

■科教資料服務專欄■

與學科教學相關的歐美期刊介紹(一)

本刊編輯室

自科學教育月刊第 84、85、86 期介紹歐美各主要科學教育期刊後，本期開始將陸續介紹九種與學科教學相關的歐美期刊，以提供各學科教師在教學或研究時的參考。此九種期刊為：

● 數學科：

1. *Journal for Research in Mathematics Education;*
2. *International of Mathematical Education in Science and Technology;*
3. *Mathematics Teacher;*

● 物理科：

4. *Physics Education;*
5. *American Journal of Physics;*
6. *The Physics Teacher;*

● 化學科：

7. *Journal of Chemical Education;*

● 生物科：

8. *Journal of Biological Education;*
9. *The American Biology Teacher.*

1. Journal for Research in Mathematics Education (JRME)

本期刊是屬於美國數學教師學會 (National Council of Teachers of Mathematics) 的出版物，每年發行五期，即元月號、三月號、五月號、七月號及十一月號。本期刊出版的對象是各級學校（從幼稚園至成人）的數學教師或是對數學教育有興趣的人仕。同時本期刊也提供作為探討數學教學的文章之發表園地。其內容包括下列各類文章：

- 研究成果，包括實驗研究、個案研究、調查研究、哲學研究和歷史發展研究等；
- 有關研究的文章，包括文獻綜覽及理論分析等；
- 研究的簡報；
- 有關文章或書籍的評論；
- 對研究的看法等。

下面是最近兩期的目錄，提供您作參考：

(November 1985, Volume 16, Number 5)

323 EDITORIAL

Jeremy Kilpatrick

ARTICLES

324 A Beginning Teacher's View of Problem Solving

Thomas J. Cooney

337 Instruction on Derived Facts Strategies in Addition and Subtraction

Ruth M. Steinberg

356 A Screening Procedure to Identify Children Having Difficulties in Arithmetic

James A. Siders, Jane Z. Siders, and Rebecca M. Wilson

364 Rote Versus Conceptual Emphases in Teaching Elementary Probability

Randall S. Hansen, Joan McCann, and Jerome L. Myers

BRIEF REPORT

375 Cognitive Functioning and Performance on Addition and Subtraction Word Problems

Thomas A. Romberg and Kevin F. Collis

REVIEW

- 383 Teaching and Learning Mathematical Problem Solving: Multiple Research Perspectives edited by Edward A. Silver
Reviewed by Gerald Kulm

388 TELEGRAPHIC REVIEWS

389 LETTERS TO THE EDITOR

393 ACKNOWLEDGMENT

396 INDEX

(January 1986, Volume 17, Number 1)

2 EDITORIAL

Jeremy Kilpatrick

ARTICLES

3 Logical Reasoning Hierarchies in Mathematics

Lars C. Jansson

21 Preservice Teachers' Sources of Decisions in Teaching Secondary Mathematics

William S. Bush

31 Characterizing the van Hiele Levels of Development in Geometry

William F. Burger and J. Michael Shaughnessy

49 Parent Attitudes and Student Career Interests

Katherine Pedersen, Patricia Elmore, and Dorothy Bleyer

BRIEF REPORT

60 The Keller Plan, Final Examinations, and Long-Term Retention

Jane M. Watson

REVIEW

- 69 Academic Precocity: Aspects of Its Development — edited by Camilla Persson Benbow and Julian C. Stanley
Reviewed by Peggy A. House

76 TELEGRAPHIC REVIEWS

2. International Journal of Mathematical Education in Science and Technology

因為數學是現代日常生活及科技上所必須的，所以從事數學教育的人仕對於數學的了解甚為重要。所以本期刊是提供教師們一個交換教學經驗及心得的刊物。其內容包括由日常生活中發展出來的數學理論模式、電腦的使用、新式的數學教具或教法等，其討論的範圍可至科學及技術上所涉及的領域。

本期刊是屬於雙月刊，每年六期，下面即介紹其最近二期的目錄供參考。

(Vol. 16, No. 6, September — October 1985)

