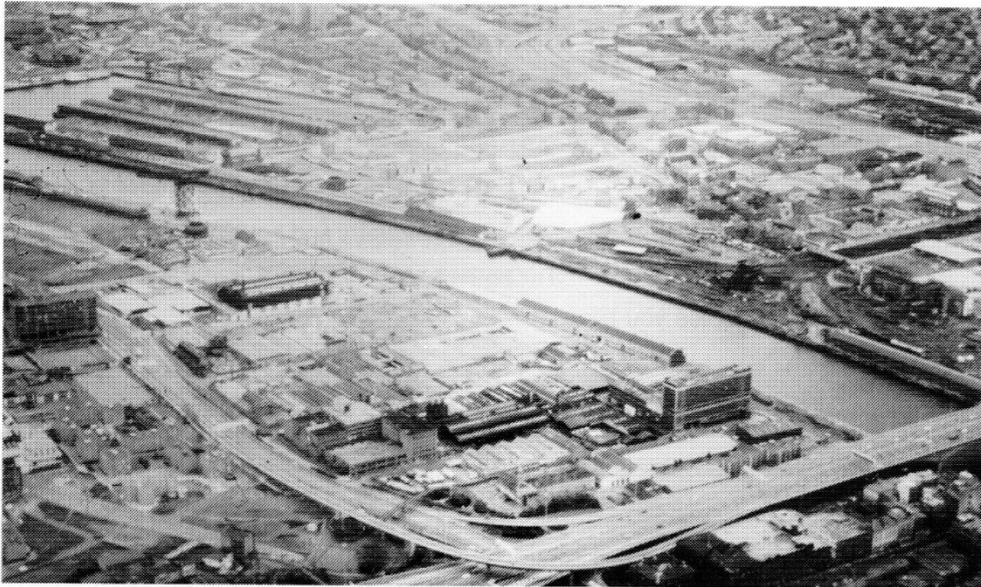


INDUSTRY: Classification of Industry

Fig.26 An industrial area



Key Idea : The viability of industry is affected by a variety of factors

Industry covers any activity which is performed for profit. **Industrial areas** can vary from the traditional industrial scene shown in Fig.26 to a single farmstead or cottage in which work for commercial gain is undertaken. Industries can be viewed as **systems** (Fig.27) where various Inputs, processes and outputs are matched to markets which determine profit or loss and therefore the success of the industry.

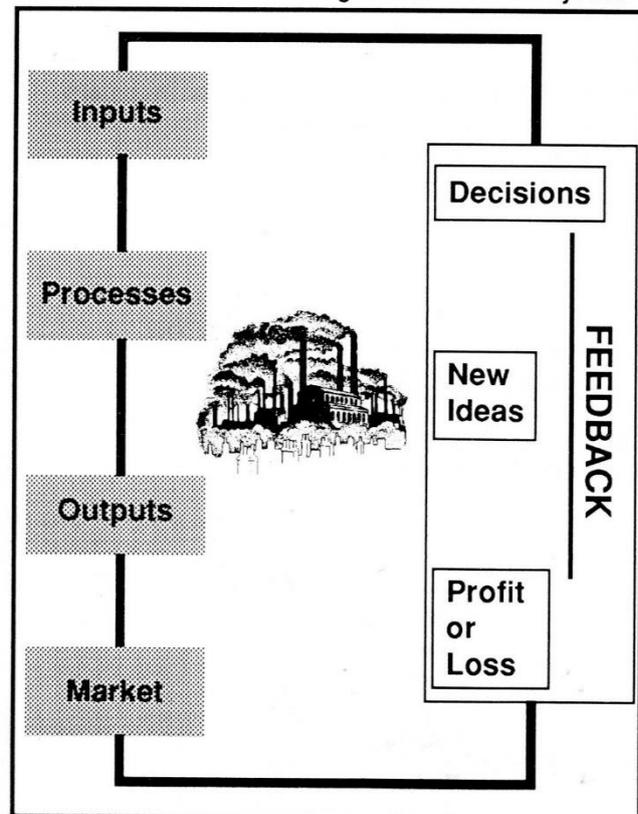
Inputs include resources (raw materials, energy, etc), capital (Invested money), labour (workers), technology (equipment, machinery, computers, etc), communications (roads, phone lines, etc) and environment (land, climate, space, etc).

Processes can include manufacturing (making steel, flour or petrochemicals, etc), assembling (putting together various components into, eg. cars, computers, televisions, etc), designing, writing, communicating, etc. Processes depend on the nature of the industry and can vary within any one industry.

Outputs can include a wide variety of products and services, eg. wheat, propane gas, bread, ships, educated people, computer software, information, etc. Changing **markets** (where products or services are sold) and competition from other businesses often mean decisions must be taken to change or update the products or services in order to keep the business in profit.

Many industrial experts believe that the only constant in business is change and that adapting to industrial change (even anticipating change) is the key to maintaining profits and industrial growth.

Fig.27 The Industrial System



Industry is often divided into 5 main classifications or categories depending on their function (the job that they do). Industrial surveys also use a Division type classification for research purposes (Fig.29).

Fig.28 Selected main industries as systems

Industry	Inputs	Processes	Outputs	Market	Feedback
Coal Mining	Energy, Labour, Machinery	Mining Quarrying	Coals of different types	Power Stations Industries, Households	Profits Quality of coal Cheap imports
Steel making		Iron smelting Furnacing Rolling			Profits, Quality of Steel Foreign imports
Nuclear Power Stations	Uranium rods Water (Cooling) Large buildings		Electricity, Waste, Hot water		
Doctor		Interviewing Communication Diagnosing Operating			Quality of Care, New medicines & treatments
Computer System Software Production	Hardware system Skill		Software Programs Documents	Industries Households Schools	

1 **Primary Industry** - *extractive* industries which produce raw materials, such as farming, mining, fishing, etc.

2 **Secondary Industry** - *manufacturing* industries (where raw materials are processed into finished products, such as steel-making, biscuit factory, brewing, etc) and *assembling* industries (where components are put together with skill to produce a finished product, such as car and computer assembly, etc).

3 **Secondary Industry** - *power producing* industries such as thermal power industries where fuel from oil or coal is used to generate electricity for domestic or light industrial purposes.

4 **Tertiary Industry** - *service* industries which involve no finished product but provide personal services to the community, such as teaching or the police force.

5 **Quaternary Industry** - *information* and *office*-based industries such as finance, insurance and computer software services.

Secondary (Manufacturing) Industry is often referred to as **Light** or **Heavy** industry.

Light industries produce lightweight goods (such as electronic components). Heavy industries produce large, usually heavyweight products (such as ships, girders, boilers, etc)

Fig.29

Assignment

- Study Fig.26.
Which classification(s) of industry are shown here ?
- Write definitions of each of the following :-
Industry, Industrial system, Inputs, Processes, Outputs, Market, Feedback.
- Copy and complete your own version of Fig.28 (Industries as systems).
- For each of the 5 main classes (or categories) of industry give :-
i. a definition
ii. at least 2 examples of your own.
- Study Fig.29.
i. Match each Division (0-9) with one of the 5 main classes of industry. Illustrate your answer in a table.
ii. Using the Industrial Classification shown, investigate the main types of industry in your local area. The Yellow Pages Directory is a useful source of information.
iii. Write an illustrated report on industries in your local area (eg. include bar graphs showing each division, give reasons for types of industries, etc).

