The algorithms are: a general path finder, a tree search, a uniform cost search, a breadth first search, and a depth first search.
11. DECK GPS (439 CARDS)  A STRIPED OFF VERSION OF ERNST, CORDER: A. GETZLEP  NEVELL AND SHAW'S GENERAL PROBLEM SOLVER PROGRAM, WITH A SAMPLE SPECIFICATION FOR THE "MONKEY AND BANANAS" PROBLEM.

12. DECK SGGRAPH (100 CARDS)  TWO SEPARATE ALGORITHMS TO FIND THE DECK PARTREE (124 CARDS)  STRONGLY CONNECTED REGIONS OF A DIRECTED GRAPH. A PROGRAM TO GENERATE DECK BALANCE (239 CARDS)  THE PARTITIONS OF A NUMBER; A PROGRAM TO GENERATE ALL BINARY TREES. TWO CORDER: W. TSUI  SEPARATE ALGORITHMS FOR ASSEMBLY LINE BALANCING.

13. DECK POLY (283 CARDS)  A COLLECTION OF ROUTINES FOR THE CORDER: E. GUTH  STANDARD ALGEBRAIC MANIPULATIONS OF POLYNOMIALS. TEST INPUT IS INCLUDED.

14. DECK GRAAL (651 CARDS)  A SETL REPRESENTATION OF THE UNIVERSITY OF MARYLAND GRAPH MANIPULATION LANGUAGE (GRAAL) OF RHEINHOLD, BASIL CORDER: G. WEINBERGER AND NESZTENYI AS EXPLAINED IN SETL A. TENENBAUM NEWSLETTER 115. SAMPLE INPUT DATA IS INCLUDED.
A library of test programs, coded in SETL, currently resides on the file SETL_TESTPACKAGES. This library was established to spot bugs in compiler modifications, and to provide some standards for timing studies. The algorithms vary widely in size, content, and coding style.

1. **HUFFMAN (75 cards)** - Produces a Huffman tree and table for unique bit string encoding given a set of characters and a frequency of use function over that set.

2. **MISCPerm (50 cards)** - Contains short programs to make a sequence out of a tuple; compose two functions into one; obtain the inverse of a function; obtain the cycle form of a permutation; obtain the inverse of a permutation; obtain the inverse of a permutation given in cycle form.

3. **Perm (49 cards)** - Generates all permutations of n objects in lexicographic order.

4. **Median (137 cards)** - Finds the k-th number (in ascending order) of a given set of numbers. This algorithm, due to Floyd, et al in 1971, runs in linear time as a function of the number of items in the given set.

5. **POCKSORT (59 cards)** - A radix sort in which the items to be sorted and the radix are input parameters.

6. **TREEPRINT (193 cards)** - Prints binary or ordered trees in a tree-like format.

7. **FORDJ (157 cards)** - The Ford-Johnson tournament sort algorithm (a complicated minimum comparison sort).

8. **SETUP and USETUP (190 cards)** - Reads SETL code, and prepares a string and some tables for the lexical scanner.
9. INTPRINT (290 CARDS) - PRINTS THE FLOW-GRAPH OF A PROGRAM IN FLOWCHART-LIKE FORMAT GIVEN A SET OF PATHS AND A SET DEFINING THE ORDER IN WHICH TO PRINT THE NODES.

10. TWERGE (35 CARDS) - THE NATURAL TWO-WAY MERGE FOR FAST IN-CORE SORTING.

11. PRIMES (72 CARDS) - CONTAINS SHORT PROGRAMS TO GENERATE PRIMES BY THE SIEVE METHOD; GENERATE PRIMES DIRECTLY FROM THEIR DEFINITION; FIND THE PRIME FACTORS OF A GIVEN NUMBER.

12. PIGLATIN (27 CARDS) - STRING BREAKUP AND TRANSLATION VIA TABLE LOOKUP OR A PROGRAMMED ENGLISH-PIGLATIN DICTIONARY.

13. INSANITY (29 CARDS) - A BACKTRACKING ALGORITHM TO SOLVE THE INSTANT INSANITY (COLORED CUBES) PUZZLE.

14. NODSPAN (91 CARDS) - A MODAL SPAN PARSE ROUTINE WHICH CAN APPLY ANY PRODUCTION GRAMMAR IN CHOMSKY NORMAL FORM TO AN INPUT STRING.

15. PASCAL (16 CARDS) - A STRING MANIPULATION AND FORMATTING PROGRAM WHICH PRINTS PASCAL'S TRIANGLE NEATLY.

16. ERRAUT (104 CARDS) - CALCULATES THE STRUCTURE OF THE AUTOMATON ASSOCIATED WITH ERROR DETECTION IN VLR PARSING.

17. SPLASH (138 CARDS) - SOLVES ALL THE OLD BUCKET PROBLEMS (E.G., HOW TO GET 4 GALLONS OF WATER GIVEN A 3 AND A 5 GALLON BUCKET).

