

WITWATERSRAND : BETWEEN PAST AND FUTURE

THE METROPOLITAN PROBLEM

An address delivered by Professor J. Wreford Watson, of the department of Geography, University of Edinburgh, in the Dorothy Susskind Auditorium on Monday, August 22nd, 1966.

The lecture is one of a series to celebrate the 80th anniversary of the founding of the city of Johannesburg and the 70th anniversary of the founding of the predecessor of the University, the South African School of Mines, at Kimberley.

THE METROPOLITAN PROBLEM

by

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One of the great problems facing the world today is the very unequal distribution of population. Over three quarters of the world's people live on less than a quarter of the world's area. This is partly a geographical problem in that the distribution of land and resources is very unequal. Of the 53 million square miles of land some 12 millions are too cold for man, 10 million are too dry, 6 million are too wet, and 3 million are too steep or badly eroded - making up about 60 per cent of the total. Thus only some two-fifths of the earth is really fit for habitation. But man makes matters worse by settling this in a most uneven way, avoiding areas of handicap and crowding more and more into the regions of comparative advantage.

Thus, although the world is growing in population at an alarming rate, parts of it are actually becoming emptier, while others have become crowded as never before. This is especially true of industrial and commercial countries where the population is drifting away from the country to the town. In highly urbanized lands it is drifting from the town to the metropolitan city, which is the main focus of human activity today. In America, one out of every fifteen people lives in Greater New York; in France, one out of every seven lives in Greater Paris; in England, one out of every four lives in Greater London; in Scotland, one out of every three lives in Greater Glasgow. Increasingly each nation is being dominated by one or two massive cities or city groups, in which the greater part of their talent and wealth, their creativity and productivity, is concentrated. South Africa is no exception, where about one in eight of the population lives in the Johannesburg region.

This is a modern phenomenon, at any rate in the frequency of its occurrence and the intensity of its development. Doubtless Rome and Byzantium were notable metropoli in their day, but one had virtually the whole of western Europe and North Africa to draw upon, the other Eastern Europe and the Near East. In Rome's sphere there are today 28 cities of over 1 million, and where Byzantium once held undisputed sway there are 11 cities of a million or more. Europe is studded with huge urban agglomerations, to which an ever greater amount of the rest of the population is being oriented. In each of three relatively restricted areas in Britain alone there are massed as many people as in all South Africa; thus, within 40 miles of the heart of London live about 14 millions; within 25 miles east and west of Birmingham live over 12 million; and in the eighty mile span between Liverpool and Leeds about another 12 millions may be found.

When I first went out to Canada before the war, there were 11 million people, which was no more than could have been counted within a circle of 20 miles radius from Manchester. There were then as many dwellers in New York as in the whole of Britain's oldest Dominion.

The situation has not greatly changed. As rapidly as Canada, South Africa and Australia have grown, so rapidly have some of the huge urban agglomerations in England, notably Birmingham and London. For example, London and the southeastern counties of England are receiving an annual immigration from other parts of Britain, from the

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Commonwealth, and from Europe in excess of the total combined immigration into Canada and Australia'. Britain as a whole, the Rhinelands, the Low Countries, the Paris Basin, and the northeast seaboard of America from Baltimore to Boston, have all got metropolitan concentrations that are staggering in dimension.

A comparison of their stories would show that, in spite of many differences, they had much in common. Metropolitan cities have very similar problems. All grow at the expense of other parts of their countries; expansion at the centre is matched by decline at the margins. Nevertheless, all help to raise the general standard of their countries; progress at the centre is now the main hope at the margins. All are gobbling up the countryside, yet all are producing far more than the dispossessed parts of the countryside could have had they remained rural. All are making the rural areas around them more and more citified; and yet all are increasingly in need of open space and land for recreation. All are characterized by people wanting to come into the city to work, and at the same time by citizens wanting to go out into the countryside to live. All are the major centres of movement in their region, yet all are being strangled by the traffic they generate. All are growing too slowly in the centre and too fast at the outskirts. All suffer from congestion and obsolescence in the heart of the city and a lack of co-ordination and purpose at their fringes. All stand in need of down-town renewal, and of out-of-town development. All have expanded by a physical merging of many different municipalities, and all require some form of supramunicipal government. All need to re-think their growth in terms of the growth of their countries as a whole. All need to control, even to the extent of restricting, their own immediate expansion, and to help spread that expansion over a wide sphere: in fact, they ought to think and grow as greater regions rather than as urban areas.