AN INDUSTRIAL CLASSIFICATION	
Division 0 AGRICULTURE, FORESTRY & FISHING	Agriculture & Horticulture, Agricultural Machinery, Forestry, Fishing, Fish-Farming, Fish Processing
Division 1 ENERGY & WATER SUPPLY INDUSTRIES	Extraction of Oil, Oil Processing, Nuclear Fuels, Production & Distribution of Electricity, Gas and Other forms of Energy, Water Supply Industry
Division 2 EXTRACTION OF MINERALS & FUELS, MANUFACTURE OF METALS, MINERAL PRODUCTS AND CHEMICALS	Extraction of Minerals, Extraction of Stone, Clay, Sand & Gravel, Concrete, Cement & Plaster, Glass, Ceramic Goods, Chemical Industries, Paints, Inks, Soaps, Detergents, Perfumes, Cosmetics
Division 3 METAL GOODS, ENGINEERING & VEHICLE	Metal Goods, Bolts, Nuts, Springs, Chains, Mech.Engineering, Machine Tools, Textiles, Electronic Data & machinery, Telecomm. Equip. Radio, Electronic Components, Motor Vehicles, Shipbuilding, Instrument Eng.
Division 4 OTHER MANUFACTURING INDUSTRIES	Slaughterhouses, Animal Products, Milk, Fish Processing, Grain Milling, Bread & Flour, Ice-cream, Cocoa & Chocolate, Wines, Beers, Spirits, Brewing Textiles, Leathers, Footwear, Furnishings, Sawmilling, Paper & Printing, Rubber & Plastics, Jewellery, Coins, Toys, Games, Sports Goods, Others
Division 5 CONSTRUCTION	Building, Civil Eng., Demolition
Division 6 DISTRIBUTION, HOTELS & CATERING; REPAIRS	Scrap Metals, Distribution of Raw Materials, Fuels, Timber, Building Materials, Machinery, Vehicle components, Food, Drink, Tobacco, Repair of Consumer Goods, Vehicles, Machinery
Division 7 TRANSPORT & COMMUNICATION	Railways, Road passenger Transport, Road haulage, Sea & Air Transport, Postal Services, Telecommunications, Supporting services
Division 8 BUSINESS, PROFESSIONAL & TECHNICAL SERVICES	Banking, Finance, Insurance Architects, Surveyors, Training, Office supplies, Computer Services, Property, Marketing, Graphic Design
Division 9 OTHER SERVICES	Public Admin, Police, Fire, Health Education, Tourist Offices, Radio & TV Stations, Libraries, Laundries

INDUSTRY: Changing locational factors

Key Idea : The viability of industry is affected by a variety of factors

Fig.30

The industry shown in Fig.30 has a coastal location close to a good road network with plenty of flat land nearby with room for expansion should the industry require it. All industries attempt to select an ideal location in order to minimise their costs and maximise their profit potential (the money they make).

Industrial location is dependent on a number of factors which vary over time in response to new developments in products and services, changing markets and improvements to communications, etc.

Capital - is the money available for investment in the industry, to set up and run new industries.

Raw Materials - many industries locate as close as possible to supplies of raw materials which they use most, eg.. a cement works is usually located in close proximity to a limestone quarry. This location saves money on transport costs, especially where the raw material is heavy and bulky to transport.

Communications - good communication and transport links are essential factors influencing the location of industry. The movements of people, goods and ideas along natural and artificial routeways, utilising roads, railways, air and sea routes and various telecommunication links play a vital part in the successful operation of many industries.

Site - the actual land the industry is built upon is also an important consideration. Ideally it should be cheap, flat with adequate room for expansion and close to good communication links.

Markets - places where goods and services are sold. Many industries supply goods and services for sale in large urban areas. By locating near to or within a large city, a large market is provided and transport costs reduced.



Labour and Skills - every industry needs people (their technical and organisational skills) as workers. The larger the required labour force, the more likely that location is close to a large urban area.

Power - all industries require power of some sort. Industries which require large amounts of power, e.g. aluminium smelting or petro-chemical refining may locate close to a power station or even build their own. Industries which can locate almost anywhere there is a power supply are known as *footloose industries*.

Government Policy - governments usually try to encourage industries to locate in less developed areas - where unemployment is high - using a selection of incentives such as grants, pre-built factories, training schemes, etc.

Fig.31 Factors influencing location of industry

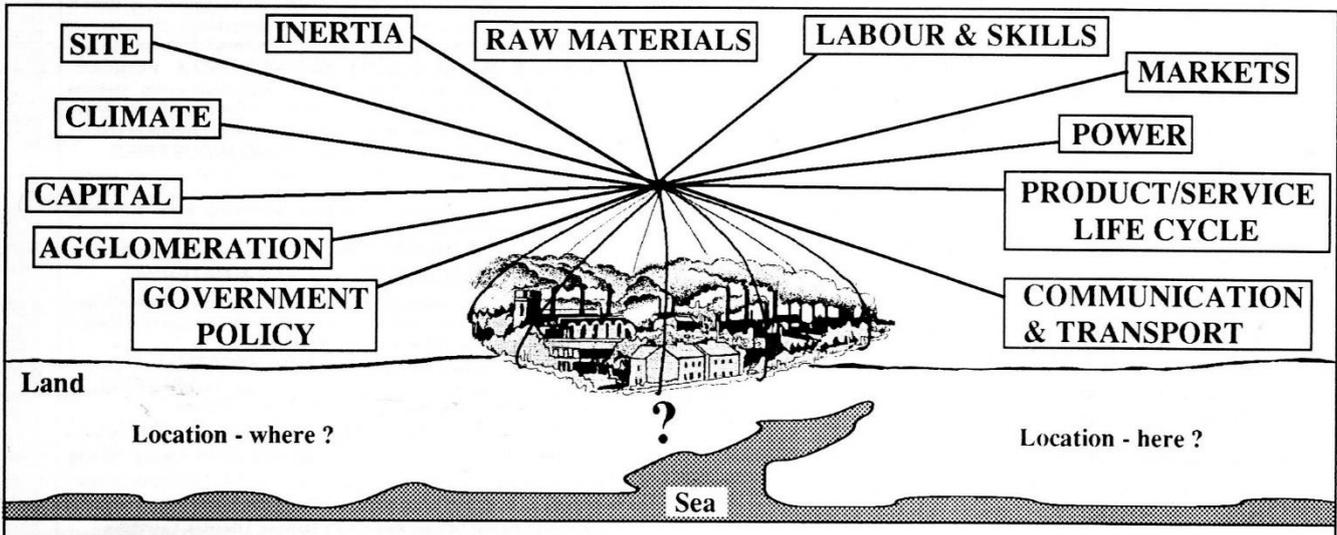
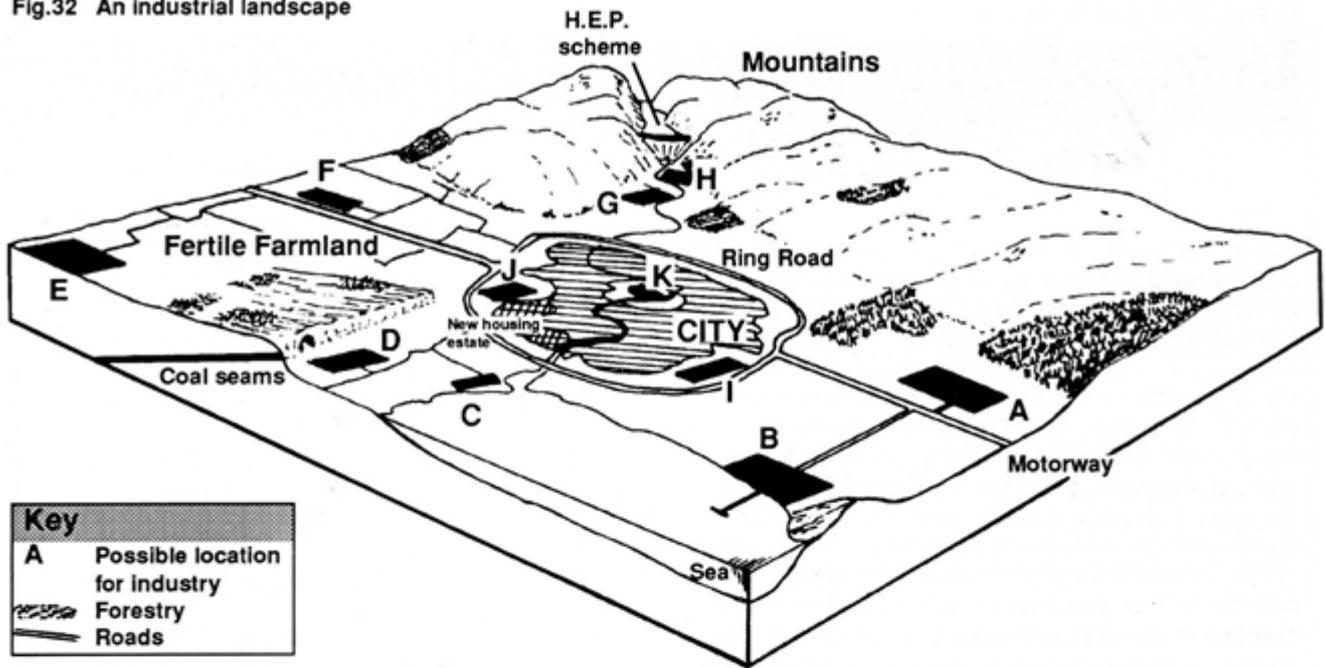