A method to determine correlation function through area moment: <i>K. Venkataraman and H. M. Girija</i>	571
Function systems and new derivatives. <i>K. Katz</i>	579
A line of best fit. <i>J. A. Bland</i>	589
The teaching of vector algebra. <i>R. Shaw</i>	593
The philosophy of mathematics and mathematics education. <i>P. Ernest</i>	603
Circular demonstration of the commutative law. <i>R. M. Taylor</i>	613
A new solution technique for linear systems of equations. <i>W. Conley</i>	619
Rotating ellipses of varying shape. <i>K. Hirst and E. Forde</i>	623
Matrix procedures for dimensional analysis. <i>D. I. H. Barr</i>	629
Uniformity and distance — a vivid example from statistics. <i>F. Österreicher and J. Linhart</i>	645

The use of discrete mathematics in the teaching of mathematics. <i>D. Burghes</i> . . .	651
Classroom notes	665

(Vol. 16, No. 6, November – December 1985)

A note on the Widder transform related to the Poisson integral for a halfplane. <i>H. M. Srivastava and S. P. Singh</i>	675
Why don't we ask <i>them</i> what <i>they</i> think they need. <i>A. J. Salisbury and B. R. Yvon</i>	679
The stresses due to the contact of dissimilar bodies. <i>A. Sackfield and D. A. Hills</i>	687
The estimation of radiation intensities using Bayesian statistics. <i>E. S. Gillespie</i>	691
Deductive discovery approach to mathematics learning or In the footsteps of the quadratic function. <i>R. Hershkowitz and M. Bruckheimer</i>	695
Micros in mathematics education – Uses of spreadsheets in CAL. <i>F. S. T. Hsiao</i>	705
Mathematics graduates in the U.K. labour market: A recent appraisal. <i>T. Bourner and T. Crilly</i>	715
Experiences with self-managed learning in an undergraduate management science course. <i>L. E. Stanfel</i>	731
An exact and simple method for finding the oscillation conditions of a feedback system. <i>P. A. Martínez Martínez, V. Fernandez Escartin and T. Pollán Santamaria</i>	747
Numerical calculation of self and mutual inductances. <i>C. C. Wong</i>	755
Classroom notes	765

3. Mathematics Teacher

本期刊亦是屬於美國數學教師協會 (National of Teachers of Mathematics) 的出版物，每年由九月至五月共計發行九期，其目標是提昇中學、高中、二年制專科、及師範學院等學校數學教學水準。

下面即是最近兩期的目錄提供參考：

(Volume 78, Number 9, December 1985)

668 Teaching Basic Mathematics and Survival Skills

Patricia Frey-Mason

672 British Eyes on American Mathematics

David Lingard, Sylvia Johnson, and Thomas C. O'Brien

676 Sharing Teaching Ideas

Secret Codes with Matrices, *Dane R. Camp*

Simplified Polynomial Arithmetic, *John M. Woods*

Rational Expressions and Rational Equations: Consistency versus Simplicity,

Larry A. Orzechowski

721 Thanks from the Editorial Panel

660 Soundoff

Will Mathematics Education Rise to the Challenge of Computers? *David Moursund*

662 Reader Reflections

685 Activities

Developing Problem-solving Skills, *Stephen Krulik and Jesse A. Rudnick*

694 December Calendar

708 Microcomputer-assisted Mathematics

How to Solve the Diophantine Equation $x^2 + y^2 = z^3$ with Only One Literal Symbol, *Peter Flusser*

712 Courseware Reviews

715 NEW Publications

718 NEW Products

719 NEW Projects

Mathematics in Art

Mid-South Microcomputer Resource Center

725 Classified Index, Volume 78

(Volume 79, Number 1, January 1986)

ARTICLES

11 Problem Solving in Geometry — a Sequence of Reuleaux Triangles

James R. Smart

15 Using Scientific Calculators to Demonstrate the Method of Successive Substitutions

Y. L. Cheung

20 Expanding the Limits of the Calculator Display

Laurence Sherzer

23 Manipulating Percentages

James H. Wiebe

28 Sharing Teaching Ideas

Tick — Tick — Tick: Time Raises Havoc, *Hardy Reyerson*

Methods for Finding Critical Points, *Tom Ee Teck Ee*

Using Pattern Analysis to Determine the Squares of Three Consecutive Integers,

Robert L. Kimball, Jr.