18. MAXFLOW (103 CARDS) - A PACKAGE TO FIND A PATH IN AN ORDERED GRAPH; DETERMINE THE MAXIMUM FLOW IN A NETWORK; AND APPLY THE MAXIMUM FLOW ALGORITHM TO THE MATCHING PROBLEM.
PART 9 - THE SETL ARCHIVES.

***

THE SETL ARCHIVES WERE CREATED 1/73 TO PROVIDE BACKUP FILES IN CASE OF PHYSICAL DISASTER. TO THIS END: TAPE 781 IS IN NEW JERSEY AND AVAILABLE FROM H. WARNER, TAPE 782 IS IN WESTCHESTER AND AVAILABLE FROM F. ALLEN. TAPES 2025 AND 2026 ARE IN THE TAPE VAULT HERE AT COURANT. THE ARCHIVES ARE DESIGNED HERE FOR THOSE WHO ARE CLOSELY INVOLVED IN ACTUAL IMPLEMENTATION WORK.

THE 38 ITEMS LISTED BELOW ARE FILES 1 - 38 ON TAPE 781 AND FILES 1 - 38 ON TAPE 782. ITEMS 1 - 17 ARE FILES 1 - 17 ON TAPE 2025, ITEMS 18 - 38 ARE FILES 1 - 21 ON TAPE 2026. EACH ITEM IS DESCRIBED BELOW IN A TWO LINE FORMAT, THE FIRST LINE GIVES THE ITEM NUMBER, THE CATALOG PROGRAM CHECKSUM, AND THE SOURCE OF THE ITEM (USUALLY, PERMANENT FILE NAME AND CYCLE NUMBER). THE SECOND LINE IS A QUICK VERBAL HANDLE TO WHAT THE ITEM IS. THE FILE SETLCODES IS AVAILABLE AS FILE 3 OF TAPE 694 AT COURANT, AND ALSO FROM K. MALY IN MINNEAPOLIS.

***

1. CATSUM=2243 PFN=SETLNSALGC  JY=13
SETL Compiler = FRONT END FOR NAME SPLITTING ALGORITHMS.

2. CATSUM=37372 PFN=SRC1208  JY=61
SAME SETL SOURCE = CODE AND MANUAL.

3. CATSUM=113651 PFN=STOLCOMPL  JY=1
SAME AS CYCLE 2 BEFORE RESEQUENCING.

4. CATSUM=137562 PFN=STOLCOMPL  JY=7
SETL Compiler IN LITTLE + SETL Compiler IN SETL.

5. CATSUM=133566 PFN=STOLCOMPLI  JY=1
SAME AS CYCLE 2 BEFORE RESEQUENCING

6. CATSUM=53751 PFN=STOLCOMPLI  JY=7
SETL Compiler IN LITTLE.
7. CATSUM=30015 PFN=TESTPL 
MISCELLANEOUS CRITICAL TEST PROGRAMS

8. CATSUM=3065 PFN=THEOREMPL 
THEOREM PROVER IN SETL.

9. CATSUM=5562 PFN=TOPDOWNPL 
TOP DOWN PARSER IN SETL.

10. CATSUM=54543 PFN=LDSLLTPL 
SHORTENED LITTLE COMPILER IN FORTRAN.

11. CATSUM=20167 PFN=FSOURCE 
SOURCE CODE FOR SIMULATOR SYSTEM.

12. CATSUM=43240 PFN=FSOURCE 
SOURCE CODE FOR TRANSLATOR SYSTEM.

13. CATSUM=11316 PFN=PMLIBINARY 
MBALM FILE OF THE PML COMPILER SYSTEM.

14. CATSUM=122135 CFIL LIB 
SETL COMPILER IN FORTRAN.

15. CATSUM=77431 CFIL LIB 
SUPPORT LIBRARY FOR SETL (INCLUDING METACOMPILER).

16. CATSUM=67250 CFIL LIB 
MBALM SOURCE FILE FOR MBALM SYSTEM.

17. CATSUM=302175 TAPE 776 
LITTLE TO FORTRAN TRANSLATOR.

18. CATSUM=3004 PFN=ASSGNV1 
FORTRAN UTILITY PROGRAM.

19. CATSUM=41247 PFN=CLEANLILLLEXL 
LITTLE LEXICAL SCANNER IN LITTLE - REFORMATTED.

20. CATSUM=3705 PFN=EDITSETUP 
SETL PROGRAM YIELDING LEX SCANNER IN FORTRAN FOR ANY LANGUAGE.
21. CATSUM=45155  PFN=GENZZZZZ1174  JY=37
   LITTLE TO SETL COMPILER IN FORTRAN FOR OPTIMIZER USE.

