

Milieu 1996



GEOGRAPHY SOCIETY
ST. PATRICK'S COLLEGE, MAYNOOTH

21st Edition

Contents

Foreword <i>Professor Jim Walsh</i>	1	Death on our Doorstep <i>Rosemary Finane, 3rd Arts</i>	16
Editorial <i>Susah Doherty, BA</i> <i>Martin Whelan, BA</i>	2	Clientelism - A Review <i>Susan Doherty, BA</i>	17
President's Address Geography Society 1995/96	2	A week is a long time in Geography - Field Trip 1996 Memories <i>Joe Donnelly</i>	19
Planning for the Future: the Development of the University Campus, 1995-2005 <i>Dr. W.J. Smyth, Master of the College</i>	3	European Regional Aid: Structural Funds and the "New" Mega Regions of Europe <i>Brendan Beartlaí</i>	21
Oxfam and World Conflicts <i>Mary Van Leishout, Oxfam</i>	4	World Cities: Cause and Effect of Cultural Globalisation <i>Rút Ní Fhinnthighearn, 1st Arts</i>	24
A New Approach to the Philosophy of Geography <i>Shelagh Waddington</i>	6	Modelling the Interior of the Earth <i>Daragh McDonough, BSc., MA</i>	25
Population, Malthus and Laois <i>Martin Whelan, BA</i>	8	A Trip to Remember <i>Patrice Ryan, 3rd Arts</i>	27
The Greenhouse Effect - what you can do to slow down global warming and sea level changes <i>Florian Schönberger</i>	9	Processes of Change in Rural Areas <i>Seamus Lafferty, BA, MA,</i>	28
Geography Society on the Up & Up <i>Tom Corbet</i>	11	Music in the Department <i>Geo Pen</i>	30
Crisis of History and History in Crisis <i>Professor P. Duffy</i>	12	Geographical Information Systems in Archaeological Research <i>Paul Synnott</i>	32
Groundwater Quality in Ireland the future? <i>Donal Daly</i>	13	Geography of Kissing <i>Padraig Lewis, BA</i>	36
A Danish Erasmus Student in Maynooth <i>Claus Aagaard</i>	14	Geography Society Auditors since the Beginning	38
Hands on experience of Local Development in Co. Kildare <i>Celine O'Rourke, MA</i> <i>Celine McHugh, MA</i>	15	The Philosophy of Natural Hazards/Disasters <i>Kieran R. Hickey</i>	38

Foreword

The current academic year is a highly significant one for the Geography Department. Last Autumn we were still in the middle of the College Bicentenary celebrations in which the Department staff played a very active role. Seven conferences were hosted which in aggregate brought almost 600 visitors to Maynooth. In addition, the Department publication record reached a new peak with 35 separate items.

The 1995/96 academic year is especially important for it is twenty five years since the establishment of the Department in 1971. The level of activity in 1995 is a strong reflection of the dynamism that has been built up over the twenty five years. Commencing from very humble beginnings in 1971 with only full-time lecturer (P.J. Duffy) and 82 students the department grew rapidly so that by 1978 there were five full-time lecturers and by 1980 there were about 280 students. Throughout the next decade the number of undergraduates increased steadily to just under 400 in 1990/91. Since then they have increased by another 100. Over the same period the number of staff increased by only three.

In recent times the greatest expansion has been in the number of postgraduates which is, in part, a response to an increased variety of postgraduate options. At present the Department provides two Higher Diploma Courses (in Cultural Tourism and in Applied Remote Sensing and Geographical Information Systems), an M.A. Mode 1 by major thesis, an M.A. Mode 2 by coursework and a minor thesis, and a Ph.D. programme by major thesis. The total number registered for postgraduate courses has increased from 10 in 1991/92 to almost 60 at present.

At present the Department is engaged in a major review of all its activities. An important input into the review of the teaching programmes has been the information extracted from the questionnaires that were completed at the end of several modules taught in 1994/95. The surveys showed that the vast majority of students consider most modules to be either 'above average' or 'excellent'. The main concerns that we have detected are the amount of reading expected and, in some areas, the availability of materials. These are issues which are being addressed.

In addition to teaching, all staff in the Department are involved in research projects. Through their research the role of Maynooth as a university is enhanced, and also an important service is provided to the wider community. Along with their personal research projects some staff have over recent years undertaken projects for the EU, government departments, state agencies and local development bodies.

Maynooth Geography staff have also made significant contributions to the development and promotion of the discipline. All of the key officer positions in the Geographical Society of Ireland have been held by Maynooth staff for most of the last decade. The two academic geography journals, Irish Geography and Geographical Viewpoint are edited in Maynooth.

Maynooth geography graduates have entered a wide range of occupations. Some have become university lecturers and Professors in North America. Others have found employment as research officers, or as Urban and Regional Planners. Over the years the strongest occupational attraction was second level teaching. This has altered due to the reduced demand for second level teachers. In 1994 just over one-fifth of Geography graduates went on to a teacher education course. Approximately one-quarter registered for some other postgraduate course. Another 28% obtained employment shortly after graduating, mostly in the services sector.

Looking to the future, there are a number of potential threats that have to be counteracted. These include the intention of the Department of Education to drop Geography as a core subject from the Junior Certificate, and their plans to tighten their controls over universities. There is likely to be continued expansion in the number of postgraduate students. Additional staff and other resources will be required to enable the Department to maintain the quality and expand the range, of courses provided.

This is the 21st edition of the student Geographical magazine, Milieu. Over the years it has provided an important outlet for articles prepared mainly by students. It has also on occasions carried some notable contributions from staff. This issue maintains that tradition, and also reflects the increased role of postgraduates in the life of the Department, as well as the presence of ERASMUS visitors. Congratulations are extended to the Geography Society for endeavouring to produce the magazine, and to the editor and editorial team for relentlessly pursuing potential authors and getting the articles into the publishable format.

J.A. Walsh

Editorial

As Editors, we found ourselves inundated with an abundance of varied and sometimes usual articles. The difficult choice - as always - has been pruning these articles to suit a magazine like this. Many fine and worthwhile pieces have unfortunately been omitted due primarily to space constraints. Nevertheless we wish to thank all those who submitted articles, be they published or unpublished.

A new edition to this year's publication is that of the introduction of the Geo Voice Box, a forum to allow students the opportunity to express views, to get things of their chest, or quite simply to air their grievances. We hope this will be upheld in future editions.

We trust this edition will follow the high standards set by its many predecessors and that it reflects the prominent position that geography holds within the college, and indeed the growth in the department itself.

Susan M. Doherty, B.A.
Martin Whelan, B.A.

P.S. We hold no responsibility to any reaction to individual articles, in particular 'Music in the Department'. We've merely followed the old journalistic saying 'Publish or be damned'. And no Fran, Susan is not referring to her thesis.

President's Note

Welcome to Milieu '96. We are a bit later with it this year but we hope that it will not be less enjoyable on account of that. We have had a fairly busy year so far, kicking off with Prionnsias Breathnach's infamous presentation on field-trips. It was an enlightening evening and we were given a behind-the-scenes view of what really goes on on those trips. Rumours that Prionnsias is secretly working on a PhD thesis on the subject have yet to be confirmed.

Our inaugural lecture took place on the 25th October when the Lord Mayor of Dublin, Sean D. Dublin Bay-Rockall Loftus, (what a name), gave an interesting talk on Dublin Bay, Rockall, and his political career. Our next event was our table quiz which was held on the 12th of December. This was compered by the aforementioned Prionnsias Breathnach (funny how he keeps cropping up) and was a great success with prizes galore including two trips to Hollyhead. We wish to thank Usit and Heineken for their sponsorship.

After Christmas we started off with a slideshow on Boston which was presented by Dermot O'Mahony. This event was a roaring success and had to be held again in March due to popular demand. This was followed by a slideshow on Africa by Deirdre O'Meara on the 25th which also went well. On the 31st of January Donal Daly from the Geological Survey of Ireland gave a talk on groundwater pollution and the consequences of it. It was a very interesting lecture but was poorly attended, mainly because the second years had an evening lecture on Africa the same night.

During Rag Week we sponsored a penalty shoot-out to raise money for charity. This event, which was held over two days, was well supported and was organized by (him again) Dermot O'Mahony. On the 28th of February Dick Warner (of Waterways fame) gave an interesting talk on the environment and a week later Mary van Lieshout gave a lecture on the implications of the recent conference for women in Beijing. This was well attended and we wish to thank the Anthropology Society for their support.

On the 12th of March we held Dermot's second presentation on Boston and on the 19th we held a careers seminar presented by Loretta Jennings from the Careers Office. Paul Synott gave a lecture on Geographical Information Systems on the 27th of March. On the 16th of April we hope to present Mladen Klemencic from Croatia, who will discuss the background to the break-up of Yugoslavia and on the 27th we are planning on showing a video on the history of the UN which will be followed by a discussion on the role of the UN.

As the end of the year approaches we will be holding our AGM and we hope that first and second years will get involved in the society and take their place on next year's committee. In the words of one of our former presidents, "The Geography Society is an equal opportunities employer".

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Geog. Soc. Committee 1995-96
Back: Dermot O'Mahony, Susan Holbourn, Gerard Fitzsimons, Claire Barnewall.
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Planning for the Future: The Development of the University Campus 1995 - 2005

more than a decade Maynooth has been the fastest growing university centre in Ireland. Its student population has more than trebled since 1980, and with a quarter of all students enrolled for postgraduate degrees and diplomas it is clear that the vibrancy is broadly based and well established. Such rapid growth brings with it a clear responsibility for management of change; creeping incrementalism is no more acceptable than intensification of effort and numbers within rigidly unchanging structures. Accordingly, the College has been pursuing a policy of curriculum enlargement, coupled with expansion of staff numbers and augmentation of physical infrastructure. Within the past six months two plans have been published after wide debate and consultation. *Towards the Next Century: Maynooth College 1995-2000*, outlines the direction of policy for academic affairs and is fundamentally a development plan for the rest of this century. *The Development Control Plan 1995* compliments the academic plan by providing a rationale for the physical expansion and development of the Campus. It was produced in association with the professional design team who are overseeing construction of Phase II of the Science Building.

The planned use of space is a sine qua non for the future development. Such planning and management is required to ensure the creation of an appropriate and harmonious campus environment and it is predicated also on the necessity to avoid conflict in future land uses.

The Campus Control Plan seeks, therefore, to define and establish a design structure which blends aesthetic and functional elements, existing and future, into a clearly defined design form.

The current plan is aimed specifically at the North Campus and it seeks to articulate a vision which will ultimately provide a well integrated environment.

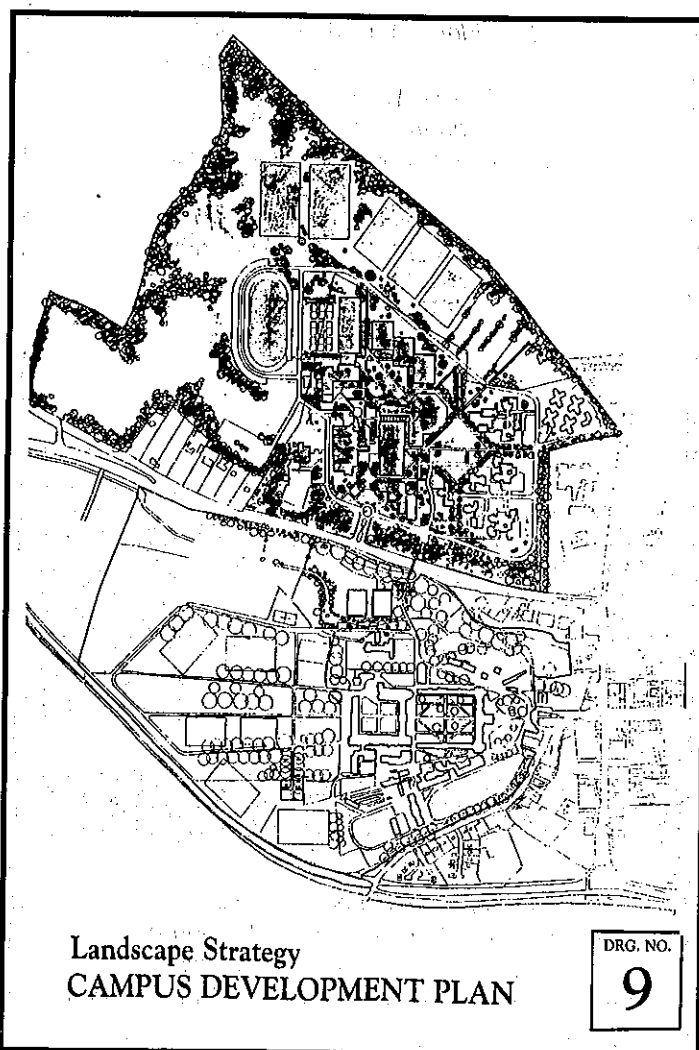
Central to the plan, in a literal as well as a metaphorical sense, is the provision of a new entrance to the campus, to be located on an axis between the spire of the College chapel and the landscaped area which separates the Callan and Arts Buildings. This new entrance will be designed as the front door of the campus in a manner befitting the views of the geographer Yi Fu Tuan. From this pivotal entrance pedestrian routes will lead to the assemblage of buildings, all of which will be located within a circular service road which will distribute traffic to parking spaces outside of the access ring.

As the map clearly indicates, the front building of the campus will be the new Chemistry, Experimental Physics and Space Technology Building. That building will be located approximately on the space occupied by the current car park and will be 5500 sq. m in extent. To the north of this building and east of the Arts Building, it is hoped to construct a large scale auditorium and adjoining lecture hall, seminar room and office space.

The construction of these two buildings will consume most of the available development lands of the North Campus and further expansion will require expansion onto the present football pitches. Clearly replacement of those facilities will be required and at that point the University will have no option but to seek resource to the farmland immediately to the west and north of the present campus. Such territorial enlargement will be onto lands zoned as educational and institutional in the County Development Plan and will, of course, require the assent of what will be the governing bodies of two university institutions.

By such means, and with ancillary expansion of sporting and athletic facilities it is hoped to provide a campus for circa 5000 students in National University Maynooth. The plan, like all such documents, is futuristic but it is, one hopes, also realistic. Nonetheless its translation into reality will require patience, sustained endeavour and the provision of circa £30 millions of capital investment.

Dr W.J. Smyth
Master



OXFAM and World Conflicts

by
Mary Van Leishout, OXFAM

In the last five years, the world has changed more significantly than at any time since 1945. Cold War threats have evaporated and we are now faced with escalating civil conflicts. In 1993 there were 52 ongoing wars, 26 of which were defined by the UN as "complex emergencies", 44 of which were internal. Today war is probably the single most significant factor explaining the persistence of famine in Africa.

There is growing recognition that the causes and nature of armed conflict in the late 20th century are fundamentally different from those of the past. These are endemic responses to global inequality which will be more common and more pronounced in the coming decades. Conflict cannot be interpreted independently from the growing concentration of power and wealth in the world, a process which has relegated southern economies and poor communities to the utmost fringe of the global marketplace.

Conflict can be more pronounced in areas where these international forces are met by weak State structures and unresolved national and local tensions over resource distribution and control.

While every conflict is distinct in its specific causes and circumstances, today's conflicts have several characteristics. They are primarily intra state - defined by ethnic, class or territorial differences. They are parasitic on illicit economic structures, such as the arms trade, drug trafficking and currency trade which create the financial and security apparatus that maintain armed groups. They depend on "asset stripping" of local economies to feed wealth accumulation of warring elites. By purchasing the capital reserves of poor communities - livestock, agricultural tools or food stores - often at the lowest market rates, those with economic advantage can simultaneously increase the vulnerability and dependency of communities and increase their own power in a crisis economy.

It is now increasingly recognised that humanitarian response can fuel or prolong conflict. Recent experience has shown that warring parties can strategically act to provoke massive humanitarian operations that serve to sustain, through direct and indirect means, their own military structures. The more recent phenomenon of relief operations controlled by foreign military forces has been of limited success, with questions raised as to the impact of these interventions on longterm peacemaking.

Conflict prevention and resolution are commonly seen as challenges of establishing the basis for equity and justice. Approaches to this end must be based on an understanding of low intensity conflict which strips people of assets, disrupts production patterns, develops dependency and causes longterm trauma to populations. Prevention of new conflicts entails equitable allocation of resources, delivery of basic social services, and productive assets, and resolution of land tenure and resource allocation issues before they become conflict points.

Solutions to conflict must address both the global and political dimensions of inequality as well as the national and local structures which sustain and perpetuate violence. Treatment must also attend to the personal and family, recognising the specific impacts of violence on women, men, girls and boys.

Just as aid is typically not present for conflict prevention, it also falls short in the post conflict period. The reconstruction process entails multiple processes and investments. The essential task of reconstructing the fabric of civil society entails capacity building, education on rights, support to women maintaining and

expanding their leadership and economic roles, and developing a culture of political participation. Economic must seek to restore rural and urban economic activity, especially commercial and marketing systems.

Reconstruction efforts can be derailed by inconsistent macro-economic and political strategies. The superimposition of adjustment programmes in reconstruction environments is a common spark which can reignite conflict. There is also a contradiction between moves to privatise State responsibilities, decentralise and diminish the role of the State in contexts where there is a need for consistency in development policy, accountable State institutions and a certain guarantee of personal and collective safety through effective justice systems.

Reconstruction also entails the healing of the psychological wounds of war. Populations that have been traumatised by violence, displacement and massive destruction need forms for rebuilding their personal, family and community fabric, as well as their sense of nationhood. Work on the psychological impacts of war points to a range of strategies, beginning with individual and groups support systems, to forms of reparation. Public recognition of the victims of war and processes for bringing justice to the perpetrators of violence are seen as essential components to post conflict recovery. The experiences of post conflict societies with war tribunals, paid indemnity to victims of war, Truth Commissions and amnesty laws are areas which require further investigation.

Oxfam sees a link between the global arms trade, official spending on arms development and the growing levels of violence and conflict in the world. The double standards which exist among northern governments in their calls for peace and demilitarisation in the South, and their massive investments in arms development and export must be denounced. Not only do these arms exacerbate violence, but the encouragement of arms purchasing by the northern defence industry, often with overt or covert northern government complicity drains precious resources that could be directed to national development.