Fig.32 An industrial landscape



Climate - some climates are too extreme for certain industries to locate in. Other *environmental* considerations which influence the location of industry include the laws on polluting of land and water within certain areas, and the amount of greenery in the surrounding area. For example modern electronics industries require dust-free, greenfield areas in which to manufacture silicon products.

Inertia - because it is always extremely expensive for industries to relocate elsewhere, many old industries have tended to stay in the locality where they were first established. This is called industrial inertia.

Agglomeration - some industries attract others to locate beside them. Such a collection of industries is known as an agglomeration.

Product or Service Life Cycle - a product or service usually goes through various stages in its life-cycle (Infancy-Youth-Maturity-Old Age) which can influence its location.

Industries can also be classified according to their particular type of location (Fig.32). Some locations are better suited to some industries than others, e.g. Site A is a *greenfield site*. Site B is a *tidewater site*. Both have pleasant locations with cheap flat land available. Large industries may be attracted to locate in these areas even although they lie some way from the city and will attract fewer visiting customers. Site K is a city centre location where land is very expensive and transport of products difficult due to congestion. However site K has access to many thousands of city centre workers, shoppers and visitors.

The factors influencing the location of industry (Fig.31) are not all of equal importance. They may vary in different places and at different times. But wherever industry is located it requires a good **infrastructure** - buildings, power & water and good communications networks.

Assignment

- 1 Make a simple fieldsketch of Fig.30. Annotate your sketch to show the following: type of location, main features of the industrial location shown, likely type of industry.
- 2 Write a definition of each of the following terms: industrial location, infrastructure, inertia, agglomeration.
- 3 Using Fig.31, classify each of the factors influencing industrial location as either **Physical** or **Human** factors.
- 4 For both Physical and Human factors influencing the location of industry, complete a table with the headings:
- 5 Factors which cause an industry to move out of an area are known as **PUSH** factors. Those which attract an industry into a new area are known as **PULL** factors. Copy these definitions out and list at least 3 of each type of factor.
- 6 Match each of the following industries to a suitable location on Fig.32 (A to K). Give reasons for your selection of location for each industry:-
Oil refinery, Superstore/Hypermarket, Creamery/Dairy, Magazine Distribution Warehouse, Pulp & Paper Mill, Nuclear Power Station, Coal Mine, Computer Assembly plant, Insurance Offices, Bottled Water Plant, Petrol Station & Repairs Shop.

Factor	Notes on importance	Examples

- 7 Why do location factors change and what problems does this cause for industries and communities ?

INDUSTRY: Industrial Change

Key Idea : Economic change has social and environmental consequences.

As the nature and type of industry in Britain developed from the subsistence agriculture (farming for survival) of the pre-1800s to the tertiary and quaternary industries of the 1990s, change has had a major effect on industrial location.

Fig.33 illustrates the major **traditional industrial areas** within the U.K. The older, heavy industries located within many of these areas for physical reasons - close to supplies of raw materials, sources of energy and close to good rail or water transport. Industries such as steel-making, engineering and textiles were concentrated within areas such as London, South Wales, Lancashire and Central Scotland where the population density was high and there were large markets nearby. Due to changes in demand for products, out of date or uneconomic mining or manufacturing processes, changing markets or foreign competition, many older, traditional industries have closed down.

Some industries have **relocated** because their source of raw materials or markets have changed.

Others have undergone major **rehabilitation** such as factory renovation, modernisation of machinery or the installation of modern telecommunications. Industrial changes (Fig.36) have brought about **economic** (unemployment, decline of local services), **social** (increasing divorce, crime rates) and **environmental** (derelict or gap sites) consequences.

Modern industries are located in a variety of areas (Fig.34) for a range of different reasons. Footloose industries such as electronics, aerospace, computing, media and telecommunications are located in urban areas, some to attempt to combat the aftereffects of traditional industrial decline, others to take advantage of the high density of population or skilled labour force available, for example, in London or Scotland's New Towns. Other modern industries are not tied to any particular location and can locate in greenfield areas such as the Scottish Highlands or Cornwall since their products are low bulk/high value and use modern telecommunications to contact their markets.

Industrial change also affects the *Structure of Industry* (Fig.35). The tertiary sector is now the most important employer and where traditional industry is in decline, unemployment increases.

