Spatial Inequalities and Regional Development, Hendrik Folmer and Jan Oosterhaven (Editors). Martinus Nijhoff Publishing, Boston, 1977; xv + 258 pp., figs., index, tables.

This study is a collection of papers presented at the Regional Science Symposium held at the University of Groningen (Netherlands) in September 1977. The central purpose of the work is to offer an interdisciplinary and comprehensive view of spatial economic inequalities and regional development problems. Following an introductory chapter written by the editors, the work is organized into two major sections. The first part deals with analytical studies of spatial inequality and regional development, whereas the second focuses on the evaluation and formulation of specific regional development policies.

In Chapter One, Folmer and Oosterhaven propose a comprehensive model primarily oriented to the formulation of regional development policies. Contrary to the idea of “unity” endorsed in the introduction, the model is composed of four major subsystems (demographic, sociocultural, economic and ecological) which are individually analyzed. Thus, regional development policies might be drawn from the comparison of the profiles of the various subsystems which, on the whole, would constitute the regional social system.

Folmer and Oosterhaven’s contribution is crucial for the rest of the book since it clarifies the main elements which have to be kept in mind when dealing with regional development and spatial inequalities and, more important, with the policy-making process. In addition, the authors identify what becomes the major issue of the book - sociocultural needs versus economic efficiency - and call for a better balance between the two. The general model of measurement and evaluation that they offer, however, is arguable and the usefulness of the differentiation of four subsystems is not clear. The main problem is that the subsystems overlap, leading to redundant evaluations. It seems plausible to suggest that the demographic subsystem should be kept because of its obvious importance in the policy-making process, but there may well be a case for either
integrating the other three with the demographic subsystem or collapsing them into one of their own.

The second chapter of the book and the first of the analytical section, “On the Contradictions Between City and Countryside,” is one of the brightest papers of the book. J. Friedmann hypothesizes that contradictions between functional and territorial bases of social transformation appear as main forces explaining spatial inequalities and regional development. The author distinguishes two general types of contradictions, cosmic and historical. Cosmic contradictions are constituents of the human condition while historical contradictions are not permanent. In this regard, Friedmann follows the Hegelian (dualistic) interpretation which states that all contradictions strain towards an expression of unity from which a new contradiction is born.

Once the conceptual framework for the analysis has been given, Friedmann concentrates on the contradictions between functional and territorial bases of social transformation. Functional social transformation refers to the linkages among entities organized into hierarchical networks on the basis of self-interest, whereas territorial social integration refers to those ties of history and sentiment that link the members of a community. According to the author, when a relationship between two entities (i.e., city and countryside or industrialized nations and developing countries) is functional, one is using the other as an instrument to accomplish a purpose of its own. The development of the functional view (i.e., economic efficiency) following the industrial revolution has had serious consequences in the city: accumulation of misery and squalor, cyclical instability, massive structural unemployment, pollution and social alienation. Friedmann shows that government policies and incentive programs have been largely ineffective to guide private investments into less developed regions. Yet more disappointing, he points out that there has been a lack of political will in solving problems of regional inequalities. Friedmann uses the same framework of functional-territorial dispute to explain the relationship between developed and developing countries. Colonialism has been replaced, according to the author, by another form of imperialism: the unequal exchange relations.

In Chapter Three, W. Hafkamp and P. Nijkamp write on the classic debate between “efficiency” and “equity.” It is postulated from the outset that the optimal use of resources does not necessarily guarantee social equity. They argue that the world is one of externalities and that these play a fundamental role in socially relevant economic analysis. The authors undertake a welfare-theoretical analysis based on the construction of spatial welfare profiles which would become the basis for an integrated welfare and policy framework between conflicting priorities (i.e., economic growth and environmental quality). The study shows how the analysis of spatial welfare profiles may lead to interregional welfare equilibria. The pareto optimal multiregional model is used as a starting point and then implemented. The main obstacle faced by Hafkamp and Nijkamp in the construction of their model is the individualization of the environmental externalities, which are non-market forces that have an influence on economic activities. The authors conclude that regional welfare profiles are useful tools to represent the welfare consequences of a set of competitive regions in an environmental framework. They also test the potential applicability of their framework in the Netherlands, where they prove that in areas where pollution constraints do not exist there are high values of average incomes, pollution and employment. This paper provides an extremely useful conceptual framework, with an excellent discussion on a very controversial topic: the real influence of externalities in our lives.