There is widespread agreement among governments that reform of the United Nations is necessary before the agency can effectively and credibly prevent, intervene and resolve conflict. Specifically the UN Security Council should be expanded from 15 to 20 or more, and provide for greater representation for the regions of the south. Progress on this reform needs to proceed quickly, both to increase the UN's tenuous accountability to the peoples of the world, and to ensure that the Council's legitimacy is strengthened, so that it can become a more effective instrument for maintaining peace.

The UN has put forward systematic approaches to early warning of conflict: mapping demographic flows, environmental conditions and human rights violations, but these systems have not been put into place. In any case, it must be recognised that early warning systems will be meaningless unless there is a political will to respond with funding, diplomacy and monitoring capacity before a conflict takes on a high media and public profile.

In Europe the Common Foreign and Security Policy is now dominated by a "Fortress Europe" mentality; the desire to improve stability in the EU's "near abroad" - Central and Eastern Europe, the former Soviet Republics and the Magreb. Countries perceived to be of no strategic importance to Europe - most notably African states - have been de-prioritised.

Oxfam believes the EU should develop a Stability Pact with Africa, along the lines of the EU Stability Pact agreed with eastern Europe. This would recognise Africa as the continent most threatened by conflict and poverty, and provide a guide for EU strategy, in all aspects of policy, including preventative diplomacy, to support much needed African stability.

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A New Approach to the Philosophy of Geography

by
Shelagh Waddington

Many geographers, especially those in 3rd Arts, will be familiar with the changing paradigms of geography which have provided the philosophical base of the subject at various times. Each generation has produced its own interpretation of the essence underlying the subject and has pored varying degrees of scorn and ridicule on the definitions and approaches of the previous generations. Some researchers have, however, sought to synthesise the various paradigms to produce a balanced 'holistic' geography. This article provides a new interpretation of one such attempt, which has hitherto been generally unappreciated by the geographic community. The study of other such material would surely provide scope for any number of further studies, perhaps for BA or more advanced theses.

Good King Wenceslas provides us with a most interesting synthesis of the various paradigms and approaches to geography. It starts with a very clear focus on meteorology. Indeed, it could be argued validly that it provides a more memorable summary of winter anticyclonic conditions that Dr. Sweeney does in First Arts. After some initial scene setting, verse one includes the lines "When the snow lay round about deep and crisp and even (little wind anticyclone) Brightly shone the moon that night. (clear sky - typical of anticyclone) Though the frost was cruel" (no clouds to retain heat)

Later in the piece further meteorological material is reviewed, as in verse four, the page announces: "Sire the night is darker now, and the winds blow stronger" (clouds approach and wind strength increases as a cold front approaches)

But what is the significance of the last two lines of the first verse? "When a poor man came in sight Gathering winter fuel"

This is where the first illustration of the use of models in Geography occurs in the piece. This introduction is so subtle that those who oppose modelling may be lulled into using a spatial analysis paradigm (or at least singing about it) without even realising that they are doing so. These lines are a clear reference to Von Thunen's land-use zones. The firewood is produced near the palace because transport costs are high. Alternatively, the King may not be an 'economic man', but a keen environmentalist, whose chose to retain or plant new woodland to help to avoid global warming. If, however, the behavioural

paradigm is applied, it may be argued that the King perceived woodland as attractive and tranquil and so did not allow woods to be cut down around the forest. Old-fashioned regional geographers might, of course, argue that woodland was merely the natural vegetation of the region around the palace.

Rigorous analysis of the problem then follows, as favoured by the 'scientific' school of geography. The King formulates, a series of key questions, relating to the fundamental concepts of the subject (just like 2nd years tackling a questionnaire):

"Yonder peasant WHO is he?
 WHERE and WHAT his dwelling?"

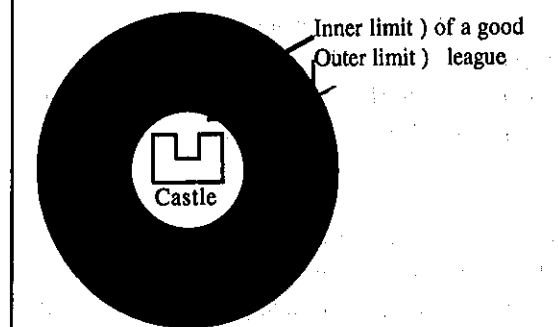


Fig 1

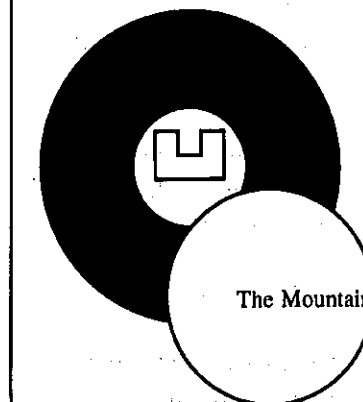


Fig 2

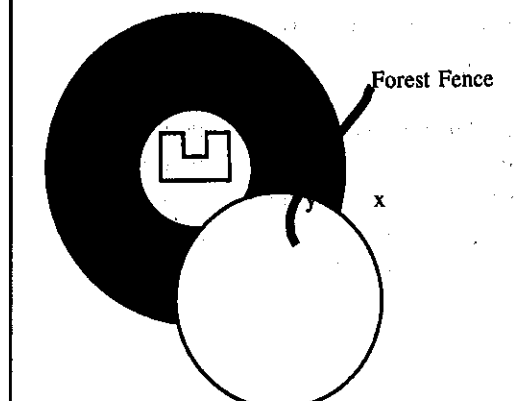


Fig 3

The page focuses only on one of the key concepts - LOCATION - and analyses in the exact form advocated by Haggett, who suggested that the subject is about surfaces, networks, nodes, etc.

"Sire, he lives a good league hence"

The first concept is of distance: the house must be located within the shaded zone in Fig. 1.

Location must, however, be more precisely defined, and so a second location factor is introduced: "Underneath the Mountain". Using Von Thunen's approach this factor is added to the model, creating a Venn diagram (Fig. 2). Only the cross-hatched zones are now available for the peasant's house.

This location can be further refined by defining a line on the surface: "Right against the forest fence". This additions means that the house can now only be located at either point x or point y, to fulfil all three criteria (Fig. 3). To finally fix the location a POINT is necessary: "By St. Agnes' fountain". St. Agnes' fountain is, of course, a Vauclisian spring at the spring line at the foot of the mountain and the peasant's dwelling must, therefore, be located at point y. A real modelling geographer will, of course, be able to explain why this was not made clear at the start of the piece. Until this is revealed it is tempting to consider that there was a requirement for lines 5, 6 and 7 of the verse to ensure that the words fitted the tune (just like something is needed for pages 21 to 439 of many text books).

After fixing their destination the King and the Page then set out. The start of their journey involved the old-fashioned descriptive and repetitious approach of regional geographers, without a single concept.

"Page and Monarch, forth they went,
Forth they went, together"

However, a quantitative model-building approach soon becomes apparent as the RANK: SIZE rule is applied to the journey. This is expressed in the form of
King = high rank = big
Page = low rank = small

Shortly this is followed by one of the clearest statements in all of the literature of another key geographical concept.

"Fails my heart, I know not how;
I can go no longer"

It will be observed that the distance-decay factor is, literally, vital. The solution to the problem is to rationalise the rout network by closing down the less successful route and concentrating all traffic on one line:

"Mark my footsteps, good my page:
Tread thou in them boldly"

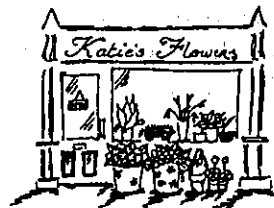
This decision leads on to a perception study, in which even freezing point is subject to perceptual factors:

"Thou shalt find the winter's rage
Freeze thy blood less coldly".

The final section of the piece moves on to introduce "Welfare" geography. The Good King clearly displays a radical approach by showing a concern for the individual within society. In contrast to many radical geographers, the monarch is particularly concerned with the rural rather than the urban poor. He is probably not, however, a true radical geographer, as the final section clearly advocates the retention of the current social and economic system. The king further notes that the charitable form of behaviour reported in the piece provides benefit for himself as well as for the poor.

"Therefore, Christian men, be sure,
Wealth or rank possessing,
Ye who now will bless the poor,
Shall yourselves find blessing".

(This article was adapted from Wright, D. (1975)
"Geography and Boxing Day", *Classroom Geographer*,
December, 29-31)



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Population, Malthus and Laois

by
Martin Whelan BA

Mary Daly suggests that the Irish famine was 'inextricably bound up' with Ireland's pre 1840 population growth. Neo-Malthusian commentators tend to take this idea a step further advocating that Ireland's pre-famine population explosion made the famine unavoidable. This argument has its Irish proponents. Boyle, for example, feels that Ireland's population was increasing at 'such a rate that would prove its nemesis'. Cormac O'Grada, on the other hand, strongly argues against this 'inevitability' theory. No clear consensus seems to appear, bringing us back to the ideas of Mary Daly that 'any understanding of the factors which brought the rapid population loss of the famine . . . must begin with an exploration of the factors which brought its growth'.

Using County Laois as a microcosm, the approach of Daly will be adopted to assess the validity, or otherwise, of the Malthusian critique of Ireland's 19th century experience. Between 1801 and 1841 the population of Laois rose from an estimated 90,000 to 153,930, representing a 71% increase. One of the interesting aspects of this increase is that it seems to have been concentrated amongst the lowest social classes. It is very difficult to prove this given the nature of Ireland's pre-famine population statistics, however the census of 1841 is regarded as an accurate historical guide and will be utilised in putting forward this argument. It has been possible to construct a class table for Laois using the 1841 census housing classification. Table 1 lists the houses of the county in terms of a 1st, 2nd, 3rd and 4th class standard pyramid. Social class can be seen to be represented by the gradations in housing classification. The preface to the 1841 census describes 3rd and 4th class houses as being little more than 'mud cabins often chimneyless and with slight wall crevices as windows'. With 77% of the population of Laois residing in these classes it can be suggested that following a forty year period of sustained population growth over three-quarters of the county straddled the lowest social order.

Table 1: Proportion percent of various classes of housing (inhabited) in Laois 1841

Classes of housing:	1st	2nd	3rd	4th
% Population:	2.7	20.3	50.4	26.6

Compounding this social imbalance is the fact that the population increase had no relation with industrial development. In 1841 only 19.2% of the Laois labour force was engaged in industry. This further coincides with T.W. Freeman's estimate that in 1841 only 14% of the population of Laois was living in towns or villages. The rapidly increasing population was, it appears, a socially lopsided rural and non industrial phenomenon.

The population theory of Malthus is based on the link between population growth and carrying capacity which refers

to the maximum population that the resource base of an area can sustain. Furthermore, should population exceed carrying capacity a natural 'check' i.e. disaster, will be precipitated to restore the proper balance. This applied to Co. Laois implies that the population of 1841 had outstripped its carrying capacity thus making the famine 'check' inevitable. Most of the 'excess' population removed by the famine came from the cottier farmer grouping, that socially marginalised group referred to by our class analysis. The cottier system was subsistent and based around three main elements: the wage from the landlord, an acre or so of potato land and the idea of privilege. Using Feehans estimation of the obligations of the cottier farmer in the Slieve Bloom region of Laois it is clear that the wage alone was not sufficient to sustain this class. The cottier paid somewhere in the region of 30 to 40 shillings rent for his house and an acre of land and 30 shillings for the grass of a cow. Given that the average wage was less than 1 shilling per month an obvious deficit prevailed. Survival as a result came to evolve around the idea of privilege and the rate of potato growth. Privilege referred to the right to keep a cow or pig which could be sold when necessary to make up the deficit between wage and rent. The cottier usually had about an acre of land which would be used to sow potatoes, these in turn became the staple foodstuff of both the tenants family and the pig or cow. So integrated was this system that the manure of the animal was used as fertiliser for the potatoes. The idea that a pile of dung and a pig were status symbols for the cottiers of this time derives from this system. This was a very sophisticated system given the restraints of the time, particularly given the isolation of this group from the export orientated cash economy of the Irish large farmers. It is difficult to surmise whether or not this class had surpassed its carrying capacity, it was managing to survive utilising its available resources to their fullest but was doing so in a particularly vulnerable manner.

This vulnerability was cruelly highlighted by the potato crop failure of the mid 1840s. Laois was severely affected by this, a Dublin Castle investigation in 1845 showed that Laois had one of the highest potato losses in the country. This was to be reflected in the level of population loss during the famine years. Between 1841 and 1851 the population of Laois fell by a staggering 27%. This loss was socially concentrated amongst the lowest social classes, as Karl Marx observed "the Irish famine killed more than a million people, but it killed poor devils only, to the wealthy of the country it did nothing". These "poor devils" were the cottier farmers devoid of a vital element of the survival system, the potato. Does this prove or disprove Malthus? On one hand it could be argued that the Irish famine was an ecological disaster which resulted in a population one, and not, a population instigated natural check. Cormac O'Grada argues that if the potato blight had not struck the cottier system could have survived. He bases this on two ideas, firstly the rate of population growth immediately prior to the famine was declining, for example the population of Laois increased by 8.2% between 1821-1831 but only by 5.54% between '31 - '41, and was beginning to level out thus preventing further population pressure. Secondly, O'Grada feels that relief would have come from other sources, such as an increasing demand for labour and the advent of cheap transatlantic travel. Furthermore one could argue that the resources of Ireland were not surpassed, Ireland was in a position which allowed it to export agricultural produce abroad during the famine. Due to the economic system of the time this could not realistically have been diverted to the cottier class without the collapse of the complete cash economy. Therefore, the inaccessibility

of resources to the cottier class was not due to population outstripping resource but rather due to complex economic systems.

However using the exact same indices the reverse could be argued. While it was the potato which failed due to the 'blight', and not seemingly due to population pressure, the dependency of this large class on the potato illustrates perverse over reliance and thus suggests that the potato failure was indeed a natural check. Conversely, the economic demarcation which prevailed reinforced the over reliance of the cottier class and thus the peculiar resource population link.

This paper aims to raise more questions than answers: was Ireland's population loss a classic Malthusian 'natural check'; was it a by-product of economic demarcation or a consequence of a freak ecological disaster? What does the above mean for our perception of famine, both historical and contemporary? If we accept Malthus do we then argue that the loss of over a million lives, primarily from the lowest social classes, was a positive occurrence in balancing the link between population and resources? How then should we react to modern day third world famines? This year, as the 150th anniversary since the outbreak of the Irish famine, has seen an increase in the level of interest in the famine. This, however, has resulted in over simplification illustrated best by the commentaries of Sinead O'Connor and John Walters. If we are to understand famine and all its consequence then it is necessary to go below this surface approach and ask the sort of questions that this paper has attempted to raise.

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The Greenhouse Effect - what you can do to slow down global warming and sea level changes

by
Florian Schönberger

The prevalent feeling in Europe is that Ireland has the least problems with regard to her environment. This may be due to its low population and the, so far, relatively small industrialization. Nevertheless, there are also the big global problems: one of today's most discussed environmental problems is the expected - and partially already observed - global warming, caused by permanent emission of carbon dioxide (CO₂) and other so-called greenhouse gases such as methane (CH₄) and chlorofluorocarbons (CFCs).

The Mechanism

Shortwave radiation (visible light) coming from the sun is absorbed at the earth's surface and re-radiated in the form of long-wave radiation (infra-red or heat radiation). The greenhouse gases absorb and re-emit this long-wave radiation, and as a result the atmosphere is warmed. Since carbon dioxide and methane have existed naturally for millions of years in the atmosphere, this is a natural mechanism which regulates the temperature on the earth's surface.

But now human activities take place on such a vast scale that the composition of the atmosphere is being changed. Greenhouse gases are increasing and causing the earth to become warmer, a process generally known as "the greenhouse effect". The increase of greenhouse gases is mainly a result of humans changing the natural patterns of vegetation and polluting the atmosphere: CO₂ is the most common greenhouse gas and is responsible for almost half of the extra warming that is taking place. Since the industrial revolution increasing quantities of fossil fuels have been burnt and the carbon locked in them is released into the atmosphere as CO₂. Each year human activities add an extra 5 billion tonnes of CO₂ to the atmosphere, that is about 1 tonne = 509m³ CO₂ per capita! By 2020, if present trends continue, the amount of CO₂ in the atmosphere will be double its natural level. However, some of the other gases are even more effective. Methane, emitted by waste dumps, paddy fields, domestic cattle and burning vegetation, is 20 times, and some CFCs (used as solvents, refrigerator fluids, spray can propellants and foaming agents) are up to 10,000 times more effective as a greenhouse gas than CO₂.

The Effect of Global Warming

(a) Climate Change
The world is already getting warmer. It is generally accepted that greenhouse gases have already raised the temperature of the earth by between 0.3°C and 0.7°C during the past 100 years. By 2025 this is likely to have risen about 1°C and by 2100

about 3°C. Rainfall is likely to increase in some areas but decrease in others as the climatic belts move to new positions. This could affect grain crops on a large scale. Many species are threatened by the changing climate conditions and will be forced to migrate, but they probably will not find new living space since large areas are already occupied by humans. More extreme weather conditions are being experienced such as more frequent hurricanes and tidal changes, and in general climate is becoming less predictable.

(b) Rise in Sea Level

Higher temperatures will cause sea levels to rise because the water in the oceans will expand and the polar ice sheets will become smaller releasing more water into the oceans. It has been calculated that levels will rise by about 0.3 - 0.5 metres until 2050 and up to 1.0 meter until 2100. In poorer countries with low-lying coastal zones and dense populations such as Vietnam and Bangladesh, millions of people are likely to lose their agricultural land and be made homeless.

International Responses

Most of the 24 member states of the organization for Economic Co-Operation and Development (OECD) have set a target of stabilization or even reduction in CO₂ emissions up to 25% by the year 2005. However, this is not enough. Scientists agree that much larger reductions in CO₂ emissions from industrial countries will be necessary to avoid a significant rise in global temperature - about 80% by the year 2050!

For this reason it is about time to change our environmental awareness and behaviour. Every chance to reduce greenhouse gas emissions must be taken. We can no longer continue in wasting this vast amount of energy!

Finding Solutions

Many possibilities have been considered to slow down or to stop the global warming. These are:

(a) Removing the greenhouse gases/Using cleaner fuels

Although natural gas is a fossil fuel, when burnt it produces only 50% of the CO₂ of other fossil fuels to do the same amount of work. There is also long-term potential for large-scale exploitation of renewable energy sources such as wind, water and solar energy which do not emit any greenhouse gases at all.

