6. It was announced that R. Ryan and T. Hurley of UCG would edit the Bulletin, following the April 1987 issue.

The Secretary also announced a plan that the membership list will eventually include electronic addresses for those members who wish to supply them. In addition, it is proposed to ask each Mathematics department to set up a departmental electronic mailbox and organise that it be regularly checked (by a secretary, for example).

7. The following were proposed, seconded and elected unopposed (for two-year terms in each case):

President	:	S. Dineen (UCD)	
Vice-President	:	F. Gaines (UCD)	
Committee	:	M. Brennan	(WRIC)
		N. Buttimore	(TCD)
		B. Goldsmith	(DIT, Kevin St)
		R. Ryan	(UCG)

Richard M. Timoney

(Secretary)

LETTER TO THE EDITOR

Dept of P. & Q. Science,
Regional Technical College,
Waterford.
February 1987

Dear Editor,

In your September 1986 issue Donal Hurley and Martin Stynes reported on the basic mathematical skills of UCC students.

They concluded that students entering third-level colleges do not have "the desired basic skills". In the opinion of the authors third-level mathematics lecturers should "take an interest in and play an active role in designing the mathematics curriculum at first and second levels".

Your third-level readers ought to know that:

(1) A syllabus committee under the aegis of the Department of Education and composed of three inspectors, three teacher union representatives and three school manager representatives put the finishing touches about a year ago to three new Intermediate Certificate syllabi. The Intermediate Certificate stable door is swinging open and the horse has gone.

(2) However, a Leaving Certificate Syllabus Committee (for Mathematics) also under the Department's aegis but this time including a representative of the universities ($\neq$ third-level colleges) had its work on three new Leaving Certificate syllabi suspended, also about a year ago. The Leaving Certificate horse is still in the stable.

It is important for the authors of the UCC survey to distinguish between their viewpoint and the grounds for the longstanding objection that universities (*sic*) have been over-influencing second-level mathematics syllabi. That objection is concerned with topics such as linear programming, vector analysis, calculus, even parts of trigonometry on the Lower Leaving Course; it is concerned with linear transformations, convergence of sequences and series, probability, groups, ... on the Higher Course.

The authors of the article about UCC students want the third-level sector to influence second-level syllabi. I think I know in what way, but perhaps they would spell it out? And I would like to know what recommendations they or other third-level people would make for primary level. Finally, given the composition of syllabus committees heretofore, how are all third-level interests to be represented from now on?

Michael Brennan

AN ESSAY ON PERFECTION

Mícheál Ó Searcóid

1. ABSTRACT

A recent result of Murphy [2] concerns operators on a given infinite dimensional Hilbert space H. It states that, given a non-empty compact subset K of the complex plane, there exists a non-diagonalizable normal operator on H whose spectrum is K, if and only if K is uncountable. To effect this result, the operator theorist must use a well known result in topology, namely, that every uncountable separable metric space contains a perfect set. This excursion into topology led us to investigate how far the conditions of separability (in the metric space case this is equivalent to second countability) and metrizability can be stretched. We give below some general results about topological spaces which must contain perfect sets, and we produce a series of counterexamples to show that the conditions we have imposed on the spaces are indeed quite sharp.

2. INTRODUCTION

We recall firstly that a subset of a topological space X is said to be perfect in X if it is non-empty and is equal to the set of its limit points in X.

We now generalize the notion of compactness in the following definition: let Ω be a transfinite cardinal number and let X be a topological space. X is said to be Ω-*compact* if every open cover for X has a subcover of cardinality less than Ω. It is clear that X is compact if and only if X is $\aleph_0$-compact, and that X is Lindelof if and only if X is $\aleph_1$-compact.

In what follows, we shall be concerned also with a generalization of the concept of a G_δ. We shall consider a topological space which has the property that each singleton subset