54 Factoring Polynomials and Fibonacci

Steven Schwartzman

57 Bent Wire — an Application of Quadratic Equations and Inequalities

Kenneth W. Frank

59 Central Tendency and Dispersion: The Essential Union

Ivan W. Kelly and James E. Beamer

DEPARTMENTS

- 7 Soundoff
Computers and Mathematics — an Unholy Alliance? *Arthur Luehrmann*
- 9 Reader Reflections
- 34 Activities
Teaching the Elimination Strategy, *Daniel T. Dolan and James Williamson*
- 38 January Calendar
- 48 Microcomputer-assisted Mathematics
Factoring and Unfactoring, *Clark Kimberling*
- 67 Courseware Reviews
- 71 NEW Publications
- 75 NEW Products
- 76 NEW Projects
Using Computers in Teaching Secondary School Mathematics

4. Physics Education

本期刊發行對象是中學的物理教師及大學、技職學校及專科學校的教師，並希望擔任中學高年級及大學一年級間的橋樑。它的內容包括物理教學上的新教法及教具，一般讀者可讀的物理學專論，物理學在其他學科及工業上的應用，以及討論物理教學上的疑難問題等具實用性的資料。

本期刊每年發行六期（二個月發行一本，即一月號、三月號、五月號、七月號、九月號、十一月號）。下面介紹最近兩期目錄供參考：

(Volume 20, Number 5, September 1985)

September leader. 16+ again: <i>Bryan R. Chapman</i>	197
Correlation between physics A-levels/A-levels and degree performance. <i>Roy Chadwick</i>	204
Information and its carriers. <i>F. Herrmann, P. Schmälzle and G. Bruno Schmid</i>	206
Thought experiments and physics education — part 2. <i>Hugh Helm, John Gilbert and D. Michael Watts</i>	211
The 1985 British Physics Olympiad. <i>Cyril Isenberg</i>	218
Impulse and frequency response of a moving coil galvanometer. <i>D. J. McNeill</i>	226
Using an OHP to demonstrate wave motion. <i>F. Jacobs</i>	230
Visual acuity and the eye. <i>J. Beynon</i>	234
Computer controlled experiments using the Interactive Microcomputer Peripheral. <i>Edgar and Peter Howard</i>	238
Notes on experiments: Two experiments using a laser. <i>S. Rutherford</i>	243
Optical diffraction patterns displayed by microcomputer. <i>A. R. Allen</i>	
Automating the Hall effect. <i>P. H. Bligh, J. J. Johnson and J. M. Ward</i>	
An elegant experiment in mechanical equilibrium. <i>J. N. Boyd and P. N. Raychowdhury</i>	

NEWS AND COMMENTS 198, LETTERS 202, HAVE YOU READ THIS? 217,
 QUERIES IN PHYSICS 242, FILM REVIEWS 249, BOOK REVIEWS 250,
 SOFTWARE REVIEW 252, FORTHCOMING CONFERENCES AND COURSES
 252

(Volume 20, Number 6, November 1985)

Editorial: Undercurrents. <i>Eric Deeson</i>	253
School physics. the next ten years. <i>T. B. Akrill, K. Overson, R. J. Phillips, M. N. Rudden, S. Saville, D. R. Tilley and B. Woolnough</i>	262
Could physics be re-admitted to the curriculum? <i>Paul Black</i>	266
Electromotive force. <i>A. C. Rose-Innes</i>	272
The refractive index of thin solid films. <i>S. K. J. Al-Ani and J. Beynon</i>	274
Digital signal processing in acoustics — part 1. <i>H. Davies and D. J. McNeill</i>	278
Using phasors to explain what is actually happening when resonance occurs. <i>Kit Bunker</i>	281
Two experiments to measure the electric field at the Earth's surface and the variation of potential difference with height. <i>L. W. Brown</i>	287
Combustion physics. <i>A.R. Jones</i>	292
The management implications of Appil. <i>D. W. Bodey</i>	298
Microcomputer controlled C-V plotting in semiconductor devices. <i>M. J. Wood</i>	305
Charged poles? <i>David P. Maloney</i>	310

NEWS AND COMMENT 254, LETTERS 259, HAVE YOU READ THIS? 260, EQUIPMENT REVIEW 280, QUERIES, IN PHYSICS 286, SOFTWARE REVIEWS 309, BOOK REVIEWS 316, FORTHCOMING CONFERENCES AND COURSES 320

(未完，下期待續)