(b) Energy efficiency

By making engines, washing machines, refrigerators etc. more efficient, the output of CO₂ is reduced by reducing the amount of fuel burnt. Some new washing machines for example consume only one third of the power of models made 15 years ago.

(c) Afforestation

Since trees take in CO₂, if more trees were planted some of the excess CO₂ would be absorbed by them. Reducing the destruction of the tropical rain forests would also alleviate the problem.

What YOU can do

There is still a lot that can be done by the individual to reduce energy consumption and greenhouse gas emission.

- Conserve energy at home and at work!
Use low energy light bulbs, take a shower instead of a bath, buy locally produced goods thus saving on transport costs, ensure that lights and heating are switched off when rooms are not in use, install energy efficient central heating boilers etc.
- Your old fridges can be disposed of safely. Ask your Local Authority, the manufacturer, or the retailer about arrangements for the collection and recycling of the CFC chemicals which each fridge contains.
- Buy pump action sprays. Avoid aerosols, they use considerable amounts of energy to manufacture and even alternatives to CFCs contribute to the formations of low level ozone - a greenhouse gas.
- Look for and buy environmentally friendly products. In particular, the wrapping and packaging of the food we consume is an incredible waste of material and energy. There are lots of products which are also offered with more environmentally friendly packing, i.e. milk and cream are also available in cartons instead of plastic containers.
- Avoid tinfoil!!! To produce aluminium from bauxite ore, a vast amount of energy (in the form of electricity) is required. It is really not necessary to wrap your daily sandwich in tinfoil. You could use paper or, even better, a reusable plastic box (Tupperware) - it is also cheaper!
- Use recycling facilities for paper, glass and aluminium cans (in Maynooth: in Quinnsnorth's car park, behind the supermarket). For example, by using recycled aluminium, 95% of the energy needed to produce aluminium cans from raw material is saved! Also glass and paper need considerably less energy if it is made with recycled material! Develop a recycling mentality. All you need are separate boxes or bags for cans, bottles and newspapers, and the will to go a few extra steps to the nearest collection point.
- Buying drinks in returnable bottles is the most environmentally friendly form of recycling. The average milk bottle achieves a life of 25 trips, returnable soft drinks and beer bottles achieve a return rate of approximately 12 trips.
- Bring your own shopping bag or basket when making purchases, or have a few reused plastic bags in your handbag. Billions of non recyclable carrier bags are given away in supermarkets every year. They are made from oil, need a lot of energy to produce and take about 500 years to biodegrade! They could be easily replaced by cotton or linen bags, baskets or cardboard boxes to bring groceries home.

Most of these measures are very easily done.
So start to rethink NOW.

We all should be much more aware of the world we live in and, in particular, the world our children will have to live in.



Last year's College Bicentenary saw the first clubs and societies awards night take place in April. Anchored by Mags Murphy, President of the S.U., the purpose of the event was to acknowledge the immense contribution paid by athletes and executive and non-executive officers alike to their clubs and societies. Mags and her team in the Union felt that for far too long this recognition was absent and with the number of participants of clubs and societies, increasing steadily, the time had come to redress this imbalance. So why am I telling you all this? Well, suffice to mention that the year's efforts of the Geography Society only helped to carry away four awards. Our own Fran Walsh aided by Mags, Denis Clohessy (Societies Officer); Eoghan Mullin (Clubs Officer) and Paul Davis (Sports Officer) presided over the presentations held in the S.U. Bar. We were nominated for Most Active Society and Most Improved Society of 1994/95 and received certificates in recognition of this. However, we were pipped at the post by the Darkroom Film Society and Amnesty International Society in these categories respectively. Both thoroughly deserved to win, we felt. Gerard Fitzsimons, this year's President was nominated as Best Non-Executive committee member of the Geography Society but due to a prior engagement was unable to be present. Oh yes! modesty (*having humble or moderate estimate of one's own merit: O.E.D.*) hinders me from mentioning that yours truly on behalf of the Geography Society proudly accepted the award for outright winner in the Best Executive Officer category. Quite an achievement but one only possible with the help and support of all last year's committee members namely, Derek, Bronagh, Andrea, Janet, Sinéad, Anne, Ger, Ruth and Eileen. The certificates took pride of place for a long while in the glass cabinet on the ground floor of Rhetoric for all to see.

The Student's Union intends to make the clubs and societies awards an annual tradition from here on. Now that the Geography Society has earned a name and a reputation for itself among its fellow societies as being one of the best, it would be my wish to see it continuing to provide regular and varied speakers and events. You, the members, have a society to be proud of, one that can grow and expand but with your dedication and commitment only. And who knows how short the time might be before the coveted 'Society of the Year' is captured by the Geography Society! It was a great year and here's to the future - thanks a bunch.

Tom Corbett, 2nd Arts

The Crisis of History, the History of Crisis

ACCORDING to a new book by three American historians (all women — though why I have put this in brackets I don't even know myself, it is almost certainly suspect) there is a major crisis in the intellectual life of the US, and indeed of the Western world. So what is it, you ask urgently, everything seems so normal, the sun is out now and then, your job seems secure, the cat is making a good recovery, what can the matter be?

It is a crisis which apparently affects in particular the writing and reception of history: what is at issue is the possibility of objective knowledge of any kind.

Of course this is nothing new. The old positivism is well out the window by now. You don't need me to explain this to you, any decent post-modernist going the road knows the score, capitalism as useless as Marxism, nothing behind any of these tired ideologies but the desire to keep people down in the name of science and truth, the textbooks all racist, sexist and homophobic, all history, literature, science and religion long exposed as mere camouflage for the power exercised by white male capitalist elites, all ways of life equally valid, truth relative to the context, and the whole damn thing trapped in that old prison-house of language.

Isn't it a dreary old faith(less-

A
humorous look
at
intellectuals

by Brendan Glacken,
Irish Times

Submitted by
Prof. P. Duffy

ness) when you think about it, sure what's the use of being an intellectual at all if there's no crack and nothing but disillusionment and flat pints?

No. We can't be going down that path, we want something better, something life-affirming, positive, uplifting, joyful, without of course going mad altogether for drink and women and late nights, that's the road to ruin.

What to do then? Attitude will be all-important. We must gird the intellectual loins, screw our courage to the sticking point, hold hands together and keep that lamp out of the water at all costs. There is a way forward, if not out of here, and we must find it.

The three authors of *Telling the Truth About History* (Joyce Appleby, Lynn Hung and Margaret Jacob, in parentheses once more I'm sorry to say) accept that history will never be the same again, and how would it be after the battering it has got? Yet despite everything, they nevertheless think it is possible to establish some correspondence between the past and the historian's account of it.

Do you feel happy about this? Does it not seem like hopelessly confused optimism? I cannot feel so sanguine. And I am intrigued by a review of the book by Sir Keith Thomas, in which he too reassuringly asserts that it is "not difficult to discriminate between competing accounts of past reality."

Right, let's see about that. Take a simple situation. Ask any two people about what went on in their home yesterday and the chances are you will get two quite different accounts, even from the cleverest post-modernists. Say you had a row — and history is mostly rows of course. Forget the embarrassment, we

are all adults here, could you repeat today word for word what passed between you and your spouse at the time? If you got the words right would you have the pauses, the inflections — could you repeat the looks, could you make even a poor stab at re-creating the whole angst-ridden stomach-churning gut-wrenching emotion of the thing?

Come on, you are an intelligent person, admit the task is beyond you, there is no shame in it.

What happened is history, what you write down now or tell me, is your account of it: one-sided, deliberately or innocently biased, leaving out essential elements, including and thereby over-emphasising the least relevant elements, you see you are back in that prison-house of words, voluntarily, when yesterday you were locked in there, you practically heard the door slam, it isn't the same experience at all!

Poor Sir Keith thinks that just because "the documents and material remains are there to be consulted and checked by fellow-historians, the experiment can be replicated and errors exposed." Oh yeah? Read history from the scribbled *billet-doux* and broken dinner-plates and thereby establish the truth of the affair (if there was one)? Ha.

I'm not at all sure that this is in the least funny, your complaints are understandable.

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Groundwater Quality in Ireland: The Future?

by *Donal Daly*

There are positive and negative aspects, but where does the balance lie?

Negative Aspects

- The pollutant loading from the various developments - agricultural, housing and industrial - will undoubtedly increase. Consequently, the potential to pollute and the risks to groundwater are increasing.
- The need to dispose of sewage sludge on land after 1999 will significantly increase the pollutants loading.
- In assessing the environmental impact of developments, the groundwater or hydrogeological aspects are sometimes not considered or are often not considered adequately.
- The capacity of humankind to invent and develop new chemicals, which may have benefits but also may be hazardous and may sometimes have unforeseen impacts, should never be forgotten at this time of rapid technological change.

Positive Aspects

- There is now an increasing awareness and concern for the environment among the general public. Also there is an increasing awareness of groundwater among decision-makers such as local authority engineers and planners. This is a critical first step in maintaining good quality groundwater.
- Legislative changes, stimulated by EC Directives, are enforcing higher standards for developments. Also, environmental policy in Ireland now includes principles such as sustainable development, the precautionary principle, the "Polluter Pays" principle and the integration of environmental considerations into all policy areas; principles which are leading to strategies that are designed to minimise waste generation and to protect the environment. The setting up of the Environmental Protection Agency is a major step forward.
- Controls on developments are getting stricter. For instance, there appears to be an improvement, among some local authorities at least, on site assessments for septic tank systems; local authorities are now giving a high priority to locating and operating landfills to a high standard - the days of the local "dump" are numbered; environmental impact assessments are needed for major developments such as piggeries.
- It is probable that for both economic and environmental reasons, farmers will focus fertilizers and pesticides more specifically on the needs of the crops.
- Changes in the EU agricultural policy will encourage environmental protection; for instance, the REPS scheme (Rural Environmental Protection Scheme) is expected to improve nutrient management and decrease fertilizer use and stocking rates on many farms.
- Many companies, particularly multinational companies, are carrying out or requiring environmental audits on their own sites and prior to purchasing new firms. Also, environmental management systems will increasingly be an integral part of many companies, if for no other reason than it can give a competitive advantage.
- The numbers of professionals with groundwater expertise is increasing, although there is a need to ensure that high standards are maintained.
- There is a gradual improvement in the quality of the geological and hydrogeological maps and databases available (from the GSI) for decision-making on the location of potentially polluting developments.
- There is an increased usage of groundwater protection schemes by local authorities.

Summary and Conclusions

- Groundwater is an important source of water supplies in Ireland. It is a resource that must be taken into account in land-use planning and development.
- There are vast resources of groundwater in Ireland that are of good quality. However, an increasing number of wells, particularly domestic and farm wells, are contaminated, mainly because they are located too close to pollution sources which are often inadequately constructed and managed.
- In karst limestone areas, intermittent contamination is more widespread, with more than 50% of both low and high yielding wells contaminated at some time during their use.
- Pollution of wells tends to be mainly microbiological rather than chemical.
- The main chemical contaminants are nitrate, ammonia, potassium, chloride, iron and manganese.
- There has been insufficient monitoring to enable an assessment of the presence of trace organics - solvents, pesticides, etc - and refined mineral oils in groundwater. Undoubtedly pollution is occurring in places, although our lower level of industrial development and our lower proportion of tillage crops than most other EU countries and the US means that the problems are likely to be less here in Ireland. However, these pollutants require increased attention and monitoring.
- The main sources of groundwater contamination are considered to be farmyard wastes and septic tank effluent. Many of the more major problems are probably caused by farming in view of the quantity of wastes generated and stored in farmyards. However, septic tank systems are an important source of minor problems, for instance pollution of low yielding private wells.
- Minor sources of contamination include landfills, landspreading of organic wastes and inorganic fertilizers, polluted surface water, urban areas, spillages and leakages.
- The presence of nitrate in groundwater is a major issue in many countries, where inorganic fertilizers have caused levels to rise close to or above the EC MAC (Maximum Admissible Concentration). It is unlikely that the same degree of problems will arise in Ireland.
- The vulnerability of groundwater, as determined by the geological and hydrogeological conditions, is a critical factor in assessing the risk posed by potentially polluting developments and in decision-making on the location of these developments.

Geog Voice Box . . . A Danish Erasmus Student in Maynooth

Awareness of Ireland is growing on the continent. Proinnsias (lecturer on tourism) tells us that the Irish tourist industry is booming. I too became aware of the island behind UK on the map. I also heard about the hilly green fields, the black beer, the folk music, and the famous bands and Jack Charlton and his boys.

I am from Roskilde University (which has the rather unfortunate abbreviation 'RUC') in Denmark, and I decided to study in Ireland because I wanted to know more about that place at the edge of Europe. Many of my friends have been to South America, Asia, Australia and Africa but no one has even been to Ireland . . . yet.

RUC is not a traditional university in Denmark. It is based on group work and project writing. The first two year block is called 'Basis' and most students choose one of the following three departments: Science, Social Science or Humanities. During 'Basis' students have only a few courses but submit four large projects (essays of approx. 150 pages each) in groups of 4-8 (sometimes even 10-12) people. After 'Basis' the students pick two subjects to specialize in from an almost unlimited range of subjects from all departments. I came from a Science 'Basis' and decided to concentrate on Human Geography and International Development Studies (about Third World Countries), that is, two Social Science subjects. That is RUC! Do what ever you like, take the course that you find interesting, find a group of people you think you can work together with for the next half a year or more and choose a hot topic. Do not wait for someone to take you by the hand and show you the way. A bachelor's degree has only been introduced lately most students have taken the masters degree up to now: I am a post-grad myself. The location of RUC is similar to that of Maynooth College. RUC is an isolated institution on a field. Roskilde is the nearest city and it is 25km from Copenhagen where I and most other students live.

I arrived in Maynooth on the 29th of September, and suddenly I became grateful for a part of my RUC background considering the attitude there: 'find out for yourself'. . . Here no one takes you by the hand either! No one showed me (or indeed any of the foreign students) around, no one told us about the Geography Department or the different subjects, no one mentioned anything about social activities etc., etc. I wish someone had! In my opinion, just as RUC misses educational organisation and maybe something in terms of standard, the Geography Department here misses something on a more practical organizational level. I believe, a little introductory group of maybe 4 or 5 Irish students from 2nd and 3rd year, who were willing to work half a day with the foreign students, would make a big difference.

This would be helpful not only for educational reasons but also considering the importance of creating social contacts.

Some of our lectures in RUC are like those here, but most others are more like tutorials, I believe (unfortunately I have not had any tutorials over here). Your lecturers are very well prepared and offer the students a lot of nicely presented knowledge. But I miss the discussion, I miss the interaction and the clever questions (not the stupid ones!). In Maynooth the air is thick with information but what about reflection? Were it not for the frantic note-taking, I might have closed my eyes once or twice in a lecture on an early morning after a night in the pub. No one would have noticed . . . everyone's head is on the notebook in front of them! Talking about organisation before, I have to say that I found the recent shift of courses a little sudden for my taste! I also believe from my experience on the Galway fieldtrip, that a preparation day before hand with information about the aims of the fieldtrip, discussions about appropriate field methodologies etc. would be very valuable.

Does a special geography 'social spirit' exist? If it does, I have not found it yet! In RUC, each department has its own house, where all activities take place. We have our own computers, our own kitchen, our own dining room, our own meetings concerning the department where both lecturers and students participate, and of course we have our own colourful parties. That makes a spirit. Here we sit next to each other, busy writing our notes, and when the lecture is finished we hurry out - others need the room - and we disperse in the corridors. It strikes me that most of the people I know in Maynooth are other foreigners. Are Irish students difficult to get in touch with? I guess we are looked upon as only temporary elements in a big system, and I realize of course that foreign students have a lot in common and therefore tend to cluster together a little. But it is a pity that we do not mix more. I am here to see you, and to explore your country. And I am not finished yet.

It is a good experience to be in Ireland. I feel my English is improving, my knowledge about Ireland is growing, and I am already getting a better understanding of what it means to be a geographer than I would ever be able to get in RUC. I am looking forward to the next six months, and I am also looking forward to seeing you in RUC or in Copenhagen in the future.

Claus Aagaard

Hands-on Experience of Local Development in Co. Kildare

by *Celine O'Rourke, M.A.* and *Celine McHugh, M.A.*

The Centre for Local and Regional Development (CLRD) at Maynooth College was established in 1994. Its primary objective is to strengthen and enhance the process of local and regional development in the Irish context. This is fulfilled by means of basic research, teaching, preparation of Action Plans, evaluation studies, organisation of workshops and conferences, and various publications. Contributing to the work of the Centre are the departments of Geography, Economics, and Adult and Community Education. Some recent work carried out by the CLRD include the Evaluation of the LEADER 1 Initiative in Ireland; the preparation of the Kildare Enterprise Action Plan and Kildare LEADER Plan; and a Directory of Small and Medium-sized Enterprises for Co. Kildare and also Co. Waterford.

In November 1995, two local development groups - North West Kildare (NWK) and Action South Kildare (ASK) approached CLRD for assistance in preparing an 'Action Statement' and an 'Area Action Plan' respectively. North West Kildare have been incorporated into the Offaly and Kildare (OAK) Partnership Company (a designated area of disadvantage under the Operational Programme for Local Urban and Rural Development 1994-1999). In order to gain maximum advantage of this partnership arrangement and the associated funding allocation, NWK felt that an analysis of the needs and development aims of the area was essential. The compilation of an 'Action Statement' would facilitate this objective, and thus place the group in a stronger position vis. the OAK Partnership submission to Area Development Management (the administrative body responsible for the distribution of the E.U. Global Grant which funds these partnerships). CLRD is more directly involved with Action South Kildare in the drawing up of an 'Area Action Plan', again, to be submitted to ADM. The aim of the plan would be to facilitate the channelling of resources to those who are socially excluded in the area and in particular the long-term unemployed.

A 'community consultation' was undertaken in the NWK and ASK areas in order that the relevant local communities could play a central role in the development of their localities. In other words, the local communities would have a sense of ownership of the resultant plans. Given that both areas had already been subjected to a consultation process in recent years, it was agreed that in order to avoid feelings of apathy and disillusionment, a different approach was warranted. It was decided to utilise an already existing network of community representatives to organise a series of public meetings at central locations in their respective areas. The meetings were conducted or facilitated by these local representatives with CLRD adopting a secondary role. This avoided previous tendencies for 'outsiders' such as CLRD to hijack what should be a local community effort.