Since most metropolitan communities share each other's problems, it would be pointless to describe them all. I therefore propose to take the one with which I am most familiar, that of Clydeside, in Central Scotland, and use it as an example of metropolitan problems in general.

Two hundred years ago there was, in fact, no problem, since Clydeside had not become the highly overcrowded and congested, though productive, metropolis it is today. At the beginning of the nineteenth century Scotland was without a metropolitan centre. It was a country where the population was still relatively evenly spread or where, if the people had begun to gather together, they did so at many centres, region by region, throughout the country.

As an instance of this the Highland and Border counties had, in Scotland's first census of 1755, almost the same number of people as the Lowland Counties. The Highlands and the Southern Uplands or Scottish Borders then counted 618,593 people or 49.9 per cent of the nation's total, as against 646,787 or 51.1 per cent in the Lowlands. This relatively equal balance was not to last. The share of the Lowlands grew much greater with the onset first of the agricultural revolution and then of the industrial revolution. By 1851, a century later, the Lowlands accounted for 64.7 per cent, and the Highlands and Southern Uplands for only 35.3 per cent. In 1951, a century later again, the Lowlands had 80.3 per cent of Scotland's population, while the Highlands and Southern Uplands were left with a mere 19.7 per cent. As the Lowlands expanded in numbers they attracted still more settlers; success bred success. The feeling got abroad that opportunity and progress lay in the Lowlands and a great drift into the centre of the country occurred.

Up to a point this drift was all to the good. It helped to show

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how marginal the Highlands and the Southern Uplands really were and to stress the comparative advantage of the Lowlands. It made men realize that it was no use struggling with the rugged and stormy lands north of the Highland Boundary or south of the Southern Upland front, when they could make more for themselves, and for Scotland as a whole, in the Midland Valley in between. To this extent metropolitan growth plays a very positive rôle. It draws men away from marginal pursuits in debatable land, and attracts them to more profitable activities on land of greater promise. It focusses effort on maximum worth. In too many parts of the world men are trying too hard to use land that is too dubious. Output simply does not match input, and as a result their standard of living gets more and more depressed. Thus it might be better if some of the world's empty lands grew actually emptier and men concentrated their energies on intensifying the use of the more usable land, instead of drawing on the wealth of the good areas to prop up the poverty of the poor.

To my mind it did Scotland a lot of good to empty its glens and fill up its firths, since the more intensive development of the Lowlands brought far greater prosperity to the country as a whole than the struggle to maintain the Highlands. Decline at the margins of a country in favour of expansion at the centre may do the country no harm. In fact, expansion at the centre may then so raise the whole standard of the country as to resuscitate the margins. This can be a very significant rôle of the metropolitan region. If the Highlands decline, Scotland wont sink; but if Glasgow goes under, God help the Highlands!

However, beyond a certain point the drift from the Highlands into the centre was embarrassing, because it produced problems that were as great as, if not greater than, any it might have been expected to solve. It began to produce overcrowding and to lead to congestion, and eventually choked the very growth it had started to stimulate. Migration became, and still is, chronic. Those who remained on the farm or in the small country towns were derided as "stick-in-the-muds". The thing to do was to "try one's luck in the city". A mental image was created of success in the metropolis that drew thousands there, whether they were really likely to succeed or not. To "get on" was to "get out" - which is still the common view. The cities of Aberdeen, Dundee, Edinburgh, and Glasgow, and the group of industrial towns in Fifeshire and Ayrshire, expanded so rapidly and on such a scale that they came to suffer from appalling overcrowding. This was particularly true of Clydeside which, although it only amounted to one per cent of Scotland by area, came to have 35 per cent of Scotland's population by 1961.

Such a position is intolerable. It has meant the growth of large and serious slums. It has produced terrible traffic congestion. It has led to obsolescent commercial and industrial buildings. It has reduced industrial efficiency and slowed down industrial growth. Consequently, Scotland's major problem today is not keeping what population there is in the Highlands but dispersing the horribly congested population of Glasgow. About 250,000 people must be moved out of Glasgow if that metropolis is to have room to live and breathe: this is all but the total population of the Highlands and Islands, which is about 270,000.