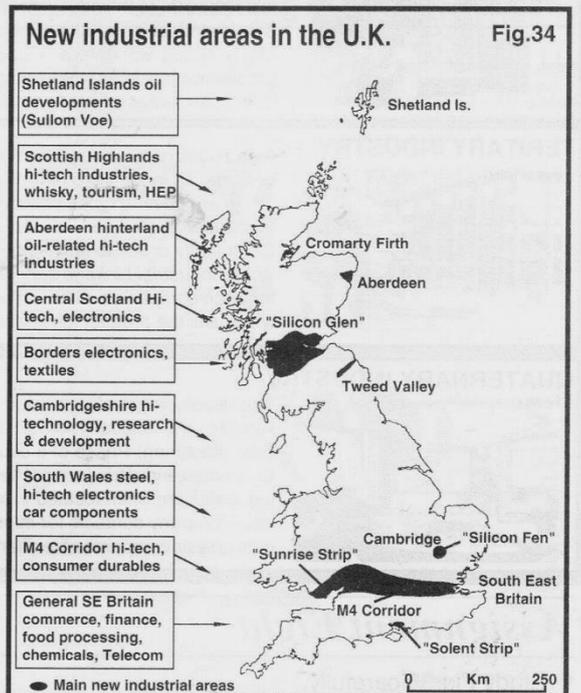


Fig 35
Employment by sector in the UK

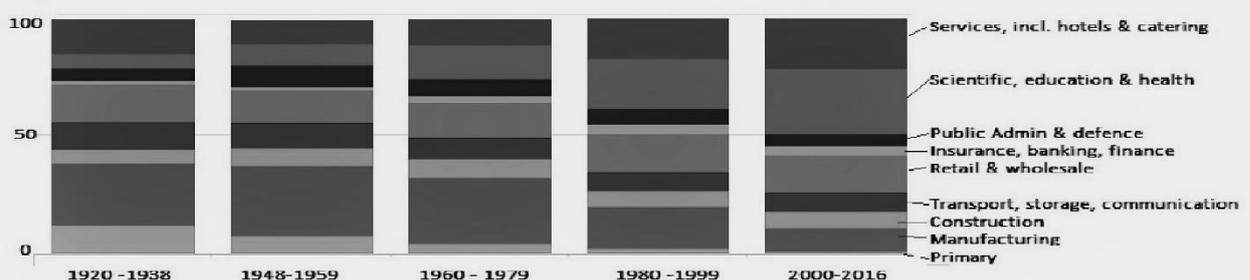


Fig.36 Industrial Change of varying types



Assignment Eight

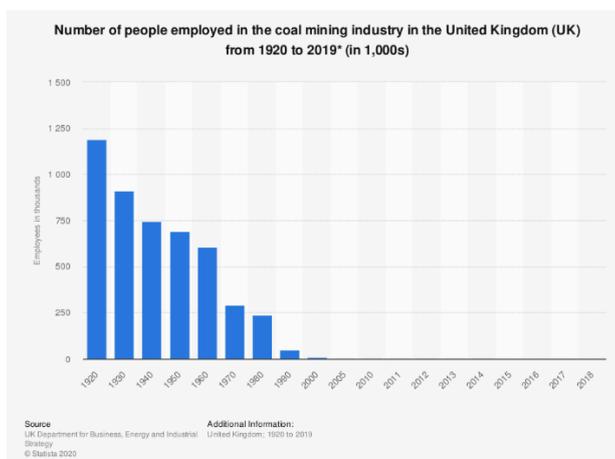
- 1 Study Fig.35 carefully.
 - a. Construct pie-charts for both 1920 and 2000
 - b. Describe the differences shown by the pie-charts.
 - c. Give reasons for these differences.
- 2 Write a definition for each of the following terms: Heavy Industry, Footloose Industry, Sunrise & Sunset Industries, Greenfield areas
- 3 Identify the main types of Industrial Change
- 4 Compare the areas of traditional industries with those of modern industry in the United Kingdom.
- 5 Copy and complete a larger version of the following table using Fig.36 to help you.
- 6 An industrial area such as Consett depended upon its Steelworks for most of its local employment. What problems does a narrow employment base create for a town like Consett ?
- 7 What have been the consequences of increasing tertiary & quaternary industries in the U.K. ?

Industrial Phase	Main types of location	Location Factors	Examples
Agriculture			
Ind Revolution			
Industrialisation			
Late Industrial			
Post-Industrial			

INDUSTRY

- Industrial Decline

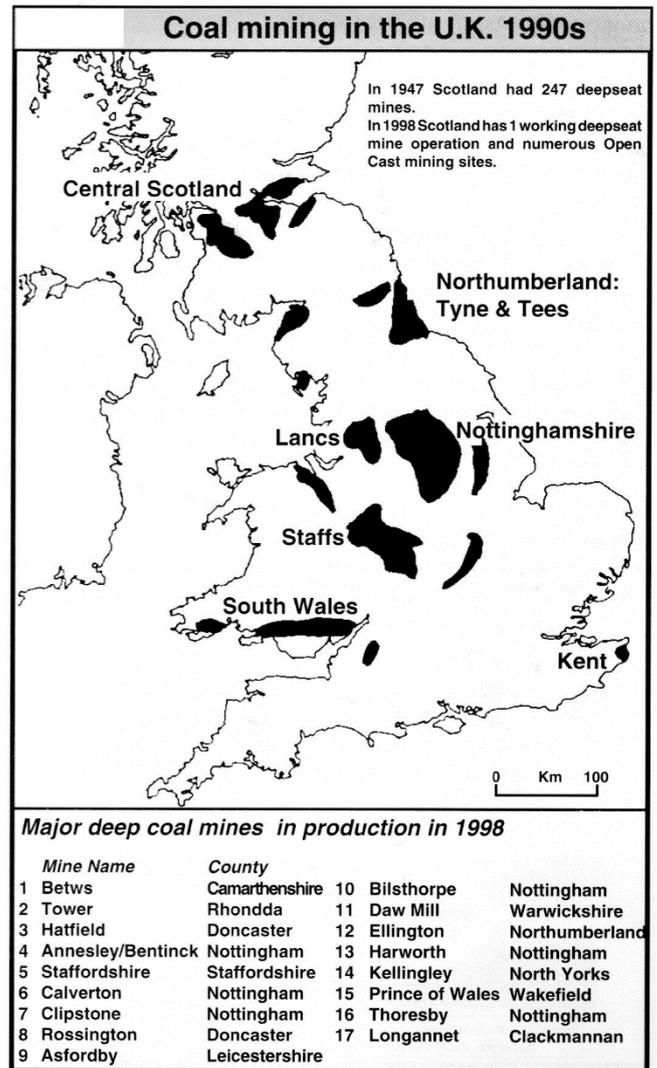
Coal mining in the United Kingdom dates back to Roman times and occurred in many different parts of the country. Britain's coalfields are associated with Northumberland and Durham, North and South Wales, Yorkshire, the Scottish Central Belt, Lancashire, Cumbria, the East and West Midlands and Kent. After 1970, coal mining quickly collapsed and had practically disappeared by the 21st century. The consumption of coal – mostly for electricity – fell from 157 million tonnes in 1970 to 18 million tonnes in 2016, of which 77% (14 million tonnes) was imported from Colombia, Russia and the United States. All of the 4 million tonnes of coal mined in the UK in 2016 were from open-cast coal mines. Employment in coal mines fell from a peak of 1,191,000 in 1920 to 695,000 in 1956, 247,000 in 1976, 44,000 in 1993, 2,000 in 2015 and around 1000 in 2016.