The main role of the Centre in the consultation process was to supply each meeting with worksheets to help identify the various community needs and to record the outcomes of discussions. Approximately ten meetings in all were held, from Johnstownbridge in the north of the county, to Athy in the south, and were generally well attended. The worksheets were

collected and a detailed analysis was undertaken by the Centre with various proposals being identified. The findings were categorised and presented, at a 'participatory workshop' attended by community groups, state agencies and issue-based groups, with a view to obtaining feedback. CLRD are currently in the process of collating the results of this consultation process and incorporating the proposals into the final Area Action Plan.

Having just completed a Masters Degree in Local and Regional Development here in Maynooth the Community Consultation provide the authors with an opportunity to experience 'bottom-up' development in practice. The meetings which were attended certainly provided new insights and complemented the more theoretical foundation acquired in the lecture halls. Having tracked down one car-owning student in need of a cash injection, the authors managed with great difficulty at times to make it to some of the meetings. If access to the remote locations proved problematic, gaining access to the venues was often even more difficult. Resorting to throwing stones at the windows of the Robertstown Hotel late at night before being admitted was something Jim Walsh hadn't prepared us for! Nevertheless, as at all the meetings we were greeted with great energy, enthusiasm and optimism. The local communities we encountered were well aware of their needs and put forward some constructive proposals for the social, cultural and economic development of their areas. Of major concern in all the areas were issues regarding facilities for youth and women, and actions to combat long-term unemployment. It emerged that some areas were in more favourable position with regard to organising a response to these problems, depending on existing community structures and the presence of indigenous resources (for example the canals and other potential tourism attractions).

Despite overwhelming support for local action, in many cases this was tempered by strong feelings of confusion, disillusionment and frustration. Community representatives who were facilitating at the meetings were bombarded with requests for clarification of the requirements of numerous funding agencies (ADM, Kildare LEADER, Kildare County Enterprise Board, and various E.U. programmes) but also the alien terminology used by these organisations. Words such as 'strategic planning', 'socially excluded', 'animation' and 'capacity-building' seem to militate against the ideal of 'bottom-up' development. It appears that the very programmes aimed at countering social deprivation contribute in part to the further alienation of the target groups. However, on a more positive note the lack of co-ordination and co-operation among the various funding bodies which has served to thwart the process of local empowerment in many parts of the country has been addressed in Co. Kildare. Discussions are on-going to allow the ASK Area Action Plan to be incorporated into a fully co-ordinated 'County Strategy' which involves the input of Kildare County Enterprise Board, Kildare LEADER, and the OAK Partnership. The stoic determinism and sense of local unity which characterised the communities we encountered indicates a solid foundation for ongoing and relentless local action regardless of the stipulations and timescale of EU Initiatives and government interventions.

Geog Voice Box . . . Death on our Doorstep by *Rosemary Finane*

Sometimes it is difficult for me to comprehend and believe that there are numerous folk who simply choose to ignore the possible consequences of a nuclear disaster at Sellafield Nuclear Reprocessing Plant (Windscale). The implications of an accident would be catastrophic for the population of Ireland. The fear and anger, that flows through my veins stimulates the 'activist' in me everytime I hear of or write about Sellafield. I hope and pray that this very short article encourages the anti-Sellafield and overall anti-nuclear activist in you. Albert Einstein once wrote:

'The splitting of the atom has changed everything except our way of thinking and thus we drift towards unparalleled catastrophe'.

Today vast amounts of homes stand frozen in time within a 30 mile radius of the Chernobyl nuclear reactor in Northern Ukraine. I am sure many people saw the programmes that were shown over the Christmas regarding the catastrophic consequences of the explosion at this plant on April 26th, 1986. The harrowing images, I am positive, left many people shocked and speechless. Honestly, how long did this last? I urge you to expand on this. Don't let it be another incident that we choose to forget. Sadly we can use this as a case study, paralleling it with the possibility of a disaster on our own doorstep.

As April 26th draws near, I ask you to pause for a moment and spare a thought for the endless amount of victims of the worlds worst nuclear accident. The radiation that fell on the innocent, prosperous, inhabited land was 90 times that of the Hiroshima bomb some 51 years ago. 1 person in 4 of the Belarussian population became an innocent victim of the Chernobyl disaster, suffering from a variety of medical conditions such as thyroid cancer and 'Chernobyl A.I.D.S.' (the latter is a condition whereby the immune system is 100% destroyed due to the overwhelming radiation levels). Psychological conditions emerged along with an aura of demoralisation as people have been evacuated from the excessively contaminated zones. Innocent victims have lost their livelihoods, their homes, their overall economy and their children. 90% of the children from Belarus have been effected by the radiation. This gene pool is eroding at a drastic rate. The children are DYING.

The problem of environmental refugees is a serious one. A mass exodus took place from the numerous districts surrounding the reactor, 15 minutes after the accident!! Today many are forced to migrate to unknown destinations.

The area with the highest amount of radiation ever recorded world-wide is aptly named 'Death Valley' or the 'Purple Zone'. It is guarded 24 hours a day so that the once inhabitants do not return to their 'frozen' homes.

The irreversible damage caused by the Chernobyl explosion continuously throws up the question 'WHY DO WE PUT UP WITH IT?' i.e. Sellafield, **Death on our doorstep.**

I urge and beg you to lobby against nuclear power. Do not let the legacy of the Chernobyl victims be a forgotten one. Join C.N.D., Greenpeace (PN 6619836) or financially support them, in any way possible. The Clear Stream Project (a project where I am to bring to Dublin 10 teenage victims from Belarus during the summer of 1996 for rest and recuperation, contact the Geography Society for details). Finally I will suggest to you to read Adi Roche's new book entitled Children of Chernobyl (1996, Harper Collins, UK priced at \$7.99). All proceeds from this book go towards the Chernobyl Children's Project, (CCP).

PLEASE STOP TOLERATING NUCLEAR UNCERTAINTIES.

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Clientelism - A Review

by
Susan M. Doherty, BA

The clientelist model suggests that politicians are rewarded through electoral returns for favours/services provided to voters. According to Hazelkorn (1985), clientelism is characterised by the following:

- A strong personal bond is established between two individuals of unequal power. The dominant partner in this relationship is the patron/broker, the socio-economic inferior is the client. The superior individual in the bond usually has a degree of political power.

- The bond is entered into on a voluntary basis, each party hoping that it will be a mutually beneficial relationship. Gains from the bond include the resolution of personal problems (benefit payments), access to information, influence in certain areas (such as aiding a campaign in its progress) and of course the all important element of the vote.

- The client is not obliged by any law to keep to his/her side of the bond, nor is he/she at the mercy of the patron. Electoral loyalty is expected but not enforced.

- The end result after each side has received their benefits from the land, is that the dominant political/social elites within the community conserve their power.

Nevertheless, not all clientelist bonds are characterised by the above. Taken at its extreme clientelism, as examined by Harrop and Miller (1987), can be a form of electoral corruption. Under President Marcos' regime in the Philippines, between 10 and 20 percent of the electorate sold their votes, with labourers often receiving a months wages for their support. This money in turn came from 'donations' from businesses who in turn would make a considerable profit if the 'right' - or pro business - party was returned.

Basically clientelism can be viewed as:

'a political broker who intervenes on behalf of constituents to help them obtain government benefits and the clients who reward the politician with his vote' (Komito, 1984, 173).

Komito stresses that there is a difference between the two forms of clientele ties. Patronage, involves the exchange of first order resources, such as land, jobs or money. Brokerage, on the other hand, dispenses second order resources - relations or contact with those who directly control the first order resources. As Hazelkorn (1986) states 'brokers' are those who function as 'middle-men' or 'intermediaries'. However, individuals who seek out brokers for a particular service do not necessarily become clients. Clientelist links commence with brokerage, but they do not necessarily denote a clientelistic bond. Clientelism or clientelistic bonds can exist only if a long term moral linkage is established between the patron and the client. Brokerage, therefore, is a form of mediated relationships between the patron and client involving power, but no lasting moral obligations or qualities.

Clientelism in Ireland

Clientelist bonds date back to colonial times in Ireland (Komito, 1989). In fact, the evolution into modern day clientelism, can be traced from landlord-tenant type relationships. Up to the twentieth century, such clientelistic relationships were rural in nature, found especially where poverty was widespread and resources inaccessible. With independence, the landlord or a similar individual from the elite in society, was replaced by the politician.

Hazelkorn (1986), reviews studies on clientelism in Ireland, and emerges with the following conclusions:

- ideas and culture are the fundamental issues examined to explain the existence of clientelism in Ireland.

- the nature of the state itself, through its bureaucracy and centralisation at both national and local level, creates the problems that politicians address and solve for their constituents/clients.

- in line with the processes of bureaucratisation and centralisation has been the fact that the role of the TD has only been narrowly defined.

- the local nature of Irish politics is further explained due to the fact that around 75 percent of the politicians in the Dail are also members of a local county council. Hence, local politics plays an important role in a politician's life.

Since the 1970s, three major studies have been conducted on the role of clientelism in Irish politics. Bax (1975) concentrated his work on a constituency in Cork, and on a parish in that area. Sack (1976) examined Donegal North East, whilst Komito (1984) looked at the urban picture through various Dublin constituencies. A brief examination of the findings of these studies shall now be investigated.

Bax's (1975) work yielded the phenomena of 'machine politics'. Competition between politicians tended to be intra party rather than inter party. Therefore, it was necessary for a politician to create a name for bettering the constituency of the electorate. Contacts were built up in order to create a position to influence local and national bureaucracies and this was how clients were acquired. A politician 'in the know' and with 'pull' would be rewarded at election time with votes. In addition, Bax stated that brokerage would not necessarily fade away as the state modernised and expanded. The ordinary individual could still prefer personalised contacts as opposed to bureaucratic ones. This kind of political culture would always be present.

Sacks (1976) based his studies in Donegal and also saw machine politics as the type of political behaviour in evidence. He found that as a rural area, the people placed strong values on face to face relations. Politicians tended to use these values to their benefit, and practically their entire electorate was viewed as the arena of clientelism. Influence would be used in the political sphere, in return for electoral support. Sacks also noted that even though a politician, in reality, would not have much influence in certain areas that demanded attention from constituents, any effort would be rewarded.

Komito's (1984) study of Dublin between 1978-1981, reached many similar conclusions. He found a dense network of interpersonal relations, but that these were not necessarily clientelist bonds on a long term basis. Individuals went to trusted politicians/brokers, whom they felt could achieve results. Again, as in the Cork and Donegal cases, Komito found that politicians capitalised on the ordinary peoples beliefs that politicians were power holding individuals. Politicians tended to exaggerate their claims of influence and hence empowered a moral debt upon the clients. Quite an amount of a politicians time would also be involved in intra party rivalries. Pressure would be on for party nominations, and party rivalries would be evident. Emphasis was therefore bestowed upon the ability of the politician to 'do good' for the constituents. As in the rural setting, politicians had large communication systems, social relays, local brokers and even broker brokers.

In the urban setting, failure to attend a residents association meeting could cause a negative impression. Komito concluded that brokerage was a result of specific structural conditions and was not caused solely by an agrarian economy or peasant values. He also noted (1989) that brokerage beliefs and values varied in the population. Class dimensions - working class voters in urban areas - and socialisation are evident in clientelistic politics.

Hazelkorn (1986) notes that changes in the economy and society in Ireland have created change in clientelism. As Komito (1984, 1989) has shown, it is no longer rural occurrence, even though its presence is more noticeable in rural areas. Ties of loyalty from a politician to a client are not as strong. A client no longer needs to rely upon one politician, and can take advantage of inter and intra party rivalries, hence creating competition. Both Hazelkorn (1986) and Komito (1984) stress the important role played by the clinic. Through clinics, a politician shows his availability to work on behalf of the vote.

Recapping somewhat, brokerage refers to special access to limited resources, clientelist links imply a continuing dyadic relationship and clientelism signifies clientelistic links between the electorate and politician. Gallagher and Komito (1992) note that brokerage is the more apt term to describe the client/politician link in Irish politics. Once the aim has been achieved the bond ends. Clientelism is a more permanent relationship. Brokerage is a non institutionalised relationship. Irish clientelism implies that a sizeable proportion of the electorate is linked and in debt to politicians. A more suitable notion is that brokerage exists, and that a sizeable amount of the electorate have no dealings with TDs, and those that do are not under any obligation to reward the politicians. The Irish case shows that most individuals do the 'rounds' in politicians clinics to see who can do the best deal for them. Komito (1989) notes that 70 percent of those with agricultural backgrounds believe that politicians should be brokers but have had no contact with the politicians. Similar findings are that 48 percent of the professional class, 51 percent of the non manual class, 61 percent of the skilled working class and 77 percent of semi-unskilled workers feel the same way. Gallagher and Komito (1992) however, do add that clientelism does exist in Irish politics, but in internal party politics. Long term commitments exist between party activists and politicians, and between politicians of different levels in the political system - councillor, TD, minister or Taoiseach.

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A Week is a Long Time in Geography

- Field Trip 1996 Memoires by Joe Donnelly, 3rd Arts

The Friday of Rag Week has always traditionally been the day when the majority of students, penniless and nursing hangers from hell, make their weary way home. For some people however, the Friday of this year's Rag Week involved getting up hideously early, trying to remove make-up with soap and water, trying to remember how they came to wake up lying beside a traffic cone in the bath, and rushing around the house wondering what to pack (well, that's what happened to me anyway). Why? Well, that afternoon at 2 p.m. approximately fifty students were getting on a bus and embarking on the notorious Geography department week-long field trip.

Its infamy lies in the lore about the event. For many years the field trip has enjoyed cult status as an experience that is as social as it is academic and as promiscuous as it is scheduled. It legitimises studying Geography (that's my degree out the window). But anyway, back to Friday 16 February. Despite my hopes of a 1996 reg., two-tier Mercedes super coach as the mode of transport to our destination, upon entering the Arts Block car park I was greeted by the Lada of buses. Its peeling, pale blue 'go-faster' stripes just said it all. Nevertheless, I threw my rucksack into the back and took my seat. Our destination was over a hundred miles away in the Co. Limerick town of Kilfinane, perched in the Ballyhoura Hills. There were two members of the Geography department accompanying us: the inimitable Prionnsias Breathnach and Kieran 'Disciplinarian' Hickey. Our object (excuse) was to study rural development, carry out surveys in the town and some 'physical' fieldwork as well.

When we arrived in Kilfinane it was a case of the X Files meets the Twilight Zone. Seemingly, everyone knew we were coming and indeed the local newspaper carried an article explaining the whole nature of our field trip. Each time we went into the shop or pub the proprietor displayed an eerie knowledge of our movements the following day. It could be said that Kilfinane is your average remote, rural Irish village and displayed many of the characteristics of its genre; a sprinkling of watering holes, one grocers and a splendid church coupled with an even more splendid parish priest's house. The majority of people were staying in very quaint Irish cottages, gingham tablecloths etc., and a few 'lucky' persons were staying in the Kilfinane Education Centre, our 'base' (and very basic it was indeed). What follows now is a graphic daily account taken from the diary of one student, who wishes to remain anonymous for reasons that will be apparent.

SATURDAY 17 FEBRUARY

Up far too early. Still hurting from Rag Week. We assembled in the Education Centre for a discussion on rural development and agri-tourism. We piled on to the bus and headed off to explore the uncharted territories of south county Limerick, learning all about creameries. Creameries, creameries; more creameries than you can shake a stick at. We went into the first creamery ever built in the country; it now acts as a tourist site rather than its functional purpose. The old man who looked after the place was more than happy to tell us all about it, and much more besides, including the physics of rotor management in the separator, the gender inequalities of the creamery industry and who he fancied for the Munster hurling title. After what seemed like an eternity in this white, cold building we hauled ourselves back on to the bus and, sent off with distrustful suspicious looks from the natives, continued our journey. It wasn't long before I fell asleep so don't ask me about the other things we saw. The night was our first real taste of the local pubs. O'Shaughnessy's proved to be quite amicable, ambient and fortunately ambivalent about when the bar closed. So for obvious reasons I can't remember much except staggering home at 2 am singing Kilfinane's praises.

SUNDAY 18 FEBRUARY

Hell. Hades. The Nether World. Lucifer's Pit. These are some of the expressions I'd use to describe what transpired today. I thought the soldiers in the trenches along the Somme had it bad, I considered the Americans in Vietnam just a tad frustrated, however nothing could possibly be compared to the living nightmare that we all endured today. This day was the

first of two 'physical fieldwork' days, 'physical' being a gross understatement. The plan was to go out to a remote farm somewhere, carry out some slope measurements and check out the magnetic fields of the...er... fields. But what old chestnut could we not rely on? Yes, the weather. We all arrived at the farm and truly, it was as close to the middle of nowhere as you could get. We were divided into groups of four or five and given our equipment and instructions. It was then that it started. Hail, sleet, snow, rain, sub-zero temperatures, gale-force winds, tsunami's etc. The works. It was bloody freezing and wetter than a very wet thing which has just won an award for being very wet. I will never forget standing on the slope of what wasn't really a field but one huge slope, facing a northerly wind carrying a blizzard of snow/hail, 'protected' by a wind cheater which was as effective as carrying water in a sieve. The work that we tried to carry out was really a test of endurance. In fact at one point I was nearly sure that I had, unbeknown to myself, been drafted into the marines and this was a mere 'introduction to the job'. Anyway, the funny/sadistic thing about the day was that for the greater part of it we were standing around doing nothing! Except dying from hypothermia of course. I also got electrocuted, was covered in muck and cow shit (I never thought I'd encounter any place as mucky as/muckier than Maynooth), saw two calves being born, smelt two calves being born, vomited after two calves were born, forgot my packed lunch, cut my finger, stubbed my toe, got gangrene and finally to cap it all off, I ran out of fags. On the bus home I was considering legging it. What kept me? O'Shaughnessy's, Prionnsias Breathnach's singing and Kieran Hickey's witticisms. I never appreciated a pint of plain as much as I did that night.

MONDAY 19 FEBRUARY

Today we were doing the survey around the town. It was grand because everyone knew we were doing it so the reception was quite warm. If anything, it actually speeded up the process because you didn't have to explain who you were and what you were doing, as the respondent stood there with a 12-bore repeater aimed at your head, German shepherd at heel. Yes, the rural distrust of the outsider is alive and well and living in Kilfinane. The weather was a bit better so that was nice. By now I was wondering about the local talent (I wasn't really making much progress with my academic colleagues) so I went into a few pubs but as far as I could ascertain if you were a woman looking for a man you had to choose from a selection of bucolic, backward bogtrotters and if you were a man looking for a woman... well, let's just say they were all agrarian strugglers.

