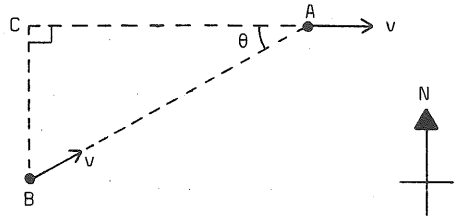

FIGURE 1: Typical Position

Then the distance AB is increasing with speed $v\cos\theta - v$ (so it is decreasing) and the distance AC is increasing with speed $v - v\cos\theta$. Thus the distance AB+AC is constant, and so the distance AB tends to $\frac{1}{2}d$ in the limit.

Now for a problem which can be solved very elegantly by thinking laterally (quite literally).

1. The Plank Problem. Does there exist a positive integer n such that a closed disc of diameter 1 can be covered by fewer than n planks of width $\frac{1}{n}$?

A plank is defined to be a parallel strip which is closed and of infinite length.

2. The Planet Problem. A finite number of equal spherical planets are in outer space. A region on the surface of one of the planets is called hidden if it is invisible from any of the other planets. Find the total area of the hidden regions.

This problem came from a Russian Olympiad.

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CONFERENCE REPORTS

IRISH MECHANICS GROUP CONFERENCE ON DEVELOPMENTS IN MECHANICS

Several years ago, those working in Mechanics in Ireland felt the need for an informal Association which could provide more definite contact through periodic meetings. From this need, the Irish Mechanics Group was initiated with the objective of organising short, usually one-day, meetings once or twice each year. The general format of such meetings aimed at enabling Mechanicians to present brief talks (usually of thirty minutes duration) on their current areas of research as well as affording them an opportunity to meet and exchange views informally but on a regular basis. On occasion, some more formal meetings, having specific themes and areas of research have been organised. In order to maintain the desirable informality of the meetings, Proceedings are not published.

The meetings/conferences are held in different locations usually shortly before or soon after the end of University or Technical College term. Attendance, which tends to number around thirty, usually includes personnel from the Institutes of Higher Education, Universities, Colleges of Technology, and various research institutes including representation from the Meteorological Office, An Foras Forbartha etc.

For a number of reasons meetings of the Irish Mechanics Group (I.M.G.) had not been held for a few years up to June of this year. A two-day I.M.G. conference on "Developments in Mechanics", sponsored by the Mathematical Physics Department was held in University College Cork on 2/3 June last. The attendance of some thirty Mechanicians included representation from the N.U.I. Colleges, Trinity College, Queen's University, N.I.H.E. Limerick, N.I.H.E. Dublin and some of the R.T.Cs.

The Conference Chairman - Professor P.M. Quinlan, U.C.C., in his opening address stressed both the 'healthiness' of mech-

anics today and the international reputation which Irish applied mathematicians have held in this field. Three 'invited' lectures were well received by the participants. Professor Michael Hayes, U.C.D., spoke on "Elastic and Viscoelastic Waves", Dr. Michael Quinlan, U.C.C., spoke on "Internal Rupture of Materials", and Professor Matt McCarthy, U.C.G., spoke on "Scattering of Elastic Waves". In addition to these talks, there were nine other presentations on a wide diversity of current research interests. Topics discussed were "Viscoelastic Rayleigh Waves in Low-Loss Material", "Asymptotics of Force-Displacement Relations for a Bonded Elastic Cylinder", "Resonant Oscillation in Water Waves", "Asymptotic Partition of Energy in Linear Viscoelastic Materials", "Free Vibration of Thin Elastic Plates", "Higher Order Equations in Mechanics", "Wave Forces on a Submerged Cylinder", "Stoke's Waves, Body Waves and Rayleigh Pressure Problem", "Cracks, Cavities and Stresses in Two-Dimensional Bodies".

A very pleasant and relaxing reception was provided on the first evening of the Conference and it provided further opportunity for the participants to fruitfully and informally discuss their work.

At a business meeting of the Irish Mechanics Group held during the Conference it was decided to set up a new committee consisting of Professor P.M. Quinlan, U.C.C., (Chairman); Dr. M.J.A. O'Callaghan, U.C.C., (Secretary); Dr. F. Hodnett, N.I.H.E. Limerick; Professor M.A. Hayes, U.C.D.; Dr. A. Wood, N.I.H.E Dublin; Professor M.F. McCarthy, U.C.G.: Dr. J. Fitzpatrick, T.C.D., and Dr. P.J. Donohue, Q.U.B. The committee will draw up a brief constitution, discuss the possibility of membership fees, explore possible relationships with other groups of compatible interests and discuss future meeting schedules. The committee will communicate informally in the interim before it meets at Christmas in conjunction with the Mathematical Symposium in Dublin.