Chapter Four, written by U. Erlandsson, focuses on the study of contact potentials of particular nodes within the European communication system. Erlandsson’s methodological approach is based on a previous study carried out by Tornqvist (1973) in Sweden, which investigated the regional balance between travel facility demand and supply. Erlandsson’s study, all European capitals and cities with a population minimum of 500,000 inhabitants (98 urban centers) are considered. The first step of the study investigates the different possibilities of round trips in a given day by different means of transport between each of the urban centres. The author distinguishes between outbound maximum stay time (i.e., study of the travel opportunities for face-to-face contacts from each urban centre to all other centres) and inbound maximum stay time (i.e., the corresponding reverse opportunity). The second part of the research deals with the relationship between the maximum stay time possible within a work day and the size of the urban population. According to the degree of accessibility, Erlandsson organizes the 98 urban centres into three groups: Primary European Center, Intermediate European Center, and Secondary European Center.

The author concludes that the most populated regions have the best accessibility and that the lack of mobility of the different classes of urban centers is due both to the important role played by the stay time in the contact potential measure and to the fact that travel facilities, one of his main parameters, are related to the cities’ population size.

Erlandsson’s findings must be assessed with caution. A major problem arises from the fact that he uses population size as a main surrogate to measure the degree of accessibility. Therefore, it is not surprising perhaps that he finds that the largest urban centres also have the highest inbound and outbound accessibility. This contribu-
tion to our understanding of the phenomena in question is therefore somewhat limited.

Chapter Five is the closing paper of the first section of the book. In this case, J. A. M. Heijke and L. H. Klaassen attempt to explain migration from the point of view of mobility, which is defined as the propensity to move and which depends on the preference structure of the population. The authors focus on the examination of mobility in regional labour markets. They compare four different interregional migration systems (migration within Great Britain, France, Sweden, and the Netherlands) with an international migration system (from Mediterranean countries to Western European countries).

In relation to general mobility, it was found that the highest occurred in the Netherlands and the lowest in France and Great Britain. Sweden, on the other hand, occupied an intermediate position. Also, it was found that the influence of distance is highest in the Netherlands and lowest in Sweden. From this second finding, it is possible to argue that there is a negative correlation between the perception of distance and the size of the country. The authors' second aim is to analyse the migration and mobility of foreign workers. Only migration from Mediterranean countries to Western European countries was taken into account, and an income-difference factor was added to the variables used in the analysis. By using regression analysis the authors show that income differences between Mediterranean and Western European countries are related to migration but their contribution to the explanation of the variance in migration is modest. Clearly, there are other important variables to be considered, but these receive little or no attention by the authors.

Chapter Six represents the beginning of the second part of the book. W. Stohr and F. Todtling inquire into the relationships between the well being of small groups and regional planning at multiregional, national and multinational levels. They strongly oppose traditional development strategies carried out in market and mixed economies (i.e., neo-classical approach, sector theory approach, growth centre theory). They argue that many of the current development theories have emerged as explanations of past spatial patterns which had appeared under conditions of increasing functional and spatial integration and, therefore, they would hardly contribute to promoting equity. On the basis of the evidence presented by the authors their views are defensible. However, the reader is left with the impression that Stohr and Todtling have been "selective" in their choice of material. Certainly past strategies have sometimes met with little or no success but this has not been true of all strategies and all areas. As such the authors are at times over zealous in their condemnation, and a wider scrutiny of the evidence would suggest that their criticism is not entirely valid.

In Chapter Seven, H. W. Richardson stresses, once again, the central issue of this book: the current debate between "aggregate efficiency" and "interregional equity." He criticizes the use of "material indicators" (i.e., income per capita, Gross National Product, Gross Regional Product, and the like) as an index of welfare, and proposes, in turn, the use of welfare measures such as educational achievement, health indices and welfare facility scores. Richardson's discussion can be considered a very positive contribution to the study of spatial inequalities and regional development. He identifies the real problem in current regional development policies: the degree of compatibility between efficiency and equity. It is very easy to say that regional development policies should focus on income redistribution and social welfare; however, in order to pursue such a challenge economic growth has to remain as a key aim as well. The challenge, he stresses, is to redistribute wealth and not to share poverty. In this regard, Richardson concludes that the policy maker's task is to minimize efficiency losses and to ensure interpersonal and interregional equity.