TUESDAY 20 FEBRUARY

Pancake Tuesday. Ever since I left primary school I've never had a clue which Tuesday was pancake Tuesday, so I've been eating pancakes every Tuesday for nine years. Today was the second of the physical fieldwork days (in the same location) and thank god the weather was a bit better. In fact the day was quite enjoyable, as we frolicked around the streams and rivulets that encompassed the Huge Slope. Locating equipment was a bit of a lark as some students felt the need to carry out their own experiments and disappeared for a few hours while the rest of us stood around and watched the cows (no more births today but plenty of dung). It was also announced that there would be an aptly titled 'pancake party' in one of the cottages that night. And a shot of tequila too! All for the princely sum of £1! So, the off-licence experienced its busiest period in years that night, as we stocked up on flagons and cans, no Buckfast unfortunately. The funny thing is that inflation rates increase very regularly in Kilfinane; at half nine a can of cider was £1.20; half an hour later it was £1.35; half an hour later after that it was £1.50. I think you get the idea. Anyway the party was great. The pancakes were a culinary triumph, the tequila was dangerously palatable and the music was Oasis, Oasis, and a bit more Oasis. Kieran Hickey displayed his dancing talents and confused most of the people there and Eoin was, well, he was Eoin, and did a fine job of it consistently throughout the week; the 'Bez' of the event. I can't really remember much else of the party but I know it was good because I woke up the next morning in the sports hall of the Education Centre with four sheep and a large tub of swarfega.

WEDNESDAY 21 FEBRUARY

Not since the World Cup have I seen so many hungover heads that were on the bus that morning. The party had taken many casualties and it was a blessing that we would be spending most of our time on the bus for the day. We were going to Limerick city for a tour and to observe the urban renewal, economic growth and drive-by shootings. We stopped at Mary Immaculate college to pick up our guest speaker/tour guide, and all I can say is that I hope he wasn't expecting an enthusiastic response; we were as enthusiastic about a tour of the city as David Trimble is about shamrocks. But anyway, we jaunted around the city and everyone was very diplomatic about the 'stab-city' reputation, except Prionnsias Breathnach and I must say I admire the man for it. After we came home it was to the pub again and I have to admit I was getting quite fond of the routine. There literally was nothing else to do and at £1.75 a pint and closing time dictated by when the last customer left, who could blame me for getting legless?

THURSDAY 22nd FEBRUARY

Today we went to the Mitchelstown caves. Having never been there before I was truly in awe of the spectacle. Later we stopped at a forest to plot the course of a stream that ran through it. My only memory of this is thrashing wildly through dense bramble undergrowth with the red and white stick (very useful that stick) and stumbling into the stream. We also had to measure boulders. Exciting stuff, I can tell you. Because it was our last night one of the publicans got a 'trad band' in to have a session, as they say. The pub, 'Heffo's' (reflecting the nature of the female that drank there) was the scene of our last drinking session and true to form, everyone was well oiled. The 'trad band' was really a bunch of crusties with instruments, but they did a good job masquerading as musicians. For the last time, I staggered back to my bed... on my own again (I knew I shouldn't have bought that garlic toothpaste).

FRIDAY 23 FEBRUARY

So it was finally over. In fairness, it was a great week. One of those events that at the time you're going "jaysus," but afterwards you feel all nostalgic and sentimental. Credit to the Geography Department for...er... things, and hopefully that last little statement will get me a 1st in my degree. As a great man once said "Never in the field trips of human geography have so many creameries been visited by so few" or alternatively "We saw them on the land, we saw them on the beaches and near our rivers etc., etc." Anyway must stop waffling now and do some study (Geography of course).



What do you mean rag week was "last" week Fran?!

European Regional Aid: Structural Funds and the "New" Mega Regions of Europe

by Brendan Beartlái

The Structural Funds

Due to their social and economic differences, the regions of Europe and their inhabitants are not playing on a level playing field. All the member states of the European Union (EU) have experienced variations in levels of living standards from one region to another and the gaps are wide when measured across the Union as a whole. One of the principal aims of the EU is to ensure that there is a reduction in these disparities of social and economic well-being to enable all people to benefit from the European Union. Greater economic and social cohesion and uniformity is encouraged by targeting financial assistance to the poorer regions of Europe through a series of inter-related funds known as the Structural Funds.

Structural Funds are concerned primarily with restructuring the foundations of the European economy. They are designed to bring about a more equitable and balanced development pattern across the European continent.

Five Structural Fund objectives have underpinned European Regional Development Policy:

- Objective 1:** assist those regions whose development is lagging behind.
- Objective 2:** to revitalise regions affected by serious industrial decline.
- Objective 3:** to combat long term unemployment and to assist the integration of young people and excluded groups into working life.
- Objective 4:** to prevent unemployment by assisting workers to adapt to industrial change.
- Objective 5:** to develop rural areas.

Objectives 1, 2 and 5b relate to certain eligible regions whilst objectives 3, 4 and 5a cover the whole of the European Union (see Map 1).

There are four principal Structural Funds which are used to achieve the above 5 objectives:

- **European Regional Development Fund (ERDF):** which provides financial support for measures aimed at providing and improving economic development infrastructure and support to business.
- **European Social Fund (ESF):** which aims to help improve employment opportunities by providing financial support towards the cost of vocational training.
- **European Agricultural Guidance and Guarantee Fund (FEOGA):** the guidance section of which provides finance for projects that address the economic restructuring of the agricultural sector such as modernisation and marketing of products.
- **Financial Instrument for Fisheries Guidance (FIG):** which specifically assists projects to improve the catching and processing sectors of the fishing industry.

In working towards the Structural Fund objectives, the funding devices are supported by the loan instruments of the European Union, specifically the European Investment Bank (EIB), which supports loans and guarantees for investment projects. The European Coal and Steel Community (ECSC) also provides loan subsidies and interest subsidies to companies for job creating investment projects.

Still under the umbrella of the Structural Funds, the European Union allocates some 10% of these funds to tackle measures of "special interest". These are known as European Community Initiatives which address problems in regions where specific industries have suffered from decline and/or loss of employment where a European or inter-regional solution to a problem is required. These funds are usually restricted to specific eligible regions (objectives 1, 2 and 5B).

The main Community initiatives are:

- **NOW** - promoting equal employment opportunities for women.
- **HORIZON** - improving employment prospects of disabled and disadvantaged groups such as the homeless.

- **YOUTHSTART** - promoting labour market integration of young people.
- **ADAPT** - assisting adaptation of workforce to industrial change.
- **RECHAR II** - reconverting areas severely affected by decline of the coal industry.
- **RESIDER II** - supporting economic and social reconversion of areas severely affected by the decline of the steel industry.
- **KONVER** - assisting regions adversely affected by the decline of the defence sector.
- **RETEX** - assisting the economic diversification of regions heavily dependent on textiles and clothing industries.
- **SMEs** - promoting competitiveness and internationalism of small and medium size firms.
- **LEADER II** - assisting in the strengthening and diversification of the rural economy.
- **URBAN** - supporting integrated development programme to address the economic, social and environmental problems of deprived urban areas.
- **PESCA** - assisting areas severely affected by the run down of the fishing industry.

New rules were put in place for the period 1994 - 1999. These changes are known as the 1994 Reform of the Structural Funds. There are various principals which determine the way in which the Funds operate:

- * concentration of resources on regions and groups most in need;
- * emphasis on a programme-based approach rather than project based approaches to funding;
- * partnerships between the European Commission, National Governments, local and regional authorities and local communities.
- * the concept of additionality, whereby European funding supplements (rather than replaces) resources already allocated at national rather than European level.

Funding under the Structural Funds is based on global grants allocated to each member State under the different objectives. Development plans are drawn up by the member States in consultation with local and regional bodies. On the basis of the plans the European Commission draws up a Community Support Framework (CSF) - also known as a Single Programme Document (SPD) - in which priority actions are established and the types and amount of financial support are indicated for each area. These CFC's/SPD's set priorities for the types of projects to be supported in each region.

In Ireland, spending under ERDF and ESF of the Structural Funds is designed to compliment actions funded from public bodies. European funding must be matched by funds from public authorities. For example a £100,000 project could be funded by £50,000 from Europe and £50,000 from the relevant local authority. Consequently, the public sector is the main recipient of support. In Ireland, eligible bodies include government departments, local authorities, enterprise agencies, further education colleges, universities, charities and a wide range of voluntary sector organisations. Only bodies in those areas which have been designated as eligible under objectives 1, 2 and 3B are eligible to claim funding. Since the whole of Ireland has an Objective 1 designation, all public bodies are entitled to make representations or claims for funding.

The types of project which have attracted grant assistance from the Structural Funds are wide ranging. In the past (prior to 1989), ERDF was mainly considered as a source of grants for large infrastructural projects. However the scope of the funds has been considerably widened to include direct assistance to business, environmental improvements, tourist facilities, training projects and, more recently, community-based economic development projects.

Although not the prime reasons for being part of the European Union, the flow of funds has been and will continue to be important for the social and economic development of Ireland. Central and local government have been quick to recognise the importance the Union can make to regional and social development as well as the specific contributions it can make to areas such as environment, small and medium size enterprises, culture etc.

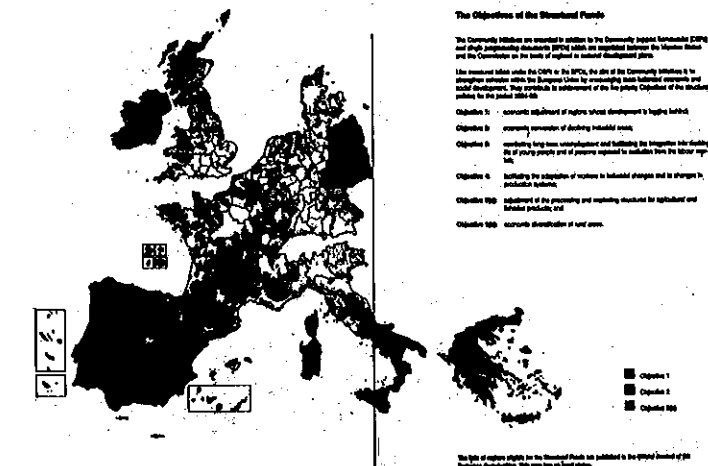
In this context, the Structural Funds in Ireland have been a valuable mechanism for those involved in implementing social and economic development strategies. The impact throughout Ireland and Europe cannot be measured simply in monetary terms or implemented infrastructure works programmes. Alongside these direct effects are substantial indirect ones, such as the development of local products, the transfer of 'know-how' and the facilitation of partnership arrangements between the private and public sectors.

The New European Mega-Regions

In recent times the European Commission has sought to encourage closer co-operation between member states over "spatial" (as opposed to economic) planning. The Commission believes that spatial planning at the European level is a prerequisite for the harmonious development of the Union and the integration of peripheral areas. Since 1989 it has been looking at how member states can increase their co-operation on spatial planning. Despite having very different planning systems it is considered that member states need to develop a Europe-wide framework for planning issues which transcend national borders.

This has resulted in the Europe 2000 programme initiated by the Directorate-General responsible for regional policy. It is aimed at two major community objectives: (1) economic and social cohesion, and (2) the completion of the internal market.

The first report produced in this area was Europe 2000: Outlook for the Development of the Community's Territory, which was published in 1991. The report analysed the EU's



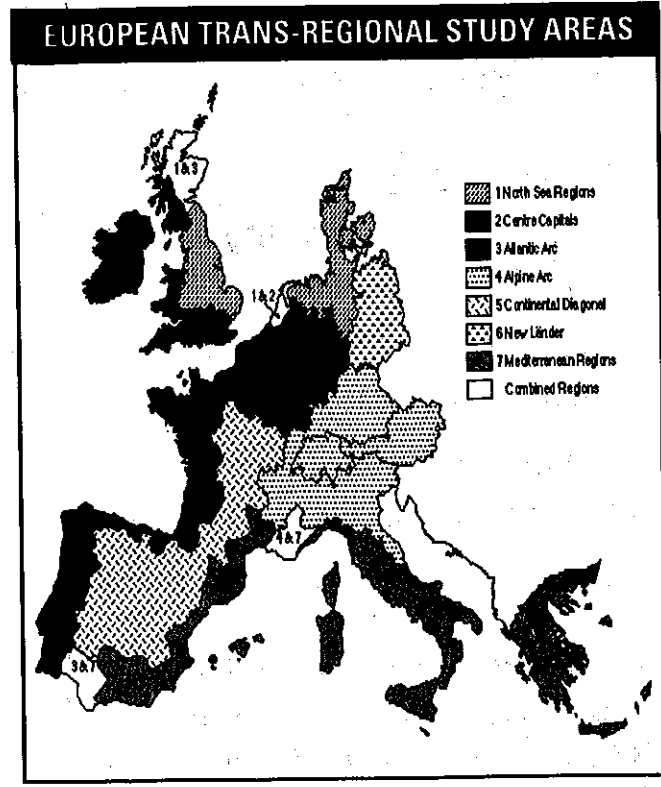
economic geography, demography and infrastructure using an approach which deliberately cut across national boundaries. It identified a need for further research and recommended the establishment of a Committee on Spatial Development (CSD) to become the focus for intergovernmental work on spatial planning. The CSD was established in 1991 and its members include officials from both the Commission and national governments.

A second report, Europe 2000+: Co-operation for European Territorial Development, was published in Summer 1995. It took the research a stage further and called for trans-national action by member states to restore "spatial balance" within the Union. Action was called for in four main areas. First, there is a need for greater cross-border co-operation between member states to harmonise policies, for example on transport and the environment. Second, the isolation of peripheral regions must be addressed through improvements in transport infrastructure. Third, it is acknowledged that the EU is still comprised of a series of separate national urban systems which are in the process of evolving into a single

European system. Accordingly, the Commission seeks "balanced development of the urban system" which recognises the potentially harmful effects of large scale urbanisation and gives priority to the growth of small and medium sized towns. Finally, co-operation is sought to diversify economic activity in rural areas whilst preserving the quality of rural life.

Europe 2000+ draws on research carried out for eight mega-regions which reflect geographic and economic features that cut across national borders. The whole island of Ireland falls within a single mega-region, the Atlantic Arc, which stretches from the north of Scotland to south west Spain (see map 2). The Atlantic Arc is the least coherent of the emga-regions identified by Europe 2000+. It is dominated by a few very large urban areas to such an extent that its urban system is extremely weak and unbalanced with marked variations in the density of population. To redress the imbalance, the report proposes the further development of medium sized towns. Naturally, the policies advocated for this region are interlinked with those proposed for the other regions. The North Sea and Centre Capitals Regions, for example, are both identified as areas of traffic congestion and environmental pollution. Policy responses to the problems of these regions include the strengthening of peripheral regions through the multiplication of transport links. These links, which could include support for transport corridors to the Atlantic Arc regions, would help reduce congestion in central Europe and cut transport costs for businesses in the peripheral areas. Of course it needs to be borne in mind that mega-regions containing other peripheral areas (particularly in east and south Europe) will be competing with the Atlantic Arc Region for support to offset marginalisation.

Europe 2000+ is closely linked to the Trans European Networks programme which aims to complete missing transport and other infrastructure links. Together they will feed into a even larger Euro-planning project known as the European Spatial Planning Perspective (ESDP). This has yet to be published but is expected to be essentially a first "Structure Plan for Europe". The Commission so far has denied that the EU intends to assume the planning functions currently carried out by member states and asserts that the principle of subsidiary (allowing functions to be discharged by member states in the manner each states sees as appropriate) will be respected. Nevertheless, the significance of the ESDP should not be underestimated as, once adopted, it will be a major influence on the spatial allocation of the... Structural Funds!



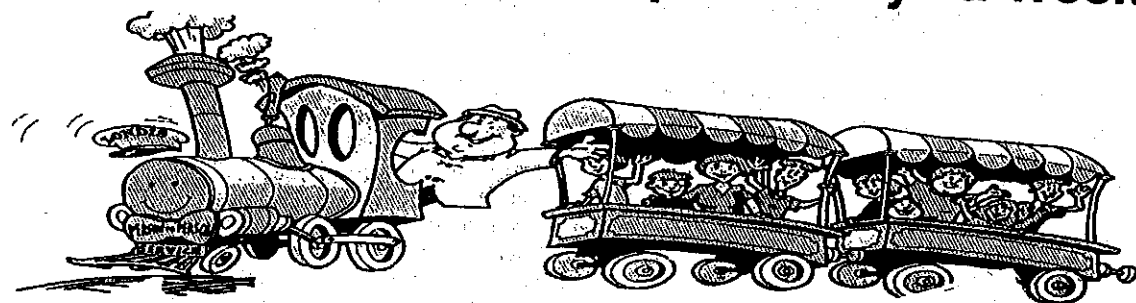
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World Cities: Cause and Effect of Cultural Globalization

by
Rút Ní Fhinnthighearn, 1st year

In order to discuss the above statement one must first understand what is meant by the term 'World Cities'. These cities are not necessarily the largest but have the best established economic systems. As Paul L. Knox explains, World Cities are: centres of economic, cultural, and political authority that give shape . . . to the interdependent forces of economic and cultural globalization.

(Johnston et al., 1995, p.14)

Examples of World Cities include: New York City (N.Y.C.), Los Angeles (L.A.), Zurich, Mexico, San Paulo, London, Chicago, Osália, and many more.

