## NEWS SECTION

### "ONE-DAY" INSTRUCTIONAL CONFERENCES

The Irish Mathematical Society intends to hold a series of short instructional conferences. It is intended to choose a particular theme for each conference and to have a number of survey-type lectures on this theme. The aim is to survey a particular area for the benefit of non-specialists. A small number of short more specialized contributions may also be given for the benefit of experts in the area.

The first of these conferences was held in U.C.G. May 12-13. The organiser was Martin L. Newell and the topic was Group Theory. About twenty-five people participated. The following lectures were given:

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| Some aspects of permutation groups. | J.P. McDermott (U.C.G.) |
| Finite simple groups. | T.J. Laffey (U.C.D.) |
| The representations of GL(n,q). | G. Thomas (U.C.C.) |
| Augmentation quotients of some finite nonabelian groups. | N. Losey (Manitoba & Warwick). |

The next mini-conference will be held at U.C.C. in late September. The topic will be in the area of the history of Mathematics. Details about this conference will be issued later.

### IRISH MECHANICS GROUP

The National Science Council has approved a scheme submitted by the Irish Mechanics Group to organise instructi-nal seminars on three topics:

(a) Seismic data analysis;

(b) Ocean wave generation and modelling of sea and swell;

(c) Environmental fluid mechanics;

and will fund the seminars to a maximum of £1,000 each.

### SURVEY ARTICLES

The Newsletter is not, of course, a research journal and the Irish Mathematical Society cannot produce such a journal because of the obvious financial constraints. However, it is hoped to include in each issue some short surveys of research topics or topics in the history of Mathematics. Again, contributions of this type are invited from readers for consideration for inclusion in the Newsletter. Clearly, such articles must be fairly short. It is hoped to include some book reviews in future issues.

### PERSONAL ITEMS

We wish to congratulate the following members of the Society: Professors P.M. Quinlan of U.C.C. and D.J. Simms of T.C.D. on their election to the Royal Irish Academy, Dr. P.K. Currie of U.C.D. on his appointment to a research position with Shell in Rijswijk in The Netherlands, Dr. P. O'Leary of U.C.C. on his appointment to a (statutory) lectureship in Mathematical Physics at U.C.G., Doctors R. Dark of U.C.G. and C. Walter of U.C.D. on being appointed to permanent positions in their respective colleges.

## FOR YOUR DIARY

L.M.S. Research Symposium on Finite Simple Groups. Durham July 31 - August 10. (For details contact M. Collins, Math. Inst., St. Giles, Oxford OX1 3LE).

A.S.I. Conference on Rings with Polynomial Identities. Antwerp. August 1-13. (For details, contact Professor Dr. F. van Oystaeyen, University of Antwerp, U.I.A., Dept. of Mathematics, Universiteitsplein 1, 2610 Wilrijk, Belgium).

International Congress of Mathematicians. Helsinki. August 15-23. (For details of group travel from Ireland to the congress, contact T.C. Hurley, U.C.D.).

I.M.S. Conference on the history of Mathematics, U.C.C., late September. (Full details of this conference wi-l be issued later).

Dublin Institute for Advanced Studies Christmas Symposium, December 20-21, 1978.

## Polynomial identities and central identities for matrices

Thomas J. Laffey

Let $A,B,C$ be $2 \times 2$ matrices. It is easy to verify that $(AB-BA)^2$ is a scalar matrix and hence

$$(AB-BA)^2C - C(AB-BA)^2 = 0$$

(This is called Wagner's identity). This may be expressed by saying that $(xy-yx)^2z - z(xy-yx)^2$ is a polynomial identity for $2 \times 2$ matrices. In general, a nonzero polynomial $f(x_1,\ldots,x_m)$ in the noncommuting indeterminates (or symbols) $x_1,\ldots,x_m$ is called a polynomial identity for $n \times n$ matrices if $f(A_1,A_2,\ldots,A_m) = 0$ for all $n \times n$ matrices $A_1,A_2,\ldots,A_m$.

For example, it is easy to check that Wagner's identity is not a polynomial identity for $3 \times 3$ matrices. Another example of a polynomial identity for $2 \times 2$ matrices is $(x_1^2x_2-x_2x_1^2)(x_1x_2-x_2x_1)-(x_1x_2-x_2x_1)(x_1^2x_2-x_2x_1^2$

We now give an example of a polynomial identity for $n \times n$ matrices. First, we need a definition.

Definition The standard polynomial $s_m(x_1,\ldots,x_m)$ of degree $m$ is defined by