S. Holland, in Chapter Eight, continues the attack on neo-classical theory. His analysis, however, is more general than in previous chapters. He emphasizes the role played by large corporations in accentuating regional inequalities and the lack of government control over this influence. According to the author, a reorientation of development goals is needed and this would be best achieved within the ideology of democratic socialism. While Holland's article is a valid contribution to this book in its clear identification of the crucial problems affecting regional development processes in the Western world, it leaves a central theme unanswered. In the final analysis, it is not clear if traditional development strategies are inadequate because of their manipulation for and by those in power, or because their theoretical bases are incorrect.

In the final chapter, Paul Drewe undertakes an evaluation of the Integrated Structure Plan for the Northern Netherlands using a strategic choice framework as a checklist. He concludes that the comparative failure of the plan and its major weaknesses are derived from the planning process itself. In his analysis, the author provides the reader with a detailed explanation of the strategic choice framework and some clear understanding of its use in evaluating a decision-making process. This is perhaps the article's greatest contribution, even if it was not the original intention, for the analysis of the empirical data presented is sketchy and insufficient information on the region itself is presented to allow a meaningful evaluation of the program.

In conclusion, it would be fair to say that Folmer and Oosterhaven have given us a sound and valid book that is also provocative. There are clear examples of overlap in many of the papers, and not

L'Urbanisation : une affaire présente le résultat d'une analyse marxiste du processus d'urbanisation dans l'Outaouais québécois. Les différents chapitres de l'ouvrage traitent de l'histoire du développement de la région marquée par les phases successives d'industrialisation et désindustrialisation de la Ville de Hull, par la tertiarisation de la main-d'oeuvre de Hull et par le phénomène d'urbanisation massive du territoire; de la structure de la propriété foncière dans le secteur urbain; du processus d'appropriation du sol étudié à partir des sources de financement, des modes de paiement et des transactions réalisées entre les propriétaires spéculateurs et les constructeurs; de la phase de construction des édifices, plus précisément du comportement des promoteurs immobiliers et des agents impliqués dans le développement du centre-ville de Hull et des immeubles à appartements; des interventions de l'État dans le développement des différentes parties de l'Outaouais québécois; de l'impact du regroupement municipal survenu en 1973 dans la partie urbaine du territoire; du rôle de la Communauté régionale de l'Outaouais (C.R.O.) dans le processus de développement de la région et enfin de la réaction des organismes populaires face au changement survenu dans la région.

Dans leur introduction, les auteurs définissent l'urbanisation comme étant le \( \text{«} \) résultat d'actions concrètes posées par des individus, des groupes et des organisations agissant pour défendre leurs intérêts \( \text{«} \). L'objectif de l'étude visait précisément à resituer l'urbanisation dans la dynamique sociale et politique \( \text{«} \) (p. 9). Les auteurs inscrivent leur démarche dans un cadre de référence théorique inspiré des études de marxistes français sur le phénomène urbain, notamment celles de Manuel Castells et de Henri Lefebvre et celles publiées dans la série Recherche urbaine de Mouton. En conséquence, ils utilisent les concepts de classes sociales, de l'État, de luttes et d'alliances entre les classes et les fractions de classe. Ils abordent la question du comportement de l'ensemble des propriétaires fonciers et des constructeurs ainsi que des autres fractions de la petite bourgeoisie locale et privilégient l'étude du rôle de l'État local dans le processus d'urbanisation. Cherchant élier l'urbain et la politique urbaine aux processus de consommation collective et de reproduction de la force de travail, les auteurs insistent sur l'importance de la consommation collective comme centre de la politique urbaine. Ils choisissent le logement comme élément essentiel de la reproduction de la force de travail alléguant qu'il est nécessaire pour permettre à la force de travail de se reproduire et qu'il est un élément fondamental dans la structuration de l'espace. L'étude aborde l'aspect politique de l'urbanisation. Elle examine la teneur des luttes politiques qui ont surgies autour des enjeux de l'aménagement spatial de la région. Elle analyse l'impact des activités des groupes organisés sur la scène politique régionale et sur les processus d'appropriation du sol et de production du cadre bâti.