There are several ways in which World Cities cause and effect Cultural Globalization. The most obvious of these is the providing of a 'platform' on which various races, religions, and social classes mix. Just as David Byrne refers to the manner in which he and 'Talking Heads' created a unique form of music through the 'rebuilding the body (of music) from "scattered organs" to come-up with a "Frankenstein music", (Reserve Collection, 1994), so too have world cities caused the creation of a new "Frankenstein culture". This was achieved due to the fact that World Cities have several pull-factors which encourage a mix of races (the "scattered organs") to migrate into them. Many people are attracted by what we could call the "bright-light syndrome". Dazzled by the economic success which capitalism brings to a city, people often only see these pull-factors of the city. In the case of World Cities the case of immigrants is brought to its most extreme. Areas such as "The Bronx" in the suburbs of N.Y. City (NYC) develop. In this example the area contains a huge number of Latin Americans and illegal emigrants from throughout the globe. World Cities are seen as "Lands of Golden Opportunity". European World Cities especially, such as Zürich and London, are experiencing a new phenomenon; that of a counter reaction from the days of colonialism. There is at present a huge influx of people from third world countries entering Europe. This affects the cultural 'pattern' of Europe by upscutling it. Over all, as with economic globalization, success in one area causes a type of 'chain reaction' when the question is no longer "why move to a World City?" but "why not?!" People genuinely believe that their situations cannot become worse. These people often end up living in ghettos or shanty towns (depending on the country) especially if the city is in the third world country e.g. San Paulo or Mexico City. These immigrants often settle, unavoidably, for the lowest paid jobs (due to lack of skills needed for a job of greater status, or due to the threat of deportation). Unconsciously they become a valuable part of the N.I.D.I.

L.A. for example, is an epicentre of global capital and thus a World City also. Due to the heavy industry going into decline, cultural globalization has been caused (in this meaning of the term). A huge influx of third world immigrants came to "compliment" the balance between the number of displaced heavy industry workers and the number involved in the new technologically skilled occupation that took over (Soja, Morales and Wolff, 1987,

from de Souza and Stutz, p.403). This 'recycling' of old labour and the addition of new emigrant labouring classes cause the expansion of the array of cultures within one city that otherwise would not have occurred. Unfortunately, cultural mixing is not always harmonious. This became very evident during the L.A. riots of 1993 when racial tensions soared and millions of dollars of damage was caused.

In the above section we considered cultural globalization to mean the rearranging of cultures, allowing a greater dispersement of these various cultures throughout the globe. However, cultural globalization refers also to the universalizing of particular practices and attitudes. There are numerous ways in which this occurs in relation to World Cities.

The first thing which one notices on entry to any World City, be it Chicago or Toyko, is the success and power of the capitalist system in practice there. World Cities are the epitomy of capitalism which both cause and effect cultural globalization. World Cities are economically thriving areas. Gradually this culture of capitalism is seen as very attractive by less economically viable areas such as those caught in communism or socialism. The ultimate break down of such powers in Eastern Europe resulted as countries such as the former Easter Germany and former USSR observed the system of capitalism in operation in Western Europe and America especially.

The effect World Cities have on cultural globalization through the enormity of the capitalist system in the extreme speeding-up of uniformity in economic activity. Granted, Berlin and Moscow, have not all become sound economical bases as World Cities, but they are striving for the achievement of the same ideas as those of World Cities. This alteration from communism would never have happened so quickly if the "West" and its World Cities had not displayed an alluring incentive to make the change over - financial flourishing.

In recent years there has been the manufacturing of universal cultural products with marketing now concentrated on "shared habits, not geographical proximity" (Robins, p.209). This is due to two reasons. The first is that decision making bodies within the World Cities, especially, (where the concentration of HQ's is located), realised the importance of creating economies of scale - thus saving on capital expenditure. However, their market-audience had to be receptive of the idea. The manner in which they secured this receptiveness was due to the second reason for universal products: the emergence of the "Global Citizen". World Cities are a significant cause of this for it is from World Cities that the latest in information technology becomes available. Kevin Roberts argues that as people gain access to global information "their needs change from local to global." They therefore "demand global commodities" (Robins, 1994, p.206).

The culture of the global citizen is a replica of that which the World City occupant experiences. World Cities, due to the belief in the old cliché "Time is Money", run at a very quick pace. This leads to the ironic situation the new quite uniform culture tending to be one of the most impersonal. The motto of the World Cities is that only the fittest survive. This leads to a very unhealthy and unsociable culture. An unhealthy one due to the stress experienced by constant pressure to perform to one's optimum capacity, and unsociable because people no longer have time to be civil.

In the "fast pace" of World Cities - commercial life booms. It takes people almost unaware because there is so much of it and people don't take the time to distinguish between that which the advertising companies say is important, and that which is relevant to them. We all drink Coca-Cola because "where there's fun, there's always Coca-Cola". We disregard the hundreds of

other brands of Cola which taste exactly the same. We all wear "Levis" since the adorable guy in the 1980's, sang of how "he don't know much about history. ..." At the end of the day the advertisements that come from these World Cities result in the cultural globalization of millions who conform to the same fashion and entertainment ideas. The traditional Irish, cream aran jumper may still be in fashion even if it is imported from the fashion centres of Paris or Milan.

Due to the "age of exploration" being over shadowed by one of dissemination, in relation to information flow, technological innovation, capital flow etc., World Cities are 'in view' of other less important cities. This allows these less important cities (in terms of economics) to be made aware of what is of current relevance in the World Cities. This enables ideas to be globalized, thus encouraging both cultural and economic globalization. World cities provide the example and determine certain ways of thinking.

There has been some speculation about the future of World Cultures as the metropolitan and cosmopolitan life-styles become increasingly attractive globally. Indeed, Francis Fukiama questions whether this homogenization of culture will leave the science of geography redundant. This I find a ridiculous over-frantic concept. Undoubtedly, there has been a significant convergence of economics and culture due to the change from absolute distance to relative distance and the 'shrinking world' but the total unifying of all cultures to create a monocultural world is an impossibility, in our lifetime at least. It is at times of most threat that cultures, especially minority ones, become most strengthened. This is apparent in our own country. The revival of Irish traditional dancing has been phenomenal due to the production of the world renowned "River dance". A spatial apartheid will always be in practice. This is where there is a concentration of any one activity (in this case: cultural) which is excluded from all other places.

Culture is the key factor for the identity of a nation. . . of the same value as declaring the independence in the political field.

(Lozoya, p. 42, 1981)

Although World Cities may cause a huge spread of cultural ideas, they will never neutralize the histories and traditions of all countries. That would be inconceivable.



L - R: Dr. John Sweeney, Dick Warner, Susan Fallon, Gerard Fitzsimons

Modeling the interior of the Earth

by
Daragh McDonough BSc., M.A.

The mantle is the layer of solid yet flowing rock between the Earth's core and crust (50 to 2,900km below the surface), (Figure 1). Its constant motion is implicated in the movements of the crust's tectonic plates and is commonly thought of as the driving force upon which the plates ride.

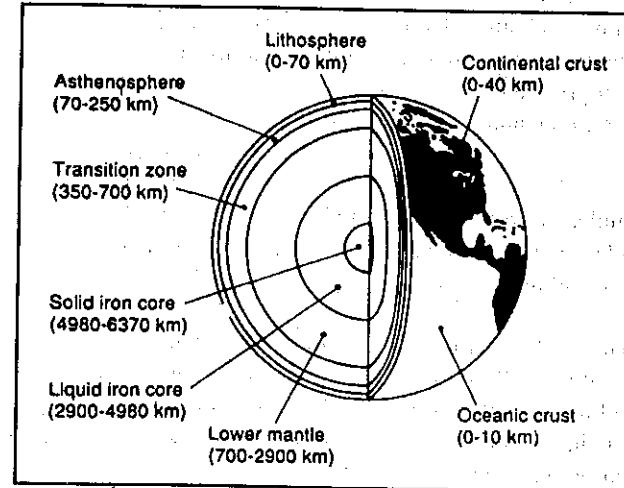


Fig 1: Earth's structure

Our knowledge of the mantle comes from the study of rocks exposed at the surface today. Within the great mountain chains such as the Alps, large terranes of rocks originating at great depths have been uprooted to the surface by the tremendous forces required to build the mountain chains. These rocks occur as Ophiolite sequences. They are composed primarily of basic and ultrabasic rocks displaying many of the features of oceanic crust and mantle: pillow lavas and sheeted dykes overlying gabbro and ultramafic rocks. They are generally interpreted as slices of oceanic crust that have been emplaced on to continental crust.

Since Alfred Wegener popularised the idea of continental drift in 1915, our knowledge of the Earth's interior has increased. We know that cold oceanic plates dive into the mantle at subduction zones and hot basalt wells up at mid-oceanic ridges. But what happens within the mantle?

Geophysicists know that the mantle slowly churns, carrying heat from the Earth's interior to the crust. Heat generated by radioactive decay causes masses of rock to rise at rate of about one inch per year from the mantle's boundary with the top of the core to the top of the mantle. Here the rising rock passes its heat to the crust and begins to sink.

Computer models of the mantle also predict this movement but recently new models have come up with a new phenomena: They show without warning a rush (in geological terms) of cold rock diving into the depths of the lower mantle and plumes of hot rock rising to fill the void. With the latest advances in supercomputers, 3-D models of the Earth's interior have become possible. These new models have included phase changes in their calculations, which were previously ignored.

A phase change is when a substance undergoes a change from one form to another under change in temperature and pressure. The change from water to ice is a phase change, is the change from graphite to diamond. Rocks in the Earth's mantle undergo a

change from a dense solid into a denser one at a depth of 400km (Olivine to Spinel) and then again at 660km (Spinel to Perovskite). Previously it was thought that rocks could not move from one side of a phase-change boundary to the other.

What these new models seem to be showing is that the descending material pools up at these boundaries, after 400-500 million years, until enough mass has built up to allow the rocks to penetrate the phase-change boundary and flush into the lower mantle. This flushing seems to last about 100-200 million years after which the boundary seals up again.

The whole cycle lasts about 600 million years. This is of the same time scale as the supercontinental cycle. Could these mantle events be having a powerful effect on the Earth's surface? As the cold rock flushes through to the lower mantle, it leaves a void which would be filled by intruding hot rocks coming up from the mantle. But would the descending rock drag the crustal plates with it, until eventually they all collide to form a supercontinent or Pangaea? After which the Pangaea continent would act as a thermal blanket, allowing the continent to heat up, dome and break up by sea-floor spreading.

In the 2-D models this seems to be what is happening, but the 3-D models predict a less cataclysmic event. In essence there are a multitude of these 'sinks', so their pulling effect on the surface would be less. Also in the 3-D models the rocks sink as columns, which means that they draw material from all sides, whereas in the 2-D models the material was converging along a line from only two directions.

Mantle models are just tools used to give researchers a glimpse at how this hidden part of the Earth might work. As good as they may be, the real question is whether mantle flushes actually occur in the Earth. Seismic tomography is a new technique where seismic waves are used to take a CAT scan of the Earth's interior. The velocity of seismic waves changes as they travel through rocks of different composition, density, temperature etc. These velocity anomalies can be used to map the interior. For a global study, a world-wide network of earthquakes and digital recording

stations is needed. At the present the resolution of any results is poor due to the spatial distribution of both stations and epicentres (Figure 2).

Preliminary results tentatively support the idea of large scale convection and flushing within the mantle. The maps show that in a couple of places in the real mantle, patches of cold rock seem to pass through the phase boundary. But over the vast majority of the mantle the patches of cold rock stop abruptly just above it. If a flushing event did occur then there should be a discontinuous supply of cold rock to the lower mantle beyond the phase change boundary. What has been found in a concentration of cold rock at the core-lower mantle boundary (2,900km), very little cold rock in the middle of the lower mantle (1,340-2,480km) and another smaller concentration near the top of the lower mantle (1,200km). These concentrations have been interpreted as the results of flushing events and the gap between them could record the time difference between the two events.

These cold patches match the places of subduction zones that ringed the Pangaea supercontinent. Earlier ones have been dated. One such event at 120ma, has been linked to an increase in oceanic volcanic activity. There was an increase in newly formed oceanic crust, and the Earth was undergoing a warm spell. This volcanic activity has been replated to a superplume of hot mantle rock rising up beneath the Pacific plate. When cold material flushes into the lower mantle, the warm material of the lower mantle convulses and plumes towards the surface to fill the void left by the cold flush of rock.

As the computing power of supercomputers advances, more and more factors will be able to be introduced into the models. Factors such as the introduction of cold rigid plates riding on the hotter, more fluid rocks of the mantle. The more detail which is put into the models, the more the importance of such things as phase changes, tectonic plates and continents is realised. Researchers used to think of these as second-order complications but in reality they are the essence of the problems. Who knows what the models will predict as these factors are introduced or what new discoveries lie around the next corner?

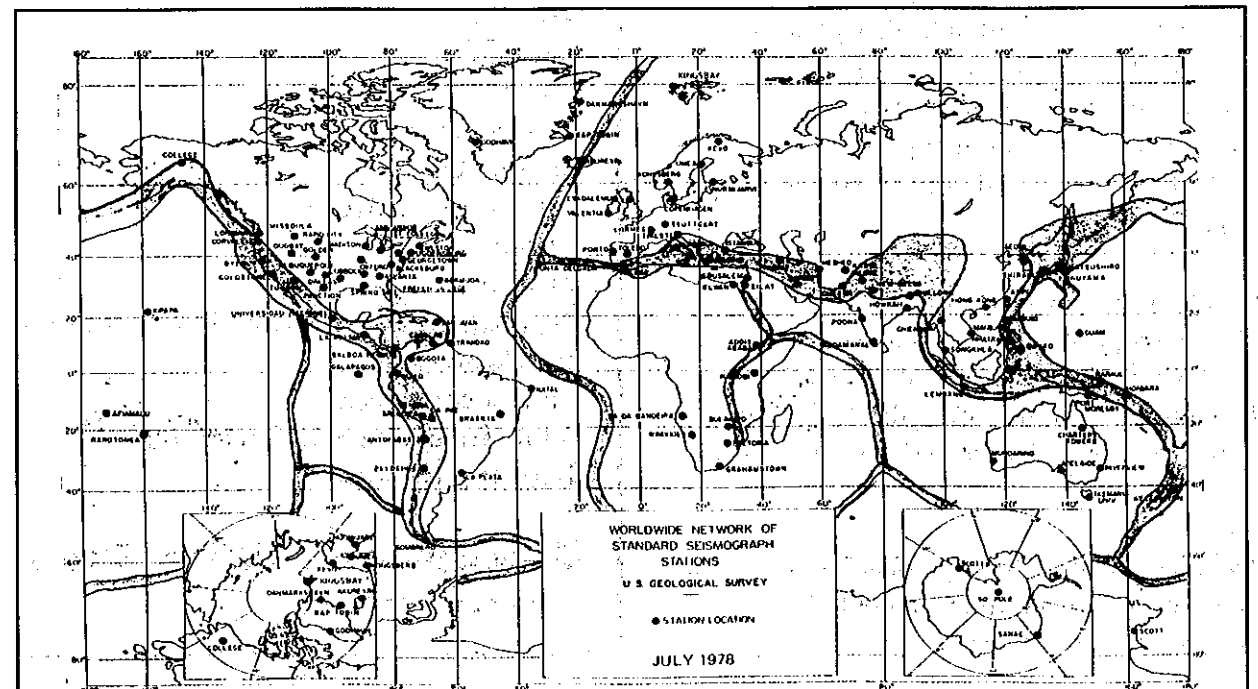


Fig 2: Distribution of WWSN seismograph stations around the world (USGS). Shaded area: Main belt of recent seismic activity

A Trip to Remember

by
Patrice Ryan, 3rd Arts

The anticipation soared. Our destination was unclear Germany, France, Scotland were the rumours circulated, instead we were Limerick bound. The initial disappointment lifted and the weeks flew until rag week descended to be followed by the week long excursion.

Initially, until everyone got to know each other things were a little uncertain but it took about four hours before we made ourselves at home in Kilfinnane! A trip to the local creamery restored our common rural heritage, and the birth of a calf which most of us bore witness to created awe and amazement and a few green faces among the urbanites.

Physical geography with Mr. Hickey introduced us to the great outdoors and reinforced our opinion of the unpredictable Irish weather with snow, sunshine, wind and rain being displayed to us all in one day. Complain we did not as we were treated with hearty Irish stew to replenish ourselves - something we will all remember. The elements were much kinder to us on the other days allocated to physical geography and it would only be fair to conclude that we all enjoyed and learned from the last day in the forest.

The creamery theme reasserted itself with a trip to Mitchelstown. A tour of the Ballyhoura Development Area was supplemented with a historical lecture by one of our supervisors Mr. Whelan which was eloquently delivered and highly interesting.

All in all a good time was had by everyone, some more than others. But a hearty thanks must be extended to Mr. P. Breathnach whose good humour ensured we all enjoyed the week, also to Mr. Hickey and not forgetting our supervisors! Thanks to you all.

Next year if its not some foreign location don't be put off the trip, one never knows it could be Limerick! (you won't be sorry).



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Processes of Change in Rural Areas

by
Seamus Lafferty, MA

Rural areas have been impacted on by a complex array of economic and social processes over recent decades. They were highlighted in the NESC (1994) report, "New Approaches to Rural Development". This short article can only give a superficial treatment to the topic but with very broad brush strokes looks at the trends in population, agriculture and manufacturing over the last few decades.

Population

Over the past 30 years there has a reversal of the long-term trend in rural population decline. Following the war and up until 1960 the population of Ireland declined significantly with a net out-migration of approximately 440,000. In fact the total population in 1961 was the lowest recorded for over a century (Walsh, 1990-91). From the early 60s the government introduced a range of policies designed to modernise the economy, among these, the 'Pilot Area Development Programme' which was designed to modernise the agricultural sector in the west of Ireland. These policies had the effect of reversing the trend of population decline, in fact over the 25 year period from 1961 the total population increased by 25% (Walsh, 1990-91).

Walsh (1990-91) cites net migration as the principal factor responsible for this population increase. Table 1 outlines the geography of this migration and shows the significantly positive net migration or in-migration to all counties except Tipperary North, Leitrim, Cavan and Offaly in the 1970s. Of course the counties of Kildare, Wicklow and Meath have the highest values for migration rates due to their proximity to Dublin, but also, very rural counties such as Donegal had relatively high numbers of presumably return migrants.