Kellingley Colliery in North Yorkshire closed in December 2015, bringing to an end centuries of deep coal mining in Britain. Much of the mine machinery was saved for a new, smaller drift mine nearby - the New Crofton Co-operative Colliery near Wakefield in West Yorkshire which was opened in June 2016. Known locally as the Big K, the largest deep pit in Europe was hailed as the new generation of coal mining and could bring up to 900 tonnes an hour to the surface.

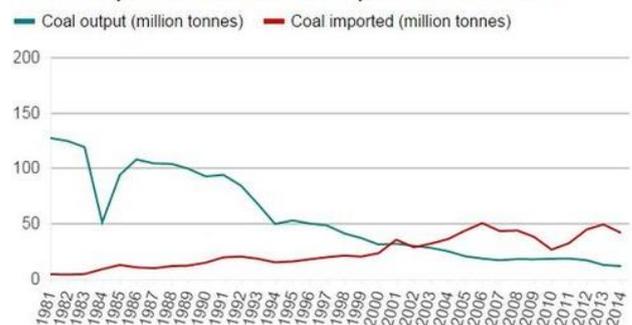
Official figures from the Department for Energy and Climate Change show the UK imported more coal than it produced for the first time in 2001 - a trend repeated every year since 2003. In 2003 the

UK produced 28.28m tonnes and imported 31.89m.



The graph below shows how output and imports have changed, with the big dip in 1984 due to the miners' strike.

UK has imported more coal than it produced since 2003



Source: Department for Energy and Climate Change

Once a major powerhouse of the British economy, the coal industry was the lifeblood of several regions, providing employment for more than one million workers before the 1930s. Since that time, shifting attitudes towards coal and the emergence of alternative energy sources such as wind and solar have seen coal's role in the energy mix diminish. By 1990, the coal industry was still employer to some 50,000

people, however from 2016 onwards this figure had fallen to just one thousand.

Plans for the UK's first deep coal mine in decades will go ahead after the government decided not to intervene. West Cumbria Mining said the new mine - near the site of the former Haig Colliery in Whitehaven which shut in 1986 - would create 500 jobs.

Cumbria county councillors gave it the go-ahead in March 2019, but this sparked a number of objections, including a call for government scrutiny. However, ministers have now said the council should take the decision.

The Woodhouse Colliery would extract coking coal from the seabed off St Bees, with a processing plant on the former Marchon site at Kells.

"Coking coal is essential for the steel industry and this has been rightly recognised."

West Cumbria Mining said on its website: "A study in America showed a coal mine with 300 employees indirectly creates at least twice as many jobs in the region, as employees have more disposable income than previously, which impacts on local spending with retail, leisure, construction etc.

"As with any change to a local area, there may be decisions that might not suit every individual, but it is our intention to develop a mine which brings significant benefits that the whole community can enjoy for many years to come."

It is hoped work could begin on the site in early 2020, with coal production starting about two years later.

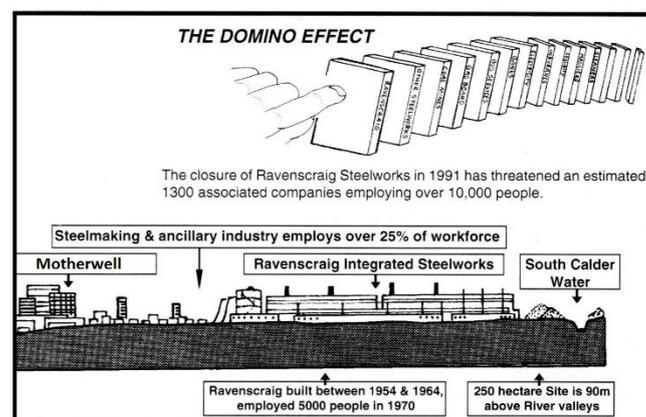
The wave of **steel factory closures** in 2015 and 2016 contributed to one of the biggest falls in UK steel production ever recorded and the lowest level of output for over 80 years.

In the late 1960s, the UK was the world's fifth largest steel producer. Through the 1980s, the UK was around the tenth largest producer, and by 2015 the UK was the 18th largest producer. Steel production tumbled in 2016 and the UK slipped to 21st in the world. There is only one substantial steel company left in the UK, British Steel, which is owned by a Chinese company, at Scunthorpe and Teesside, although there are a small number of finishing steelworks.

The impact of steelworks closures was an immediate rise in unemployment which took years to reduce

EU Steel employment (top 14 countries)

COUNTRY	number	%
1 GERMANY	86,000	26.0 %
2 ITALY	30,601	9.3 %
3 POLAND	24,700	7.5 %
4 ROMANIA	22,630	6.8 %
5 FRANCE	21,900	6.6 %
6 CZECH REPUBLIC	17,800	5.4 %
7 SPAIN*	17,400	5.3 %
8 UNITED KINGDOM	17,000	5.1 %
9 SWEDEN	15,700	4.8 %
10 AUSTRIA	15,500	4.7 %
11 BELGIUM	11,327	3.4 %
12 SLOVAKIA	10,670	3.2 %
13 NETHERLANDS	9,647	2.9 %
14 FINLAND	8,174	2.5 %



Declining coal and steel industries caused a knock-on effect on unemployment in ancillary jobs and the local area. This **domino effect** takes years to recover from.

Iron & Steel in Scotland

Stage 1: 1750 Central Scotland

Conditions affecting the location of the iron industry in 1750 were:-

RAW MATERIALS: Charcoal made from wood was used to smelt iron in small furnaces. 5 tonnes of wood were needed to produce enough charcoal to smelt 1 tonne of iron. Low grade iron-ore was obtained from local sources (bogs, small mines) but high grade iron-ore was obtained in larger quantities from England.

TRANSPORT: In 1750 there were no canals or railways. Roads were poor. Ships could carry many tonnes and heavy goods traffic was limited to a few large rivers.

LABOUR: Each furnace employed 30 people - mostly skilled. Scotland was short of skilled furnace workers so others were brought from Ireland and England.

MARKETS: The largest market on the map was at D, but demand was small in comparison with English markets.

Stage 2: 1850 Central Scotland

In addition to the furnace at B others were also built at A and D between 1750 and 1830. These however were using coke made from coal to smelt iron. This technique, first used by Abraham Derby in Coalbrookdale, West Midlands, has been slow to spread through England to Scotland...

RAW MATERIALS: 4 tonnes of coal were now needed to make enough coke to produce 1 tonne of iron. Iron-ore and coal were often found in the same mines in central Scotland. Splint coal was cheap and plentiful but could only be used to smelt iron using "Neilson's Hot Blast" process (1928).

TRANSPORT: Sea transport was still the cheapest but canals and railways had improved and cheapened inland transport enormously.

LABOUR: Works were much larger and employed several hundred people.

MARKETS: Engineering especially at D now provided a large market in Scotland.

Stage 3: 1950 Central Scotland

Ironworks were built at A in 1850 and expanded but not into steelmaking. A steelworks was constructed at C in 1870, expanded and was modernised in the C20th.

RAW MATERIALS: By 1950 only 1 tonne of coke was needed to make 1 tonne of iron. It was now cheaper to import foreign ores than to mine the remaining reserves of Scottish low grade ores. Most coking coal came from England.

TRANSPORT: large quantities of ore were moved by ship, coal and limestone came by rail and canals were no longer in use.