La thèse soutenue par les auteurs est la suivante: \( \text{«} \) les mécanismes sous-jacents à la reproduction du cadre bâti et à la reproduction élargie de la force de travail ont entraîné des interventions multiples de l'État. Les interventions de l'État structurent et organisent l'espace en général ainsi que les espaces de reproduction de la force de travail. Ces interventions qui n'ont cessé de se multiplier depuis la deuxième guerre mondiale sont au cœur même du processus de transformation de l'espace dans l'Outaouais québécois \( \text{«} \) (p. 11). Incidemment, l'étude tend à démontrer que l'État a joué un rôle important dans la lutte entre les différentes fractions du capital en mettant du côté du grand capital l'État fédéral et l'État provincial et du côté de la petite bourgeoisie locale, l'État local; que les nouvelles structures politiques (regroupements municipaux, Communauté régional de l'Outaouais) diminuent le poids politique de la petite bourgeoisie locale et jouent le rôle de médiateur dans la lutte entre le grand capital et la petite bourgeoisie locale; que l'État local a défendu les intérêts de certaines couches de la petite bourgeoisie locale dans sa lutte avec le grand capital pour s'accaparer la rente foncière induit par des investissements publics au centre-ville de Hull, à l'échelle de la région; qu'il a tenté de juguler l'effet sur les classes populaires de la lutte entre le capital et le travail qui s'est soldé par des expropriations et des expulsions en faisant poindre la possibilité de relégation; que l'État local en donnant son appui à la transformation du centre ville de Hull permettait d'élargir la base fiscale et d'augmenter ses revenus; qu'il a légitimé le projet de transformation du centre aux yeux de la population en consacrant une partie de l'Ile de Hull comme zone de concentration et de réhabilitation du résidentiel et qu'il a donné son appui ferme au développement résidentiel périphérique en
Cet ouvrage a certainement le mérite d’établir une interrelation entre les dimensions socio-économique et politique de l’Outaouais québécois. L’accent mis sur l’étude de l’État local ouvre un nouveau champ d’analyse de l’État à l’intérieur de la problématique marxiste puisque les auteurs français se sont très peu penchés sur cette question vu la très grande centralité de la France. Le choix des orientations fondamentales Etat, espace et logement présente un réel intérêt lorsqu’il s’agit d’analyser la période du grand développement de l’Outaouais québécois. Toutefois, il demeure limitatif et nous empêche de saisir toute la complexité du processus décisionnel et du phénomène de perception de la population face au modèle de développement proposé. Ce cadre rigide de l’analyse marxiste risque d’aboutir à une interprétation biaisée des événements. C’est ce qui ressort de l’analyse du rôle de l’État local face aux classes populaires. En effet, les auteurs présentent les phases successives de démolition et de restauration qu’a connu l’Île de Hull dans les années 70 comme deux composantes d’un même projet de transformation du centre-ville de Hull favorisant les fonctionnaires fédéraux aux dépens des ouvriers. Cette vision étriquée de la réalité traduit tous les gestes posés par l’État local pour favoriser la réhabilitation du milieu résidentiel existant et pour améliorer la qualité de vie dans l’Île de Hull comme des atteintes aux droits de la masse populaire, alors qu’ils auraient pu tout aussi bien les présenter comme une illustration d’un renversement de la situation militant en faveur de la population locale et une manifestation de la volonté de l’État local de conserver en place la population résidant dans l’Île de Hull, en réaction au grand chambardement du début des années 70. Les groupes populaires marxistes n’ont jamais admis que l’État local réagissait de la sorte et qu’il tendait à privilégier la population de Hull avant celle des fonctionnaires fédéraux. Pour ceux qui connaissent le type d’habitations traditionnelles de l’Île de Hull et les exigences minimales des programmes de restauration se limitant à rendre les habitants conformes au code du logement, comment croire un seul instant que ce type d’interventions étaient destinées à attirer la clientèle des fonctionnaires fédéraux installés à Ottawa. C’est pourtant ce que soutiennent les auteurs.

Lorraine Tellier-Cohen
Urbaniste
Daniel Arbour et Associés Inc.
Montréal, Québec

Canadian Urban Growth Trends, by Ira M. Robinson. University of British Columbia Press, Vancouver. 1981; 179 pp., tables, photographs. $15.95 cloth.