TABLE 1
Net Migration Rates for Counties in Ireland

County	1973	1981	1991
Carlow	1.3	-6.9	-9.1
Cavan	2.4	-7.2	-7.6
Clare	17.3	5.0	-1.5
Clontarf	4.7	-2.6	-6.2
Cork	2.7	-1.9	-10.0
County Wick	2.1	-5.2	-12.1
Down	2.1	-3.4	-9.1
Donegal	14.3	3.4	-6.0
Dublin	-0.5	-4.9	-11.2
Galway	2.6	-5.6	-11.9
Kerry	1.4	-3.1	-8.4
Leitrim	12.6	3.0	-3.7
Limerick	6.9	0.1	-6.5
Londonderry	2.7	-3.7	-7.4
Longford	1.7	-3.8	-6.6
Mayo	1.4	-5.9	-10.1
Monaghan	-2.1	-6.7	-10.8
Offaly	0.4	-5.9	-11.8
Roscommon	2.6	-3.4	-5.4
Sligo	3.9	-1.7	-4.5
Tipperary	-3.0	-6.3	-12.2
Tipperary North	-0.4	-5.2	-10.8
Tipperary South	0.4	-2.8	-11.5
Ulster	4.1	-4.1	-8.3
Wexford	-3.9	-7.0	-9.4
Wick	6.3	-1.2	-8.4
Wiltshire	2.0	-3.7	-8.9
York	3.2	-4.1	-7.7

Source: Walsh, 1990-91:94.

Looking at the situation in the early 80s one notices the vast turn around with the net migration figures becoming negative showing a resumption of emigration. In fact the only counties that experienced in-migration were the 3 counties bordering Dublin; and Clare on the fringe of Limerick city. The second half of the decade saw net emigration from all counties. The highest rates were for the most rural Midland and western counties especially Laois, Offaly, Westmeath, Longford, Leitrim, Roscommon and Mayo. In fact one of the most important ideas which comes across in the literature is that over the 80s there was a definite shift in the geographical origin of emigrants from predominantly urban to more rural areas.

Agriculture

Changes in the demographics of rural areas are merely the result of underlying processes of economic change. The structure of agricultural production in Ireland and elsewhere has changed significantly over the past few decades. Increased use of technology has resulted in increases in the average size of farms, reduction in the number of enterprises per farm (specialisation) and a concentration of production on to the larger farms (Bowler, 1986 & Walsh, 1985-86). This restructuring has a definite geography and, as one would expect, has exaggerated the dualism always present in the Irish agricultural sector. Indeed it is within this context that "Rural Development Policy" has emerged and tends to manifest itself as a set of measures for achieving diversification of farm production and alternative sources of income for farmers (NESC, 1994).

TABLE 2
Changes in Numbers of Holdings with Specific Enterprises and in Average Size of Enterprises per Holding.

	1973	1981	1991
Number of Holdings (000)	114.0	92.0	57.0
Number of Enterprises (000)	230.0	187.0	151.4
Average Size of Enterprises	58.0	45.0	54.0
Average Size of Holdings	35.8	10.1	2.5
Average Size of Enterprises per Holding	9.9	15.8	24.5
Average Size of Holdings per Enterprise	28.4	30.8	35.3
Average Size of Enterprises per Holding	49.0	54.4	107.2
Average Size of Holdings per Enterprise	29.0	102.0	400.2

Source: NESC, 1994:44.

Table 2 shows the processes of increased specialisation and concentration. In the dairy cow, cattle and pig enterprises a huge reduction in the number of holdings is evident in the period 1973-91. Sheep numbers have remained more or less the same - declining between '73 and '81 due to the fact that sheep were not subsidised in the early years of the CAP (Walsh, 1991). In 1980 a common market for sheep meat was introduced and with the introduction of ewe premiums it became an economically attractive enterprise for substitution on farms where some of the more established enterprises were being restricted (Walsh, 1985-86).

With regard to the geography of decline of specific enterprises the largest decline in dairying was on the smaller farms, many of which were either no longer able to provide adequate incomes because of the restrictions on output - with the introduction of quotas in 1984 - or because they were unable to invest in the

technology required to produce milk to ever increasing quality specifications. The declines were greatest in the North West, West and Midlands so these regions lost out on the most profitable system of farming (NESC, 1994).

The numbers for cattle didn't fall quite as sharply. This was because some areas experienced considerable expansion in beef cattle numbers in response to the decline in dairying. This was an attractive option for both elderly farmers not willing/able to invest in new techniques for dairying and also for young farmers who find it easier to combine beef production with holding down off-farm occupations (NESC, 1994). This is born out by the fact that the highest densities of cattle are found in the areas of smallest holdings - north and west of a line from Dundalk to the Shannon estuary (NESC, 1994).

The restructuring of agricultural production in Ireland is epitomised by the statistic that the top 20% (in terms of income) of Irish farms account for 40% of agricultural land but produce 60% of farm output (NESC, 1994). The story, of course, is one of increased marginalisation - a small number of farmers are doing well while a large number are not. Given the structural trends outlined one would expect farm incomes to show increasing differentiation by farm size, system and region. This is indeed the case as reliance on off-farm income in Connacht and Ulster has increased at a far greater rate than in other parts of the country (NESC, 1994).

Manufacturing

While rural regions are obviously most directly affected by changes in the agricultural sector, it is important to realise that rural regions are also very much affected by structural change in the non-agricultural economy.

The late 50s and early 60s signalled the commencement of the 'open door' policy when the IDA was given the task of attracting foreign firms to Ireland. This was of course boosted by our entry to the EEC in '73 (Breathnach & Walsh, 1994). This foreign investment was to show a preference for rural and small-town locations - aided by IDA grants and advance factories.

TABLE 3
Net Changes in Employment in IDA and Shannon Development Supported Enterprises.

1935	-26148	3306
5232	-4344	895
1523	-6424	3131
4717	-833	2133
4662	-921	1456
4400	-5395	3878
4497	-2186	349
26966	-46251	15148

Source: Walsh, 1995:68.

Table 3 highlights the 70s as a period of considerable expansion with net gains in employment in all regions - especially in the South East, Midwest, West, Midlands and Border regions. The 70s were thus looking up for rural areas with in-migration and job creation, but, it was not to last (Walsh, 1995). The two regions which gained least were the East and South West (containing Dublin and Cork respectively).

The early 80s was a period of restructuring that involved considerable job losses. This was most severe among the older indigenous industries which tended to be concentrated around Dublin (Breathnach & Walsh, 1994). The losses were a lot less in the more newly industrialised West and Midwest. Both regions lost under 1000 jobs compared to Dublin's loss of over 26,000.

Throughout the 80s foreign direct investment (FDI) coming into Ireland continued to decrease due to increased international competition hence the ability of the IDA to influence location diminished. The high-tech and internationally traded service sectors have become the major growth sectors - the tendency for these to locate in urban areas is evident from the table where the East, South West, and Midwest show up as doing best. The Border area is the exception due to the expansion of the textile industry especially Fruit of the Loom in Donegal (Walsh, 1995). This shift in the location of FDI obviously poses enormous problems for rural areas.

Conclusion

This brief article has outlined some of the main processes impacting on rural areas in recent decades. It highlights the fact that while there was a period during which rural areas seemed to be prospering - the 70s saw increases in population and job creation - they are currently facing decline. Most recent evidence suggests that population decline will be most severe in rural areas (NESC, 1994). Coupled with this, the fact that almost 70% of farms are classified as economically non-viable poses major challenges for a rural development policy aiming to maintain the population of rural areas (NESC, 1994). Building hopes for the future of rural areas on growth in the manufacturing sector also seems futile, given the fact that over 90% of all new business formations are in the non-manufacturing sectors, which have a tendency to locate in urban areas.

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Music in the Department

GeoPen

Dr. Gibson, to coincide with the start of his new Remote Sensing diploma has recorded a version of Nancy Griffiths' "From a Distance" as a course anthem. How could one forget those opening lines. . . 'From a distance the world is blue and green and the snow-capped mountains white. . .' There you have it, Remote Sensing in a nutshell!

As if one song wasn't enough for Proinsias "Axel" Breathnach, he has released his own remix of the heavy metal Gunnai 'gus Ros album Appetite for Destruction . . . and we all know what an Appetite Fran has!!!

After her recent escapades on a Limerick field trip, Shelagh Waddington decided to record the events about that Dancing Queen in song. The ABBA classic hasn't seen a better remix. The world wouldn't have had this new talent if a certain bouncer had had his way!!!

When Michael Flatly sensationally left River Dance, who was there to fill those dancing shoes but the department's one and only twinkle-toed hydrologist, Kieran Hickey. He more than amply filled those waterproof shoes, hot leather trousers and frilly shirt.

After much deliberation, M.C. Sweeney has chosen the Rolling Stones' 'Get off my Cloud' to head his Best of Climate '96 Compilation. Among other songs featuring on this double album are remixes of Peter Gabriel's "Red Rain", Crowded House "Everywhere you go, always take the weather with you. . ." and Gene Kelly's "Singing in the Rain". All these rain songs add up to a rather pessimistic outlook.

This year's appointment of Jim "Sachmo" Walsh, as Professor of Geography has left him with "All the time in the World". This popular song was re-recorded in a brief 5 minute take in his office, (so don't be surprised to hear the phone ring, or knocks on the door in the background!!!).

After taking a sabbatical this year to taste the different political/cultural themes of music, Dennis Pringle has started a search for rhythm, harmony and vocal clarity in his work. He has decided to head for Africa. To pre-empt this move he has recorded the Paul Simon song "Under African Skies". Don't be surprised to see an album come out after this trip!

". . . Know when to hold 'em. Know when to fold 'em. Know when to walk away. Know when to run. . ." Jim Keenan's guidelines to any aspiring gamblers (as sung by Kenny Rogers years since).

Gerry O'Reilly heralded his arrival here from UCD (on loan!) by recording The Eagles' New Kid in Town. As a result - 'Oo-hoo, everybody's talking 'bout the new kid in town. Oo-hoo, everybody's walking like the new kid in town. . .'

I am Sailing, I am Sailing . . . Leo Sayer's nautical ballad has been turned into a real cry from the heart by Celine "pronounce my name correctly or else. . ." McHugh.

Stranded in the Doldrums of misidentification, she has finally located the Trade winds and is now steaming under full sail towards here next port of call as the good ship Sailing McHugh.

Martin Whelan, after his week long field trip to Limerick, (though he has been heard to say: "who needs a field trip?"), has re-recorded the Dubliner's Seven Drunken Nights (or any multiple thereof!).

Celine O'Rourke - Seven Drunken Nights (Duet with Martin)

Mary Weld has joined Dolly Parton in a duet of "Working 9 to 5". Fair play to you Mary, you've done us proud!

Brendan Beartlaí has nailed his weather forecasting cards to the wall by recording The Lovin' Spoonful's "Summer in the City." Obviously affected by the heat wave of last year, his optimism is commendable (a lot of us have our fingers crossed as well!). But I'm sure Dr. Sweeney would have something to say about that.

In his own laid-back style, Paddy Duffy, who for years has wanted to release this song, has finally gotten around to recording his version of Raglan Road. Written by that other famous Monaghan Paddy, Patrick Kavanagh, this combination of Monaghan poetry and performance rolls along like the Drumlin landscape of its origin.

After a baptism of fire in Room 21, Seamus Lafferty has found a few spare hours to mix his own dance version of "Things can only get better . . ." (D. REAM on Seamus!).

With a rhyming name like Daragh McDonough this boy obviously has music in his veins. It is therefore no surprise to hear of his most recent release "Night Swimming" (an REM favourite). Rumour has it that Daragh can be seen sneaking into the swimming pool late in the evening with an unnamed partner (Baaa!!).

MODE I M.A.s

After her amazing juggling act of teaching and studying, Jennifer Quigley has finally succumbed to re-releasing Pink Floyd's "Another Brick in the Wall". . . hey teacher leave those kids alone!

The elusive practitioner of the department, Karl McGovern, has remixed his own version of Chris de Burgh's "Missing You" . . . as it seems to be the lament of the students under his wing.

Nostalgic Susan Doherty has donned a skinny little number, and has taken to singing Madonna's "Remember" due to the popular demand of her tutorial groups (. . . "I remember the good old days of the old SU" . . . again . . . again and again)

MODE II M.A.s

The Mode II Postgraduate class leaving the best to last! have jointly re-vamped the Boom Town Rats Classic "Tell me why I don't like Mondays" to . . . "Tell me why I bloody love Mondays" - a quick glance at their timetable will reveal why!

The Geographical Society of Ireland

Cumann Tireolaíochta na hÉireann

The Geographical Society of Ireland was founded in 1934 with the object of promoting an interest in Geography. Its membership is drawn from teachers in schools, colleges and universities; people working in the public service and research; and all others who find geography interesting and stimulating. The Society seeks to provide information and promote discussion about a wide range of topics of geographical interest both within Ireland and abroad.

Meetings

During the winter months the Society holds a series of lectures and seminars, principally in Dublin. A small Regional Programme of events is also organised, usually in Cork, Limerick and occasionally Galway and Belfast. The Society also organises a one day conference, the proceedings of which are published as a special publication.

Field Trips

Day field trips comprise a distinct feature of the Society's programme and provides first hand experience of areas of geographical interest in Ireland.

Publications

The Society's principal publications are the internationally known journals, *Irish Geography* and *Geonews*. Members receive both of these free of charge and may also obtain some journals published by other societies at special concessionary rates.

Library

The Society's Library is housed in the Department of Geography, Trinity College and holds many geographical journals and books covering all branches of the subject, including all materials reviewed in *Irish Geography*. Members may borrow books and periodicals from the library. The Geography Department Librarian at Trinity College also acts as Honorary Librarian to the Society and may be contacted at 01 - 772941 ext. 1454.

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Geographical Information Systems in Archaeological Research

by
Paul Synnott

Many organisations today spend a large amount of time and money on geographic information systems (G.I.S.), and on geographical databases. Predictions suggest billions of pounds will be spent worldwide on these items over the next decade. Indeed, in this country, GIS has become a topic of considerable interest in institutions, research bodies, universities, government departments and commercial organisations. In this paper I would hope to shed some light on the technology of a geographical information system by way of a simple introduction to GIS; what it is, what it is not, what it can do and what it cannot do and to relate how archaeological research at the Discovery Programme is being augmented by the successful implementation of a leading GIS.

The development of a geographic information system in Irish archaeology is in its infancy and we are only beginning to understand its potential as a research tool. Even among geographers the definition of a true GIS is still a matter of debate, so it is not surprising that some confusion should exist among archaeologists as to what exactly a GIS is, and what it can do for archaeology as a whole. The Discovery Programme has begun to explore different archaeological problems with GIS methods and consequently is at the forefront of this development.

A Theoretical Approach

Perhaps one of the first questions we should ask ourselves is, why, in fact, do we require a geographical information system in archaeological research? A simple consideration is the fact that rapidly declining hardware and software costs have begun to make GIS technology more affordable to an increasingly wider audience. More importantly though we have come to realise, none more so than the archaeologist, that geography, and the data describing it, is an integral part of our everyday world; almost every decision we make is constrained, influenced or dictated by some fact of geography. We send fire engines to incidents around our cities and countryside by the fastest available routes, government bodies award grants to local communities based on population densities, in the medical world, disease is studied by identifying areas of prevalence and the rate of spread. Each of these examples is influenced by geography.

The geographical dimension is central to archaeology as well, because it involves all levels of archaeological research - theory, methodology and practice. The collection, analysis, interpretation and presentation of archaeological information must actively and creatively take into account the spatial environment. To a certain extent, archaeology can be viewed as a discipline involved in sampling space over time in order to understand human behaviour. It stands to reason then that such a demand for geographical or spatial information parallels the need for a geographic information system thus explaining its growing popularity.

It is now commonplace for business, government and academia to use GIS for many diverse applications. Consequently

many definitions of GIS have developed. Perhaps the more accurate, comprehensive and widely accepted definition is:

An organised collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, update, manipulate, analyse, and display all forms of geographically referenced data. (ESRI, 1992, 1-2).

However this definition is complex and is not much help to the newcomer to GIS. For the moment let us consider a simpler definition:

A computer system capable of holding and using data describing places on the earth's surface. (ESRI, 1992, 1-2)

Many computer programs such as spreadsheets, statistical packages or drafting packages can handle simple geographic or spatial data. Why, then, are they not thought of as a GIS? The generally accepted answer is that a GIS is only a GIS if it permits spatial operations on its data and has the ability to link data from various sources.

There are different types of spatial operations - asking "What's the average number of archaeological sites on a particular soil type in a particular study region?" is an aspatial query. The answer does not require the stored values of geographic coordinates nor does it describe where the sites are in relation to each other. "Where are all the Fualachta Fiadh within a 1/4 mile of a water source and which sites are within one kilometre of each other?" Is a spatial query and can only be answered using geographic coordinates and other relevant spatial information.

A GIS typically links data from different data sources. In real terms this is commonplace especially in an application as complex as archaeology. At present the Discovery Programme utilises information from many different sources - Office of Public Works, National Soil Survey of Ireland, Geological Survey of Ireland, Ordnance Survey, museums and universities. It also utilises information from specialist environments - geophysics, geochemics, surveyors, excavations and aerial photography. While held on the system as unique datasets, this graphical and textual information must be linked to not only allow spatial operations on an individual set but also on combined datasets from multiple sources.

A GIS can perform these operations because it uses geography, or space, as the common key between the data sets. Information is linked only if it relates to the same geographic area. Why is data linkage so important? Consider a situation where there are two data sets for the same area, such as archaeological sites and soil types. Each data set might be analysed and mapped individually. Alternatively, they can be combined to produce one valid combination. If, however, there are 20 data sets for the same area, there are over one million possible permutations and combinations. Although not all combinations are meaningful, many more questions can be answered than if the data sets are kept separate. Combining them adds value to the database. To do this a GIS is needed.

So far a GIS has been distinguished in two ways:

- (1) formal definitions and
- (2) through its ability to carry out spatial operations. A third way is to distinguish it by listing the type of questions it can answer. For any application there are five generic questions a GIS can answer:

- Location - "What is at . . .", simply seeks to find out what exists at a particular location.
- Condition - "Where is it?", is the converse of the first and requires spatial analysis to answer. Instead of identifying what exists at a given location, we want to find a location where certain conditions are satisfied.

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- Trends - "What has changed since?", this third questions might involve the first two and seek to find differences within a region over time.
- Patterns - "What spatial patterns exist?", this question is more sophisticated. We might ask this question to determine whether there is a logical pattern to the distribution of certain types of artefact across a region.
- Modelling - "What if . . .", these type of questions are posed to determine what happens if, for example, the pollen count of a certain species of plant is increased or decreased in a region, what bearing would this increased or decreased activity have on the surrounding vegetation and would it influence the social and economic environment of this region. Answering this type of question requires geographic as well as other information.

Geographic information systems are essentially spatially referenced databases that allows one to control the distribution of form over space and through time. They are more than computerised cartography because they provide for the storage, mathematical manipulation, quick retrieval and flexible presentation of spatially referenced data.