Michael J.A. O'Callaghan, Mathematical Physics Dept., U.C.C.

SUMMER SCHOOL ON COMBINATORIAL OPTIMISATION, N.I.H.E., DUBLIN

The 1983 conference on Combinatorial Optimisation was held between 4th and 15th July and hosted by N.I.H.E. Dublin, which provided the financial backing to enable many well-known mathematicians to be invited. Considerable effort by the organiser Michael O'hEigeartaigh was amply rewarded by an excellent conference in which the main speakers were N. Christofides, M. Grotschel, R.M. Karp, E.L. Lawler, J.K. Lenstra, G.L. Nemhauser, M.W. Padberg, C.H. Papadimitrou, A.H.G. Rinnooy Kan, and L.E. Trotter, Jr. Each of these gave two instructional talks of a general nature and a lecture on an aspect of recent research.

The most well-known problems in Optimisation are the Travelling Salesman Problem (TSP) and the Vehicle Routing Problem (VRP). In the former, a salesman is required to visit each of n cities and to minimise the distance he has to drive to accomplish this. In the latter, a vehicle of fixed capacity must deliver varying quantities of goods from a depot to each of n customers, again with the restriction of minimising the distance or cost of driving to each customer. In the VRP several journeys may be required from the depot because of the limit on goods which the vehicle can carry. The TSP is really the same problem, except that the salesman has sufficient space in his car to provide an encyclopedia to everyone.

Both of these are "integer programming" problems and the solution of them requires such a considerable amount of computing when n is large that usually only approximate solutions are sought. Much of the conference time was spent considering how one might change these to "linear programming" problems. For which the simplex algorithm almost invariably finds an optimal solution extremely quickly.

The first week of the summer school took place at the Drumcondra site, and it moved out to the Glasnevin campus for the second week. Nevertheless one still had the impression

that this was about half way between the Netherlands and the States!

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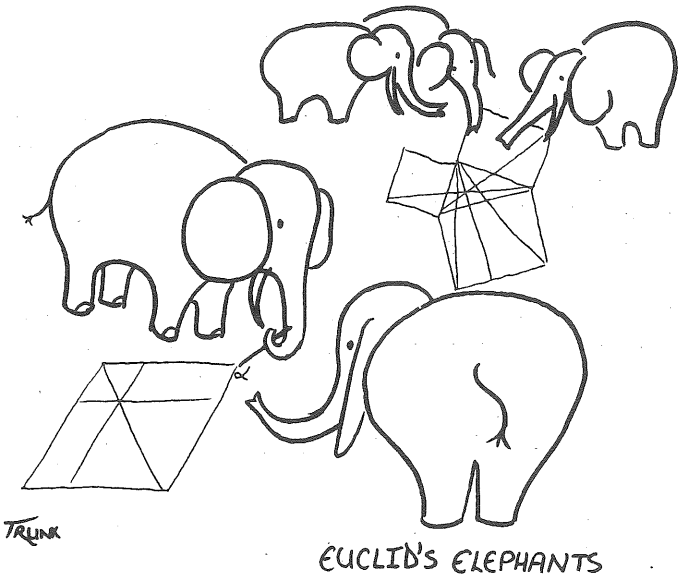

From *2-Manifold*, No. 4

CONFERENCE ANNOUNCEMENTS

FIRST ANNOUNCEMENT AND CALL FOR PAPERS

BAIL III

The Third International Conference on
Boundary and Interior Layers -
Computational and Asymptotic Methods
20th to 22nd June, 1984 in Trinity College, Dublin, Ireland
under the auspices of the Numerical Analysis Group
and co-sponsored by the
American Institute of Aeronautics and Astronautics
American Meteorological Society
Irish Mathematical Society

and

Advances in Computational Methods for
Boundary and Interior Layers
An International Short Course held in association with the
BAIL III Conference
18th and 19th June, 1984 in Trinity College, Dublin, Ireland

Aims and Scope

Boundary and interior layers are of great practical importance. They arise in many problems in the aerospace industry, biological fluid flow, chemical engineering, combustion, meteorology, microstructured materials, nuclear engineering, petroleum reservoir modelling and semiconductor device simulation. In BAIL III particular emphasis will be placed on computational methods for solving these problems.

It is important to bring together engineers and scientists who encounter such problems, in order to avoid wasteful duplication of research effort. This is because the technical difficulties are frequently the same although the application areas are quite different. This becomes apparent when researchers, who are not normally in contact, have an opportunity to exchange information