This book records the remarkable shift in our views of Canada’s Urban future that took place during the seventies, and the associated reversal in urban policy thrusts. In 1970, growth forecasts that were based on the 1966 census, and hyped up by the Lithwick Report, were predicting populations of as much as six million for Toronto by the year 2000. It seemed likely that Southern Ontario would be entirely paved over: in such a crisis atmosphere the Ministry of State for Urban Affairs was born. The 1971 census supported these expansive forecasts, although the prescient could have noted signs of the deceleration of growth. MSUA expanded its activities in all directions, including a policy impact model that could spell out the implications of a Federal policy for any one of fifty locations. The 1976 census, however, indicated that the urban boom was over. Metropolitan areas were dispersing outwards more rapidly than they were growing at their centres. Urban decline became the new issue and MSUA packed up its bags soon after the results were in.

There are several morals in this story. The first is simply another reminder of the perils of prediction. Looking back, I am aware of how little we really knew about urban growth in the sixties - no migration studies, for instance, and no real sense of a city’s economic base or its vulnerability. Secondly, one is struck by how extraordinarily nimble a policy-making agency must be in order not to be overtaken by events. MSUA spent its eight years in perpetual turmoil, as it continually addressed new urban issues as well as new institutional environments. Thirdly, we are extremely slow to learn. After reviewing the events of the last decade, Professor Robinson is unabashed. His book clings to a vision of predictable urban development, guided by a benevolent national government that intelligently pursues balanced growth, preserves farmland and energy and other good things; using such willing policy mechanisms as DREE, CMHC, Manpower and Transport. The book gives no indication of understanding why the planning process did not work the first time, or why it might not work again.

This work is not written for regional scientists; in fact, it exemplifies most of the things they would like to replace. It is journalism, nicely packaged but highly derivative - filled with other people’s data, quotes and opinions. The style relies heavily on lists - of possible causes or possible results - with very little interest in analysing their relative importance. And all of it is wrapped in a haze of
piety - that somehow Planning (capital P) could make things better.

James Simmons
Department of Geography
University of Toronto

Settlement Planning and Development: A Strategy for Land Policy,

In capitalist market societies land is one of a trilogy of factors of production (with labour and capital); as such, its use and ownership are controlled by the impersonal forces of supply and demand - unless governments act to regulate and control the market in land. One of the sets of recommendations of the United Nations Conference on Human Settlements (Habitat '76) was that land had to be released from individual control and the pressures and inefficiencies of the market because of the crucial role which it plays for human settlements. These are the contexts in which this brief volume is situated: the paradox addressed is that land is a scarce commodity which is subject to the competing (but unequal in the market) demands of commercial use and human needs. As a result of this paradox there is a fundamental conflict over land.

This collision is expressed in several forms: is land to be used as living space, or is it to be employed for food production; is land to be treated as a resource, or as a commodity; is it to be developed according to the dictates of the market with private ownership, or is it to be regulated by government intervention and control? These issues are both urgent and important.

Those who are familiar with such matters, even in just a passing sense, will not find stimulation here. To those to whom such controversies are novel this book can offer a casual introduction, covering a series of issues ranging from making the Habitat '76 recommendations operational to considerations of land policy. The text is illustrated with eight photographs which portray various aspects of the land-settlement issue.

However, the reader searching for depth-of-coverage or intellectual stimulation will have to look elsewhere as this book is but an aggregate of brief comments written in a very vague and general style, the whole interspersed with the jargon of both planning and international institutions. The argument presented regards the moral necessity of land policy, supported by a description of planning strategies and by empirical vignettes. This volume is but a casual, brief, and hurried consideration of a serious topic; it is

doubtful that it contains much to interest the regional scientist.

J. Barry Riddell
Department of Geography
Queen's University


This book contains the author's research results about selected aspects of the development of the Dutch urban system during some parts of the period between 1840 and 1970. The body of the book consists of four nearly independent chapters, dealing respectively with (i) city size distributions, (ii) transportation networks, (iii) factorial ecology of the Netherlands' 33 largest cities, and (iv) diffusion of T.V. ownership.