LABOUR: Thousands of skilled workers were required in 1950.

INDUSTRIAL INERTIA: Huge investments had been made in existing works, developing transport, training and social facilities, etc. There is a reluctance to move to a new site (inertia) due to the large investments made.

GOVERNMENT POLICY: The Government is prepared to subsidise new industrial developments in areas of high unemployment (eg. A, C & D).

Stage 4: 1980s Central Scotland

A large integrated steelworks was built at C between 1956-63. Light steel strip was used for motor vehicles and consumer durables (fridges, sewing machines, etc). Over 90% of steel was exported to England.

RAW MATERIALS: All iron-ore used was imported from distant sources (eg. Brazil, Australia). Much scrap metal was used and fresh water was needed in large amounts.

TRANSPORT: Giant super-ore carriers are used but their large size limited the number of ports that could be used. The estuary at D could not be deepened to accommodate ships larger than 30,000 tonnes. Inland rail transport is cheap.

LABOUR & INDUSTRIAL INERTIA: as for 1950.

GOVERNMENT POLICY: In 1967 the steel industry was Nationalised. New integrated steelworks were built in England and South Wales (1970s). The Thatcher Government (1979 onwards) had a new approach to industrial policy - little financial support & privatisation of the steel industry. Other dispirit influences on the location of the steel industry included trade union power, rising unemployment, conservation and the European Community.

Stage 5: early 2000s

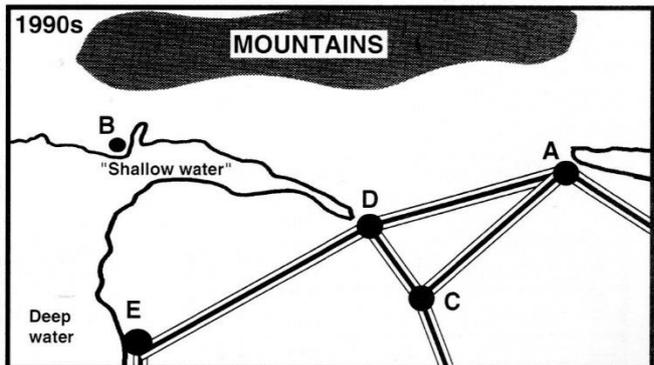
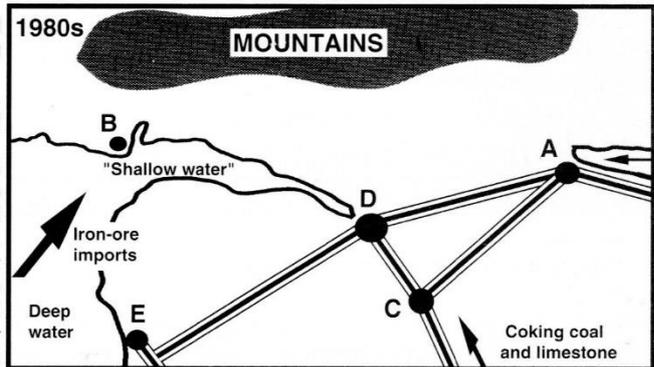
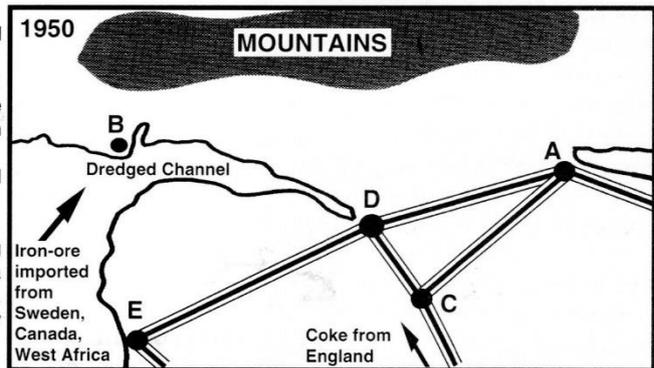
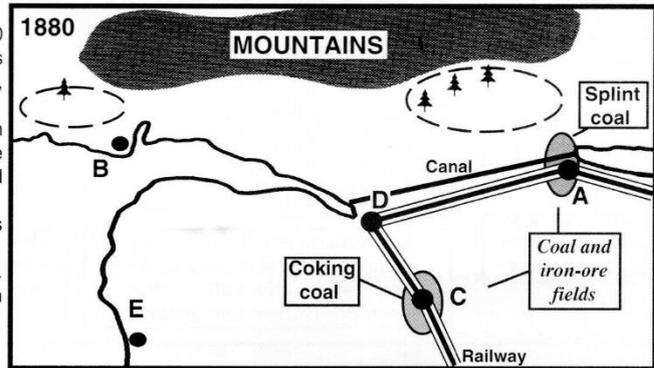
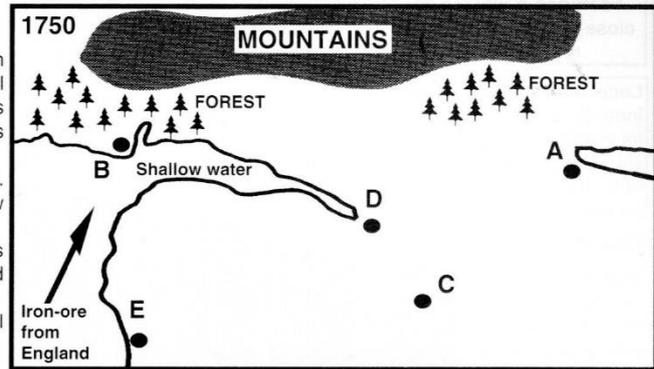
The large integrated steelworks at C has now been closed with a subsequent loss of over 10,000 jobs in steel and ancillary industries. The planned development of a coastal steelworks at E has been 'mothballed'.

RAW MATERIALS & TRANSPORT: as for 1980s above.

LABOUR: High unemployment in the traditional steelmaking and engineering areas of Central Scotland. A large pool of highly skilled workers is available.

GOVERNMENT POLICY: The British government is maintaining a free-market policy for steelmaking and as part of the European Steel Community, must acknowledge steel production quotas laid down. Foreign competition (mainly from EC and Asian countries) produces very cheap steel for the British market. Nationalists in Scotland pressurise the Government to sell-off the existing steelplant at C.

Figs.42 to 46 Central Scotland through the ages



A traditional, older industrial landscape

Fig.47

Factories & workshops close down. Workers face redundancies.

Loss of work. The local unemployment rate increases.

Less atmospheric pollution from closed industrial sites

Local shops & services are affected by decreasing local income. Some close down.

Local authority income reduced as former workforce and industries lose earnings.

Higher divorce, alcoholism and suicide rates may be found in areas where large scale redundancies occur.

Depopulation may occur as unemployed workers move in search of work in other areas.



Older industrial areas become "run-down."

Local "markets" supplying businesses & consumers contracts.

Local transport services & systems are affected by lack of custom.

The local area receives less income.

The domino effect - 'when one industry falls, it knocks down others' - may affect other industries or nearby communities.