Here is another characteristic of the metropolis: success, if carried on in an unchecked way, can handicap further success. Where growth becomes unmanageable it jeopardizes additional growth. Over-development dooms progress.

Glasgow has gone on growing until it has taken in most of Clydeside and now has the densest population in Great Britain, London not excluded.

This can be seen in the landscape, first by an immense urban sprawl into the countryside and, second, by extraordinary overcrowding at the centre. Glasgow has pushed out its roads and houses until it has filled in practically all the spaces between itself and its former neighbours like Wishaw, Motherwell, Hamilton and Paisley. These towns have added to the congestion by growing out towards Glasgow. Thus a huge conurbation, or merging together of towns and cities, has occurred which now has a population close on two million people out of the total for Scotland of about five and a quarter million.

Unfortunately, much of the area taken over by this conurbation has been from the very best agricultural land in Scotland. The Clyde valley is floored with fertile marine deposits all along the estuary and indeed to a point well above Glasgow, where rich river alluvium then extends up stream to above Lanark. The whole valley forms a shallow basin protected by hills, especially on the side of the Atlantic, and so is less wet and more sunny than most areas in the west, and suffers less from frost. It has long been famous for its fruit farms and market gardens. But of course the very factors that favour agriculture, attract urban expansion. Low land is excellent for rail and road development. Deep soils make it easier to put in drains and pipelines. A mild climate cuts down on snow clearance and storm damage, and increases work efficiency. It also draws the suburban dweller who wants a good garden round his house. Consequently, about 360 farms a year are being taken over for city development, and there is less and less fruit and fewer vegetables to feed the urban market! To this the industrialist replies that the profits from one large factory, let us say Rolls Royce at Hillington, or the manufacture of Hillman Imps, at Inglewood, would buy more than all the strawberries or apples Clydeside ever could produce.

That may be true, but what the factory cannot buy is air and light for its workers and green and open space for their recreational needs. The metropolis is cutting off man's contact with nature. It has displaced hunting. It has ruined fishing. It has made walking in field and wood virtually impossible. It has cut down on open-air activities, save for organized games on city football fields. It has driven people into the cinema, the pool room, the bowling alley, or the dogracing stadium for their recreation, and put recreation on a mass-basis, essentially run for commercial interests.

Metropolitan planners have tried to make room for all types of recreation by opening up the town for a greater amount of play space and by preserving a green belt around the conurbation for country pursuits. The difficulty in the Glasgow region is that three counties and twenty-one municipal authorities are involved, so that there is no single over-all body in control that can secure these ends. Partial green belts are obtained, but there are many breaks where city sprawl continues almost unchecked.

Outward expansion means inward movement. As the city grows out, two inward flows are generated. There is, first, the inward migration of people anxious to find work and live within the city itself, and preferably in the downtown areas where the cost of going to work is reduced, and then, second, there is the vast commuter inflow of people from the suburbs and the neighbouring towns and country districts.

In-migration into the heart of Glasgow is still going on at the rate of several thousands a year, even although the city is encouraging the re-settlement of slum dwellers on the outskirts. There is a tremendous attraction in a booming city, and families are prepared to move into even slum areas, and thus to add to slum conditions, in the hope of finding the

work they long to secure. This is especially true of incomers from well outside who have come a long distance to find their fortune in the city, and in the city they will try to find it. In Glasgow, for instance, boys from the Outer Hebrides, and boys from Ireland don't want to live in digs in the suburbs; they try to get close to the docks, the offices, the shops, the central industrial and business areas where they believe job hunting will be made easier and job opportunities should be greater. They may in fact be wrong in this, but that is their reasoning, and it drives them on into the heart of the city. Consequently, there are large areas in downtown Glasgow populated by Highlanders and by Irishmen. The latest newcomers are the Pakistanis, Indians, and West Indians. Invariably, these go for low value property in the densest parts of the town, which they can rent at very low rates, and into which they pour, crowding already crowded areas. As a great port, Glasgow is one of the significant places of entry for Asian and West Indian immigrants and their numbers are daily increasing.