The study of population growth is limited to the urban population. No attempt has been made to study the basic demographic processes of birth, death, and migration. Instead, the author looks at population growth in terms of the rank-size rule, the frequency distribution of the cities among size classes, the transition matrices showing the redistribution of the cities among eight size classes, and the classification of cities according to the average decennial growth rate. To maintain consistency in areal composition through a long stretch of time, the author has undertaken a worthwhile exercise of regenerating the historical data on population size according to the 1970 areal definition for all cities that had attained a size of at least 5,000 people by 1970. Some interesting findings in Chapter Two are: (i) a change in the log-log rank-size curve from being nearly straight in 1840 to being of three different slopes in 1970, mainly due to the relatively rapid growth of the second and third largest cities (Rotterdam and The Hague); (ii) two accelerations in city growth (one at the turn of the century, the other after 1920); and (iii) exponential rather than logistic growth pattern as being typical for the Dutch cities during the period under study.

In attempting to relate differential size and growth of the Dutch cities to the development of transportation systems, the author has performed in Chapter Three several regression analyses of city size (and its change) on accessibility (and its change) within the railway network, the waterway network, the road network, and all networks combined. Since most of the results are statistically insignificant, the analysis does not provide much insight into the interactions between the growth of cities as nodes and the development of the networks, except that the correlation between city size and accessibility is moderately positive (R ≤ 0.50 for the 278 cities with
at least 10,000 inhabitants in 1970; $R \leq 0.66$ for the 88 cities with population density greater than 1,000 inhabitants per km² in 1970; and $R \leq 0.70$ for the largest 33 cities in 1970). Many maps representing the snapshots of the transportation networks are shown in the book. Knowing very little about European history, I found it interesting to learn from the book that the peak of government expenditure (as a percentage of the national budget) for waterways occurred after the corresponding peak for the railways.

Chapter Four carries out the analyses of factorial ecology for three years: 1930, 1947, and 1960. The lack of data makes the analysis for earlier periods impossible. In each analysis, 33 observations (the largest cities) and 18 variables are used. The most important dimension, which is also most stable through time, distinguishes cities with high density, small households, few children, many old people, and high percentage of employment in service activities (e.g., the large cities like Amsterdam and Rotterdam) from cities with opposite attributes (e.g., the middle-sized cities like Heerlen and Emmen). The second dimension, which remains quite stable through time, contrasts cities with large Roman Catholic population and low employment in agriculture against cities with large Protestant population and high employment in agriculture. The third dimension, which is also rather stable, measures the importance of manufacturing industries. These three dimensions account for about 70 percent of the total variance. A fourth dimension that is identified by the author as representing “physical expansion” accounts for less than 10 percent of the variance and has been relatively unstable through time. The four dimensions are then used to put cities into several groups. It is interesting to observe that in all three periods, the four largest cities in the system are found in the same group.

In Chapter Five, the author has identified three stages in the diffusion of T.V. ownership: (i) an innovation stage (1957-1961) with a polynuclear distribution; (ii) a diffusion stage (1961-1964) with an outward spread around the urban centers; and (iii) a consolidation stage (1964-1967) with a gradual filling up of low ownership areas, resulting in a rather uniform spatial distribution of T.V. ownership per capita. Again, many maps are used to show the spatial patterns. Regression analysis is then used to test a set of ten hypotheses about the dependence of various aspects of the diffusion process on variables like income, migration, household size, age composition, population density, and education. Some hypotheses are substantiated, whereas others are not.

To find out the author’s main research results and to gain much insight into the development of the Dutch urban system, one must have a substantial amount of time and patience to read through this book. The main problem is that each chapter begins with an extensive literature review. The book shows the impressive breadth of the author’s knowledge in the literature of urban geography, transportation geography, and diffusion theories. However, instead of opening up new frontiers, the author has proceeded along the well-trodden paths in terms of both the formulation of questions and the choice of analytic methods for finding the answers.

To be fair, I must point out that the book does present some interesting discussions. For example, three types of urban system have been identified: a Christallerian system in the agrarian north; a Löschian system in the industrial south; and a Predian system in the metropolitan west. The author also recognizes the fundamental importance of the dominance of the east-west orientation in the transportation systems. This orientation is clearly related to the direction of the Rhine River and to the intermediate position of the Netherlands between the German hinterland on the east and the North Sea on the west. However, the author decided to consider the Dutch urban system as a “closed system” and hence did not attempt to explain urban development in the Netherlands within the broader context of the economic development of Northwestern Europe.

K. L. Liaw
Department of Geography
McMaster University