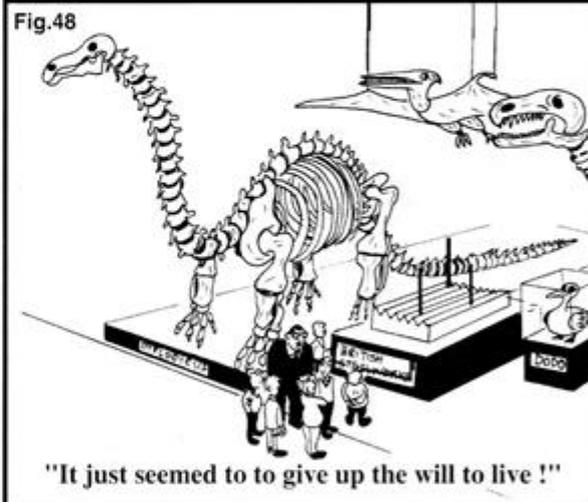
Dereliction of industrial sites occurs. Wasteground and waste tips are not reclaimed or landscaped.

Separated families as workers may move to other areas for long-distance work to return at weekends, holidays etc.

Industrial decline brings many consequences (fig.42). The **economic** consequences of decline in major industries are not only great on a local scale but have serious implications for the country as a whole. The decline of heavy industries such as steelmaking in the UK has meant fewer export earnings and a greater dependence on imported 'heavy' products.

The **social** consequences associated include redundancies, depopulation of younger adults in search of work, high rates of unemployment, with increasing divorce, alcoholism and suicide rates in depressed areas.

The **environmental** consequences can be varied. Waste tips and waste ground and industrial dereliction are common features of the aftermath of industrial decline. Amongst a few positive environmental effects are a reduction in atmospheric pollution and the re-introduction of species once lost due to industrial development, eg. plants, flowers and animals.

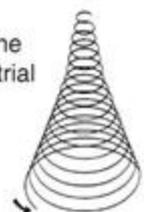


Assignment

- 1 What are the main reasons for the decline of the U.K. coal industry ?
- 2 For each Stage in the development of Iron & Steel in Scotland , select the best location for an iron or iron & steel works from locations **A-D**. Copy and complete the table below to calculate your total score. Your teacher will supply you with the correct answers for each stage of the game once you have completed Stages 1 to 5.

Stage	Your Choice	Score Achieved	Maximum Score	TOTALS
1			100	Over 1200 - very profitable
2			200	Over 750 - profitable
3			300	Over 250 - borderline of bankruptcy
4			400	Under 250 - you are fired !
5			500	
TOTAL			1500	

- 3 Which factors have led to the decline in European steelmaking since the early 1980s ? Explain your answer fully.
- 4 Write a definition of each of the following terms : domino-effect, industrial dereliction, monotechnic
- 5 What message is the cartoonist attempting to send in Fig.48 ? Explain your answer.
- 6 Using Fig.47 and further ideas of your own, classify the consequences of industrial decline into those which are economic, social or environmental.
- 7 For a monotechnic industrial area in decline describe fully the consequences of industrial decline.
- 8 What do you think should be done to alleviate the suffering in areas of industrial decline ?



INDUSTRY: Industrial growth

Key Idea : Economic change has social and environmental consequences.

Industries respond to changing circumstances and conditions in a variety of ways and at different rates. Economic progress is interlinked with industrial development of all types. There is therefore an '**industrial cycle**' through which industries develop and expand, respond to changes in society (eg. changes in demand and supply, national or global recession, etc) and grow or decline depending on how they respond to change.

Responses to change can include both **Industrial decline** (section 11) - where many traditional industries close down or suffer cut-backs - and **Industrial growth** and expansion as a result of:-

- Modern or High Technology** developments including micro-electronics, nano-technology (tiny technology).
- Diversification** of existing industry into other fields.
- Rehabilitation** of existing plant and processes or of entire industrial areas, where modernisation has occurred
- Aid to Industry** schemes.

High Technology Industry

Fig.49 ATC Cosmetics

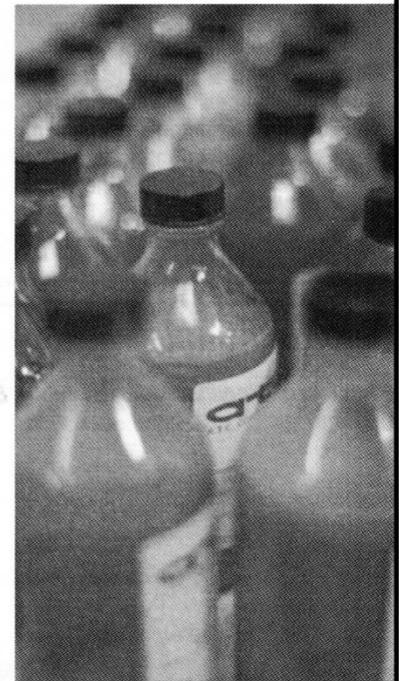
ATC Cosmetics manufacture nail lacquer, nail care products and nail lacquer removers from basic raw materials supplied from the chemical industry.

The company set up in 1988 is located at the Invergordon Industrial estate in Ross-shire, Scotland. The industrial estate is sited on a greenfield site on the outskirts of Invergordon which means there is room for expansion as well as very good transport links including good road and rail communications.

ATC Cosmetics Ltd was named after the managing director's three children (Andrew, Tom and Catherine). This is a young developing company which has business partnership links with Decorative Industries Inc. (USA). This enables the companies to combine resources and expertise to design new formulations to meet the needs of today's ever-changing fashion markets. The two companies now have over 30 years industrial experience in the manufacture of nail products. Each year research and marketing executives from ATC visit all the major world fashion shows in an attempt to gain an insight into the following year's most popular choice of colours. Nail products are then researched and produced to suit the requirements of the fashion industry all over the world - from Milan, Paris, New York, London and, of course, Scotland. The current production plant at Invergordon is being expanded to take over other units within the Industrial Estate. ATC produce over 25,000kg of base materials for nail products per week. These are supplied to fashion-based customers wishing to blend their own lacquers. Finished lacquer products are also made on site and bottled, packaged and transported to shops across the country from Invergordon. ATC also offer a design and make facility to suit customers' needs at any time (see photo).

ATC Cosmetics located in Invergordon for the following reasons - highly skilled workforce, good communications links, pleasant and clean environment to live and work in, room for expansion on the industrial estate, grants and incentives to employ over 70 people were made locally available to help ATC start up their production plant. All in all this is a good example of a high tech modern industry which set up close by the recently closed Aluminium Smelter where a talented labour force could be utilised to make hi-tech chemical products.

atc
COSMETICS



Diversification of Industry

Many large companies diversify - supply a variety of products and services - as a means of both protecting their investments and generating greater profits. Diversification is often carried out through the take-over of other smaller companies. As a large company is formed through various take-overs and mergers, diversification may also lead to the company gaining a **Multinational** or **Transnational** status (trading across many countries often on a global scale).