The continued inward migration of peoples aggravates a situation where the downtown population is itself increasing. In Glasgow many of the Highlanders and most of the Irish are Roman Catholics. Families are large. The natural rate of growth of the population is in excess of anything else in Britain, with the possible exception of Liverpool. The birth rate is 19.1 per 1000 of the population which is one of the highest in Europe. It is higher for example than that of Italy (18.4 per 1000), usually thought of as a country rocked by the population "explosion"; or than West Germany (17.6 per 1000), the most rapidly growing country in Europe; and it is much higher than the rate for England, which averages out at 16.5 per 1000.

The result of all this is that Clydeside now has some of the worst living conditions in Britain. No less than 15 per cent of the people are living two or more to a room. This compares with 6 per cent for Scotland as a whole, and with less than 1 per cent for England. In the Gorbals district, which is regarded as the most congested of Clydeside slums, nearly a third of the tenements are without inside toilets, and have no hot water cisterns.

As a consequence a very costly system of slum clearance has had to be initiated. But this has run into the difficulty of finding land for extensive housing schemes. Before the war, the tendency was to buy comparatively cheap land at the margins of the conurbation, and move the tenants out from the city to the edge of the country. But this did not work too well; partly because folk born and bred to the heart of the city could not abide living in the countryside, but mainly because middle-class people were buying up countryside locations for suburban development. Land became very scarce.

This is typical of many metropolises: they draw in people to their margins as well as to their centre. Glasgow is, after all, a great focus of the professions and of the arts, as well as of business and industry. Its University, which was founded in 1497, long before many Oxford or Cambridge colleges, has attracted a lot of students and staff. The Royal College of Technology has also had a reputation sufficient to bring many families to the area; in its new rôle of Strathclyde University it should prove more attractive than ever. Glasgow has some very fine schools that make it worth the while of families ambitious for their sons to move into the area. Its Art College is one of the most famous in Britain. It is now the radio and television capital of Scotland. Indeed, it has a tremendous cultural impact on the nation, to which a great number of people have responded by migrating there. Naturally, if they can afford it, they live in the suburbs. They offer strong competition to low-cost public housing for the use of suburban land.

This is a problem that is more serious in Clydeside than Witwatersrand, yet I understand that here too it is present and that, to make room for low-cost native housing, some European suburbs have had to be halted or even moved.

In Scotland, because of the difficulty of moving people out, authorities have had to move them up. Public housing, which in the thirties was two or three storeys in height, is seldom under four storeys today, and is often concentrated in what are known as "high rise" tenements of fourteen to twenty storeys. Again, drawing a comparison with Witwatersrand, it seems to me that much too much of your low-cost public housing is much too wasteful of land. While I understand the traditions which have prompted the use of one storey family houses, I cannot but think this will create grave problems for the future. No metropolis has land to waste on low-density housing. Metropolitan growth can only succeed if it is land-intensive. One of the ways in which it can save land for industrial expansion, improved transportation, and much-needed recreation, is to develop high-density high-rise housing. This is done in the private sector in Glasgow by six-storey flats in middle-class areas like Kelvinside, The public sector cannot be less careful of land and provide for low-income people what high-income groups have had to accept through the sheer economics of city land values.

One of the problems created by the undue filling up of land through the outward sprawl of houses has been the growing density and decreasing efficiency of traffic. As long as businesses and factories remain at or near the centre, then people living out must come in for work. Vast tides of population thus set in to the city every morning and ebb from it every afternoon. In the Clydeside region there is a daily movement of about 100,000 people. Unfortunately, the roads and railways were never built for this, and consequently traffic jams are absolutely appalling. The car is choking the city to death. Yet the car-driver is a citizen, and, as a tax-paying citizen, he feels that the city should make room for his car. Certainly the motorist is taxed heavily enough. The car and petrol taxes, however, go to the central government, who do not return it to the municipalities, or give proportionate assistance for road building. Municipalities therefore have to put out much more for the motorist by way of road-construction, police, accident-prevention or hospital-care than they receive. Somehow the metropolis has got to control the car. The Buchanan report suggests that this might be done by separating public and private transportation and, above all, by separating vehicular and pedestrian movement. This is too expensive at present. What Glasgow has done is to prohibit parking on all main thoroughfares within one mile of the city centre, and to put in parking metres on the side-streets so as to make the motorist pay for the space he uses. Meanwhile it has made plans for a great four or six-lane inner ring-route, with fly-overs at all the intersections with main radial thoroughfares, so as to relieve the traffic congestion. I note with interest that Johannesburg is also using fly-over routes in order to separate traffic streams in busy areas, and thus flush the traffic through the city.