Until now this type of technology has been somewhat unfamiliar to the archaeological discipline. In this respect the Discovery Programme aims to expose archaeology to the modernisation of conventional data recording, integration and interpretation which is an integral part of a geographical information system. GIS technology provides a means of integrating information in a way that will help us understand and address some of the most pressing problems that are faced in Irish archaeology today, such as those questions posed in the Discovery Programme: Strategies and Questions booklet. GIS helps us to organise data about these problems and to understand their spatial relationships, providing a basis for making more sensitive, intelligent and objective decisions.

Early successes in the Discovery Programme have met with an enthusiastic response from the archaeological community at large and it is envisaged that, in time, this technology will become the standard in this discipline.

A practical approach

A brief examination of some of the modelling and research activities will serve to illustrate how GIS is currently applied in the Discovery Programme. For the sake of simplicity our GIS requirements have been divided into three distinct areas:

- Data Mapping
- Data Manipulation
- Data Analysis

It would be beyond the remit of the present article to discuss every aspect of our research activity, instead I will briefly discuss various areas of activity which I feel have greatly influenced archaeological research, even at this early stage.

Data Mapping

Management of space and spatial relationships is a basic factor in any human society, and accumulated knowledge about the spatial form of the world in which we live has been traditionally stored in the form of maps. There are two aspects to the mapping requirements of the Discovery Programme. Firstly, archaeology is about people and their material remains that are fixed in space and time. Archaeologists are concerned with identifying and analysing patterns of behaviour apparent in the spatial and temporal distribution of these remains. Consequently the ability to map not only individual sources of information but also to link numerous datasets together is of vital importance. Secondly,

working in a research capacity we are constantly looking to new ways of representing archaeological information.

Multi-media

Archaeology, while not readily recognised as a multi-media profession, by nature of its definition, is a discipline which encourages patrons to work in an environment which constantly draws on information from multiple sources. At present the Discovery Programme utilises information from many different government and commercial organisations. It stands to reason then that a primary requirement is to have the ability to extract from these various sources, relevant information enabling the creation of in-house multi-data mapping. In this way we are creating specialised maps for the archaeologist on which all the spatial and graphical requirements are fulfilled in order to portray a particular theme.

It is hoped that this approach to interactive mapping will enable archaeologists to view their material in different ways, and, perhaps, to look at new ways of utilising archaeological information in order to gain maximum benefit from the combined effect of various data sources.

The third dimension

The traditional two dimensional map may now be complemented by adding a third dimension to the information thus providing greater insight to the surface characteristics of archaeological sites and their context. Three dimensional mapping enables the archaeologist to stand back and analyse spatial and topographic information in a dynamic environment.

The 'Intelligent map'

One of the main features of a geographical information system is its ability to link graphic information to an underlying textual database. Not only can maps be generated from vector or raster-based data sources but can also be generated directly from attribute information attached to various features from individual or combined datasets. In this way the archaeologist is not only interpreting the graphical content of archaeological information but also has the ability through mapping to access information contained in various databases to satisfy a particular condition to answer a particular query.

Data Manipulation

The Discovery Programme is utilising GIS technology in several ways at present:

3D Terrain modelling/Hill-shading

We deploy surface modelling on two levels: firstly, at the macro or regional level where archaeology is viewed in the wider context of the landscape and the real world. Secondly, at a micro or site-specific level where more detail about a particular site and its environs is required in order to manipulate and analyse information at a local scale.

Landscapes and regional zones are modelled from the 100ft contour information on the Ordnance Survey 6" (1:10560) mapping. In addition, this information is augmented with bench mark and trig. pillar data thus providing a basis for landscape modelling. Once computed the surface model is used for a variety of applications. Other geo-referenced data sets; soils, geology, aerial photography etc., for that particular region are draped over the surface model in order to portray that data set in three dimensions. However, more importantly this type of landscape modelling visually describes to the archaeologist the physical nature of a study zone or region (highlands, lowlands, river basins, catchment areas etc.) and also describes the spatial relationship between

these features. For example, the Mooghaun study region has been modelled in this way and is used to give a simulated indication of various combined data sets, such as wetlands, soils and archaeological sites, in their real world perspectives. This model is also used as a backdrop for regional visibility studies around Mooghaun hillfort. Again due to the dynamic nature of information in a GIS environment, surface models can be stretched, enhanced and viewed from any angle to portray certain features of archaeological interest.

At the more detailed level of site-specific manipulation and analysis our surveyors undertake the physical surveying of sites of interest at varying degrees of detail depending on the archaeological requirement at that time. At this level we again utilise the information in many different ways from simple graphical illustrations of the site (contours, 3d models, sections and profiles) to intense manipulation and analysis of the underlying micro-topography (low profile sites, location/terrain relationships). The Hill of Tara survey is a particularly good example of this type of site-specific terrain modelling. The survey is one of the most detailed landscape surveys ever carried out in this country consisting of approximately 40 control stations and over 50,000 sampled points over an area of approximately 137 acres. By employing detailed 3 modelling and hill-shading techniques there is evidence that Tara and its environs may well contain more archaeological sites than previously recorded. (Newman, C., forthcoming).

Hill-shading techniques play a vital role in analysing the micro-topography of a particular site or indeed a particular landscape. In reality surface features may not be readily recognisable on the ground due to steep slopes, rugged terrain, extensive vegetation or modern farming activity. However, by producing a hill-shaded surface model we can enhance these hidden surface features by varying the degree of shadow on the terrain. The shadow casting effect is a function of the altitude and azimuth of a virtual light source and the variation in the surface of the terrain. Heretofore archaeologists have had to rely on favourable natural light to discern subtle topographic features. In a GIS environment the hill-shading technique may be utilised to recreate optimum conditions to best illustrate certain archaeological features. Site C at Chancellorsland, Co. Tipperary, (Doody M., 1993, 25) part of the Ballyhours hills project, is a good example of micro-topography analysis. On aerial photographs it appears as a circle with a small ring-barrow overlying part of the ditch on the north-west. On the ground it appears in low profile and the outline of the enclosure is difficult to make out, while the barrow is not visible at all. Manipulation and analysis of the survey data clarifies matters somewhat: the site is surrounded by a ditch and external bank and has at least two associated ring-barrows. The digital terrain model indicates that barrow 1 is set within a square or rectangular enclosure which also overlies the perimeter ditch of the circular enclosure. This rectangular enclosure is not discernible on the aerial photographs. This type of processing works very well on sites that are not readily recognisable because of a combination of steep slopes, rugged terrain and extensive vegetation such as those sites at Castle Gale, Carraig Henry, Co. Limerick (Doody, M. 1993) and Carn Tigherna, Fermoy, Co. Cork (Doody, M., forthcoming).

Geophysical processing

We have recently embarked upon a programme of geophysical manipulation and interpretation and as a result we have opened up a whole new area of archaeological exploration. There was little or no use of archaeological geophysics in Ireland until the late 1970's and early 1980's (Doggart 1983, Doggart 1985-86, Woodman 1985 and in the Cork-Dublin gas pipeline). The first extensive use of geophysics in archaeological research was as part of the Tara Project.

Whether it is magnetometry, resistivity, ground probing radar or some other form of geophysical prosecution tool, the results are generally presented in the form of a once-off paper image of subterranean features enhanced to what the geophysicist interprets as the optimal view. By manipulating the information a range of images of the same data is produced thus optimising the archaeological interpretation.

With this in mind we sought to integrate the complex numerical structure of the raw geophysical data into our GIS environment by firstly, writing a programme to convert the data from its raw form into a readable format and then to manipulate this information using the powerful raster processing tools of our geographical information system.

At present we are able to produce geophysical images on screen at varying degrees of detail and scale. The geophysical data simply becomes an additional data set for manipulation, analysis and mapping. We overlay the raster geophysical images on a three dimensional topographic model to enable a comparison of subterranean features and those features with a physical presence on the terrain (Newman C. 1993). We have also taken the geophysical data and computed, through much the same process as terrain modelling, a three dimensional geophysical model which may reveal some of the morphological details of subterranean archaeological features.

Data Analysis

A fundamental requirement of the discovery programme is neither the creation of colourful maps nor the constant manipulation of information into new forms and ideas but to have the ability to analyse in depth the degree and nature of the archaeological information we acquire from third parties or generate in-house ourselves. In order to arrive at a particular understanding of our information all potential avenues need to be explored:

Site Catchment Analysis

Site catchment analysis is a method of obtaining and comparing information about the area surrounding a site rather than the site itself. In effect the catchment is a unit of analysis between the site and the region which makes landscape information easier to handle and more directly relevant. This technique was originally developed in order to determine site function but has been modified to analyse the perception and use of the landscape as a whole. It is assumed that the placement of sites by past communities was made with an understanding of the surrounding landscape and the choices made in placing sites reflect that knowledge and the priorities of the community. Since the advantages of site catchment analysis over less formal interrogation of the landscape lie in standardisation, integration, and the ability to compare wide bodies of data a geographical information system has obvious advantages for its implementation.

Spatial analysis

Spatial assessment of data, in the form of map examination, is a mainstay of most archaeological research. When working at a regional and sub regional level our accuracy is such that we can move from assessment to more formal analysis. Once again the ability of GIS to hold and manipulate large bodies of data make it ideally suited for this task. Unfortunately, since GIS was developed more for management, serious modifications are necessary in order to carry out this sort of analysis. With this in mind we have been working with a group of researchers from Lancaster University, where they are involved in the area of statistical geography with respect to environmental epidemiology, in order to explore the application of this technique to archaeological data.

Distribution Analysis

Distribution analysis fall into two classes, the first, basically a graphic technique, which generalises the distribution and gives

an overall picture of the archaeological content. This allows the archaeologist to identify general trends in the data and also highlights areas where the distribution is anomalous. The second is a statistical technique that compares certain aspects of the distribution to those for a distribution whose properties are known. As a result one can compare the distribution with a random pattern, a clustered pattern, an entirely regular pattern or a combination of these. The similarities and differences give archaeologists a more refined picture of the distribution of archaeological information.

Predictive Modelling

In order to analyse sites as more than points on a plane it is necessary to use more complicated modelling techniques. The basic idea behind any modelling procedure is to examine what the distribution of sites would be if they were placed according to the principles which, the archaeologist considers, are important. A simple model might compare the distribution of a certain site type to a single soil type. If the soil is important in the placing of the sites then there should be broad coincidence between the two. GIS allows models to have many more variables and include non-environmental variables such as significant sites and spatial tendencies.

The practical benefits of predictive models stem from the fact that they can be applied to extensive, unsurveyed tracts of land where the actual locations of sites are not known. They provide archaeologists not only with images of the patterns of prehistoric settlement in an area, but also with evidence of the most important environmental determinants of site location.

Conclusion

As with the diffusion of any new technology there is a lag-time between the technology becoming available and its uptake by the potential user community. Although the use of GIS in archaeological research is a new phenomenon, its unique ability to incorporate and manage large quantities of spatially distributed archaeological and environmental data has proved to be a major boon to archaeological studies. Regional archaeological data is encoded and spatially co-registered within a GIS allowing rapid investigation of relationships between the locations of sites or other archaeological remains and associated environmental variables.

Even at this stage, it is apparent that GIS technology has broadened the parameters of archaeological research in this country, by encouraging archaeologists to consider the complex interaction of man and environment on a regional and site-specific level.

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The Geography of Kissing

by

**Padraig Lewis BA,
MA Student**

What's in a kiss have you ever wondered just what it is? What are lips for if not for kissing. When we investigate the subject more closely we find that there is a geographical distribution of kissing. If some enterprising geographer were to prepare a "Map of Kissing" there would be a surprising amount of blank spaces. Most of the so-called primitive races of mankind such as New Zealand Maories, Australian Aborigines were ignorant of kissing until they were taught the technique by the white men who appeared amongst them as voyagers, explorers, traders and missionaries.

The Chinese consider kissing vulgar and all too suggestive of canibalism. The Japanese have now word for it in their vocabulary and the practise is tabooed as revolting and only practised by the more Westernised of them. But it is Africa which has the sad distinction of being the largest non kissing area in the world.

Back in 1863 an English traveller Winwood Reade on his adventures in the deepest jungles of Africa happened to come across in one of the local tribes a very beautiful native girl, who by the way, had never met a white man before. The couple spent a lot of time together and grew very fond of one another and one day when they were alone in a cabin our Mr. Reade decided to give this beautiful girl a kiss on the lips - the result being and I quote "she gave a shriek and bolted from the house like a frightened fawn (deer)."

What our explorer friend Mr. Reade forgot or didn't realise was that in Western Africa kissing was unheard of and all the innocent girl could think of were all the tales of white canibalism she had heard of while growing up and of the serpent which moistens its victim with its lips before it begins its feast.

From India the practise of kissing spread throughout the rest of the Western world. The Romans had a different type of kiss - the Latin word being "osculum" which means "a little mouth" or a "sweet mouth" osculum was not applied to the mouth but to the face or cheek and it became the kiss of friendship, in direct descent from it, is the public embrace performed by French General and Politicians today. From the Romans the custom of kissing with the lips or mouth passed into the middle ages when to be able to kiss nicely was a required accomplishment of a knight in the courts of love.

There are records of another famous geographer who studied the peoples of Japan and found that the local

natives instead of kissing during intimate moments preferred to bite their companions without hurting them and the art of kissing as he knew it was unknown to these people.

Among ancient peoples, including all of those mentioned above who did not kiss on the lips the so-called "nose kiss" is the common form.

Charles Darwin came across it among the Maoris of New Zealand and he spoke of how "the native women placed the bridge of his companions nose at right angles to theirs and commenced pressing." During the process they uttered comfortable little grunts, very much in the manner as two pigs do, when rubbing against each other. "Grunt" like a pair of affectionate pigs! surely this is not what Romeo offered Juliet with the "two blushing pilgrims of his lips" or what made Grechan cling to Faust and ask for nothing better than that she "faint with his kisses, should swoon and die."

No definitely not piggy grunts - not pressed noses, not amorous sniffings but what Byron who knew more than his fair share about kissing described in his famous stanza.

"Where heart and soul and sense in concert move
And the bloods leave and the pulse a blaze
Each kiss a heart quake
Each kiss a heart quake."



The after effects of a practical on the
Geography of Kissing

These opposing views led to the development of two distinct philosophies in relation to natural hazards. The first of these is Catastrophism. This is the belief that the shape of the Earth including the stratigraphical layering in rock sequences and the large events which were associated with observable processes occurred as a result of cataclysms. These cataclysms were considered 'Acts of God'. So catastrophism retained the view that ultimately God was responsible. One of the strong points of these view at this time was the widely held belief that the Earth was no more than 6,000 or 7,000 years old according to calculations based on the Bible. Therefore, the Earth was not old enough to produce the extent of layering seen in some geological sites.

Opposed to this view were the Uniformitarians mostly consisting of Sir Charles Lyell and a number of other English geologists who in the 1830's developed this new philosophy. Lyell is most noted as the founder of modern geology. The principal belief of the Uniformitarians was that geologic and geomorphic features on the Earth were the result of slow cumulative change by natural processes operating at relatively constant rates. This statement has a number of implications, the first of which is that processes occurring on the Earth follow definite laws, the kinds that can be defined by mathematicians and physicists. The second is that for the kinds of geological and geomorphic features that can be seen on the Earth to have time to develop, then the Earth must be at least millions of years old and this is in contradiction to what the Bible states.

Throughout the 19th century battle raged between the Catastrophists and the Uniformitarians (Burrow 1968). This reflected the changes in society at the time spurred on by the work of people like Darwin and many other scientists. By the end of the century many people believed that the Old Testament of the Bible should not be taken literally, but could be seen more as a story to try and explain the creation of the universe and life itself.

Uniformitarianism was also shown to be flawed and was rejected by many scientists at the turn of this century. The principal reason for this was that it did not allow for large scale sudden events to occur as in the 1755 Lisbon earthquake. This dissatisfaction led to the development of Catastrophe Theory. This theory emphasised the naturalness of natural hazards. The core concepts of Catastrophe Theory state that large magnitude or sudden events alter both the processes at work and the landscapes that existed before the event. This implies that once this event has occurred that the processes at work and the landscape present before the event will not easily revert back to what existed before (Bryant 1991). This is the current dominant theory if natural hazards or disasters are examined from a geologic/geomorphic perspective.

It is also possible to examine natural hazards from a social science perspective. This essentially puts humans back to the forefront of natural hazard research. This is most forcefully put by Marxist Theory which states that "the forms of exploitation in the Third World increase the frequency of natural disasters as socio-economic conditions and the physical environment deteriorates, the poorest classes suffer the most, disaster relief maintains the status quo, and works against the poor even when it is intentionally directed towards them, measures to prevent or minimize the effects of disasters, which rely on high technology

reinforce the conditions of underdevelopment, exploitation and poverty" (Bryant 1991 p8).

Currently six broad approaches to natural hazards/disasters can be found most of which combine some element of the physical and social science approach. These are briefly summarised as follows: Geographical Approach with an emphasis on the spatial and temporal distribution of hazards, vulnerability, impacts, and the choice between different types of adjustment. The Anthropological Approach with an emphasis on disasters in guiding the development or destruction of societies and also looking at survival thresholds for both individuals and societies. The Sociological Approach examining disasters in terms of patterns of human behaviour and the impact on community organizations and functions. The Development Approach addressing the problems of providing aid and relief to disaster affected Third World countries. The Disaster Medicine and Epidemiology Approach focused on the management of mass casualties and public health issues in disaster affected areas. The Technical Approach with an emphasis on physical approaches to disasters and technical/engineering solutions.

Clearly human attitudes to and the philosophies associated with natural disasters have changed considerably over the last 250 years with the Lisbon earthquake of 1755 being an important focus for change. Although some people still hold to the view that God is ultimately responsible for natural disasters, most scientists realise that natural disasters are a direct result of humans occupying places where natural process can come into contact and conflict with their perceived order of the world.

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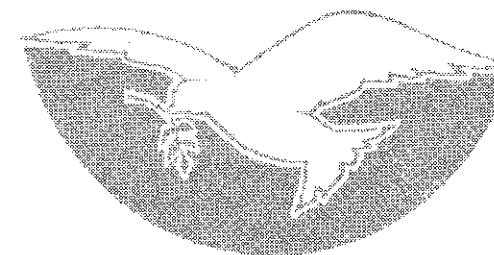
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