22. CATSUM=64003  PFN=LDSPL  JY=6
   MISCELLANEOUS SUPPORT AND UTILITY PROGRAMS.

23. CATSUM=27733  PFN=LITLITDOC1175  JY=22
   DOCUMENTATION FOR LITTLE COMPILER IN LITTLE.

24. CATSUM=5625  PFN=LITTLELIPSOLPCF  JY=6
   ASSEMBLER LANGUAGE UTILITY ROUTINES USED BY LITTLE COMPILER.

25. CATSUM=143672  PFN=LITTLEPL  JY=1
   OLD VERSION OF LITTLE COMPILER PROPER IN FORTRAN

26. CATSUM=26702  PFN=LITTLETESTPL  JY=9
   TEST PROGRAMS FOR THE LITTLE COMPILER.

27. CATSUM=38342  PFN=LTLASPLF  JY=11
   LITTLE ASSEMBLER IN FORTRAN

28. CATSUM=46455  PFN=LTLGENPLF  JY=10
   LITTLE COMPILER PROPER IN FORTRAN.

29. CATSUM=72750  PFN=LTLLEXPLF  JY=16
   LITTLE LEXICAL SCANNER AND MACRO PROCESSOR IN FORTRAN.

30. CATSUM=20566  PFN=LTLUPTPL  JY=5
   OPTIMIZATION ROUTINES FOR LITTLE IN SETL8.
31. CATSUM=126223  PFN=LTLPL  CY=10
LITTLE PARSER, CODE GENERATORS, PRINT UTILITY, ALL IN LITTLE.

32. CATSUM=126046  PFN=MANUALSPL  CY=5
VARIOUS SETL AND LITTLE NEWSLETTERS, AND THE MANUALMAKE? PROGR

33. CATSUM=566  PFN=NEWS78  CY=1
GENESIS OF SETL NEWSLETTER 78.

34. CATSUM=235  PFN=NEWS79  CY=1
GENESIS OF SETL NEWSLETTER 79.

35. CATSUM=360  PFN=NEWTYP  CY=5
TYPE FINDING ALGORITHM IN SETL.

36. CATSUM=1176  PFN=PAR1  CY=2
TOP DOWN PARSER IN SETL.

37. CATSUM=20265  PFN=SETLRTESTPACKAGES  CY=20
SEE PART 7 OF THIS DOCUMENT.

38. CATSUM=130623  PFN=SETLLIPPL  CY=11
SETL PJN TIME LIBRARY IN LITTLE.
FRESH ARCHIVES WERE CREATED 9/73. TAPE 5 IS IN WESTCHESTER
AND AVAILABLE FROM F. ALLEN. TAPE 6 IS IN LOS ALAMOS AND
AVAILABLE FROM J. MORRIS. ANOTHER TAPE IS IN THE VAULT HERE
AT COURANT. THE 40 ITEMS LISTED BELOW ARE FILES 1 - 40 ON
EACH OF THESE TAPES. THE FIRST OF THE TWO LINES DESCRIBING
EACH ITEM GIVES THE ITEM NUMBER, CIMLIB NAME, LAST CIMLIB MOD
DATE, AND NUMBER OF WORDS.

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<th>Item</th>
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THE BALM4 SYSTEM,
THE BALM SETL SAVED FILE,
THE BALM SETL SOURCE FILE,
SETL AND LITTLE MACHINE READABLE NEWSLETTERS,
The SETL RUN TIME LIBRARY,
LITTLE LEXICAL SCANNER IN LITTLE - SOURCE,
LITTLE COMPILER IN LITTLE - SOURCE,
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<td>EDITING PROGRAM IN SETL.</td>
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<td>UPDATE PROGRAM IN SETL.</td>
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<td>LMANUAL</td>
<td>09/05/73</td>
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<td>LITTLE USER'S MANUAL.</td>
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<td>BINARY FOR ITEM 14.</td>
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<td>GOLDPL</td>
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<td>A PREVIOUS ARCHIVING SYSTEM - SOURCE.</td>
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<td>TAPE 746</td>
<td>07/25/73</td>
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<td>VARIOUS SYSTEMS PROGRAMS OF R. PAIGE.</td>
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<td>Various systems programs of D. Shields.</td>
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<td>Binary for Little Lexical Scanner in Fortran.</td>
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<td>Source for Fortran executable portion of the SETL system.</td>
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<td>,jLTLP</td>
<td>05/15/73</td>
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<td>Bootstrap utility programs.</td>
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