More serious than traffic congestion is the over-crowding in business and industry. The Clyde is absolutely jammed with factories all wanting to be near water, both for a good supply of industrial water, and also for cheap water transportation. Clydeside was quick to make the most of ocean contacts with the Americas, West Indies, and West Africa. In the eighteenth century it started up tobacco, sugar and cotton factories to make use of the imports from America and the British West Indies. Above all, it began to make iron ships, from the iron plates and rods struck in the iron and steel plants on the Lanarkshire coal and iron field.

Its early lead in all these industries gave it a great advantage, and it forged ahead as a principal industrial and commercial centre in Western Europe.

However, the benefits of cheap coal, and of nearness to water and to ocean transportation, began to create real problems. They led to an overconcentration on the banks of the Clyde. So many plants struggled for a water-side location that Clydeside found it difficult to adjust to road-side locations, or, in the contemporary scene, to sites at airports. The concentration of industry has drawn coal yards, warehouses, housing, and shops to the fringes of the Clyde, and thus worsened conditions. Industry is caught in the vice of old connections and cannot break through to new contacts. Indeed, obsolescent factories caught in the toils of obsolescent housing areas, and unable to replan their development in a modern way to use modern transportation, are a heavy burden on the Scottish economy. Relative to its population Scotland has 20-30 per cent more obsolescent factory buildings than England. This has had its effect on industry as a whole, which finds itself more tied to the past and less able to meet the demands of the future. Only about six per cent of Clydeside industry is in the fastest-growing categories, and Scotland lags behind in providing new growth in employment. Whereas West German's national product is growing at the rate of 6.7 per cent per annum, or that of France at 5.4 per cent, growth in Scotland is only about 3.4 per cent.

Thus we see that the very successes of the huge metropolitan growth in Clydeside, once a region in the very forefront of the industrial revolution, have created such overconcentration and congestion, that advantages have become handicaps and metropolitan expansion is slowly strangling itself.

But Scotland has not shown initiative and enterprise over the generations for nothing. It is quite aware of its problems, and is determined to overcome them. This is being done in four main ways: first, by re-development of the worst areas, in those areas themselves; secondly, by creating new industrial estates and shopping and housing areas at the margins of the city, to relieve pressure at the centre; third by negotiating with other towns and cities to take some of the overspill of Glasgow's population; and fourth, by starting new towns altogether, at some distance from the metropolis, although closely related to the mother-city. New multiple-lane motor-roads and the electrification of several railway lines, are supplying the necessary links to integrate all these improvements with each other and with Glasgow.

As a result of all this, some of the most forward-looking and exciting developments in Europe are now going on in Central Scotland. Man is mastering the metropolis, and not letting it overwhelm him. New patterns of metropolitan growth are emerging which should lead both to more efficient production and more satisfying living.

A massive scheme of urban redevelopment has already got under way in the Gorbals, a slum area just north of the city centre. The scheme consists of unscrambling the chaotic jumble of dwellings, shops, warehouses and industries, so that a planned community may evolve, with houses separate from industries, and roads to and from the houses separate from the industrial thoroughfares. To begin with, the houses are given the river-side location, not the factories, in order to provide them with light and air, open spaces, and a pleasant view. Masses of old warehouses and industries have been cleared away, the roads entirely re-adjusted, spacious grounds laid out for recreation, and blocks of high-rise apartments built, 18 to 22 storeys in height, and oriented in such a way as to catch the warmth and the light from the south and west. Associated with the tall

blocks of flats there have been much lower 2-storey houses for old people. Each group of flats has its own little shopping centre, baby creche, primary school, church, health clinic, and community hall. Rents are heavily subsidized so that the low income families of the area can still stay in the district in which they were brought up. Meanwhile, new factories and warehouses are rising near newly-built industrial thoroughfares that provide much faster and more efficient connection between producer and trader.

Re-development cannot be the whole answer, however, It consumes too much space. In order to open up the town at the centre, with room for good living, for play, and for communication, it is necessary to make use of the margins. Consequently, Glasgow has developed six great new industrial estates on the periphery of the city. These have been done on the basis both of public and private support. Glasgow has bought land and built a number of factories while at the same time supplying houses, roads, and other facilities. But the Industrial Estates Management Corporation has also put up factories, and the Scottish Special Housing Association has built houses for rent. The Government's Board of Trade has likewise constructed factories for lease, while the larger industries themselves have invested heavily in factory construction. The Hillington Industrial Estate is the home of the Scottish branch of Rolls Royce; Queenslie, lying on the main Glasgow- Edinburgh road, is tenanted by over 20 factories, mostly making office machinery; nearby is Carntyne, featuring electrical appliances; Craigton, on the south side, has a variety of service industries; while Thornliebank, to the south east, specializes in heating and drying equipment. The Glasgow estates have all been carefully located to make the fullest use of transportation, of good housing sites, and of sources of labour.

Important though such measures are, they have not been enough to relieve the pressure of population. Every improvement they make is threatened by the growing numbers of people in need of still more jobs and still more accommodation. Glasgow has, therefore, entered into agreements with towns which are short of labour, to house Glasgow tenants there. The Corporation assists these other municipalities in putting up the homes, schools, and hospitals needed, while the central government offers aid for industrial development. In this way towns as remote as Dumfries in the extreme south of Scotland, Haddington in the southeast, and Inverness in the far north, have helped to take some of the Glasgow over-spill.

But it soon became apparent that such help was not sufficient: it took a long time and much trouble to negotiate. The real answer appeared to be the development of daughter towns on new sites where new road and rail facilities and completely new town lay-outs could be secured. Such towns would be free to specialize in new types of industry housed in new styles of factory, and thus counterbalance obsolescent industry at the city centre. Taking advantage of the Central Government's legislation for new towns, Glasgow and its associated towns or counties, built the new town of East Kilbride, on the fringes of the Clyde basin. This was near enough to attract Glasgow industry and population, yet far enough to prevent further overcrowding of the great metropolis.

East Kilbride was most attractively laid out, it developed large housing estates and a good shopping centre, and it secured government research agencies and a number of factories: but it made hardly any difference. The "new town" idea looked as if it might fail.

The trouble lay not in the idea, but in its execution. People

had thought well, but they had not thought big enough. East Kilbride was planned for 50,000. This, next to a metropolis of nearly two million, meant nothing. It should have been planned for 150,000, and there should have been several such enlarged new towns. A metropolis forms a huge problem, and can only be helped in a huge way.

Fortunately, this has now been recognized, and plans are underfoot for two large new towns of 100,000 to 150,000 between Glasgow and Edinburgh. Indeed, extensive building has already taken place and the new towns of Cumbernauld and Livingston are rising from the fields.

In all these ways, by the re-development of Glasgow itself, by the creation of new industrial estates on the city margins, by over-spill into other cities, and by the establishment of altogether new towns, the problems of Glasgow, as one of Europe's great metropolises, are beginning to be met.

A new metropolitan pattern is starting to emerge, not merely of an engrossed city, but of a citified region, in which all the area dependent on the city is both given the opportunity and faced with the responsibility to serve its growing needs. We think too much in terms of municipalities, urban and rural districts, and counties, and not enough of the entire region into which they fit and from which they draw their sustenance. The new metropolis is not the "queen of cities", but a "family of communities": it is not merely the heart of the region, but the region as a living whole, fitted together as one body.

It is difficult to argue from one case, for another. It may well be that the situation in the Witwatersrand is substantially different from that in Clydeside. In that event what I have had to say can only have been of academic interest. But if your community, too, has become so congested that it is running out of land, is short of water, has half choked itself with traffic, has a chronic housing problem, suffers from inflated ideas but all too deflated schemes, and is confused by too many councils, it might well find the experience of another metropolis an interesting, if not an entertaining, story - and here and there take a page from our book!

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