Unilever is the world's ninth largest company and the world's largest food processing and household goods company. Unilever owns over 70 companies and trades in over 80 countries. In the 1980's and 1990's the company expanded and diversified its business operations to include international divisions which include:

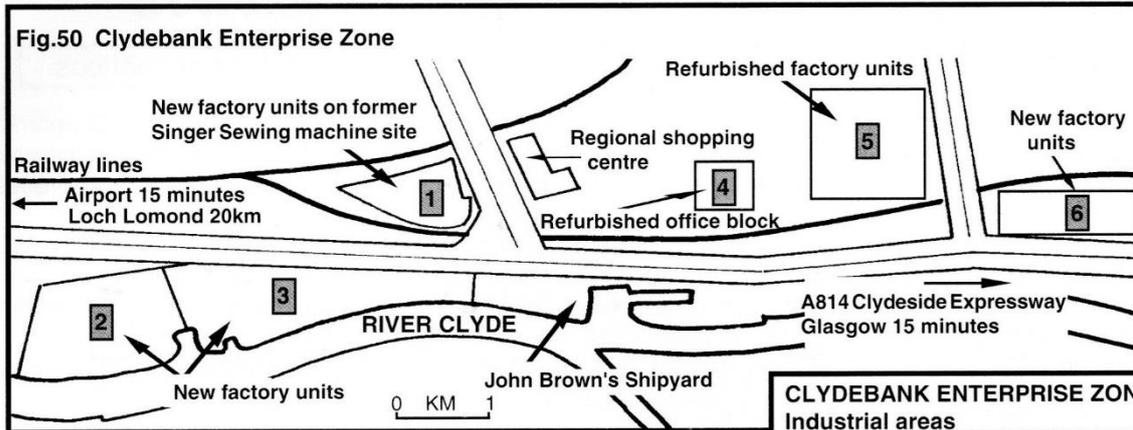
UNILEVER

FROZEN FOODS	DETERGENTS & WASHING POWDERS	EDIBLE FATS & DAIRY	SOFT DRINKS BEERS, WINES & SPIRITS	TEA COFFEE	HOTELS & CAFES	MAGAZINES ADVERTISING	TINNED FOODS
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Unilever brand name products include Lux, PG Tips, Pears, Flora, Shield, Stork, Surf etc. Companies which diversify and have a wide range of products and markets are less likely to suffer as a result of economic change.



Industrial Rehabilitation



CLYDEBANK ENTERPRISE ZONE Industrial areas	
1	Clydebank Business Park
2	Clydebank Industrial Estate
3	Riverside Industrial Estate
4	Whitecreek
5	New Albion Industrial Estate
6	Yoker Industrial Estate

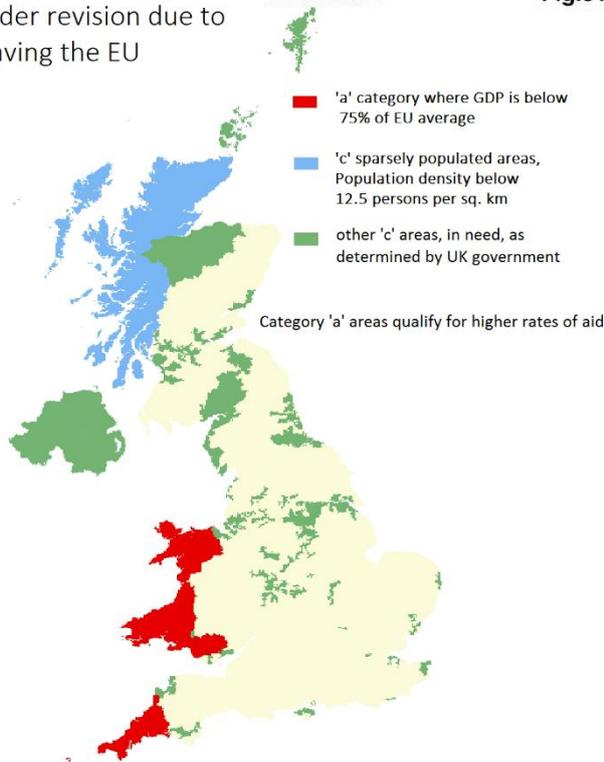
Former areas of traditional, heavy industry such as Clydebank near Glasgow have suffered the consequences of industrial decline but with national and local government assistance have begun a long term process of industrial **rehabilitation**. In 1981 the Government, in an attempt to alleviate high unemployment, physical and economic decay, established Scotland's first Enterprise Zone in Clydebank. This was to create conditions for industrial growth through the rehabilitation of the area.

The Clydebank Enterprise Zone (fig.50) is generally recognised as a successful example of industrial revival. Many of the original industrial sites such as the Singer Sewing machine site have been demolished and modern industrial estates have been created in their place. Advance and purpose built factory units have been constructed and major improvements to the infrastructure of the area have been made. Financial incentives such as rent-free factories, removal grants, tax relief on new technology, etc. have also been introduced to attract new industry to the area. Between 1981 and 1993, the EZ status of the area helped introduce over 400 new businesses and reduce the local unemployment rate.

CLYDEBANK ENTERPRISE ZONE Facts & figures						
1980	Major crisis - high unemployment area becomes Scotland's first E.Z.					
1993	Over 400 companies set up employing over 4000 people					
Unemployment rates						
	1981	1991				
	M	F	Tot	M	F	Tot
Clydebank	16.7	12.5	21.0	14.7	9.1	18.3
Scotland	14.3	9.9	12.2	16.9	9.0	17.2
U.K.	11.6	7.7	9.6	12.2	7.0	9.5

UK Aid proposed areas 2014-20 under revision due to leaving the EU

Fig.51



Since 1945, the UK government has tried to assist areas of industrial decline, using grants, loans, free factory space, job creation incentives and Enterprise zone status. On leaving the EU the UK government has been considering options regarding assisted areas.

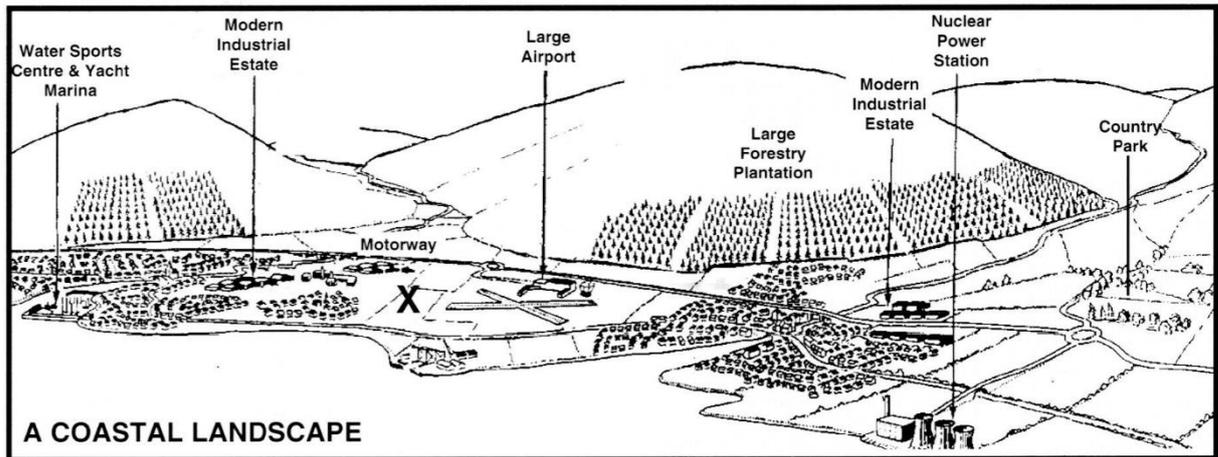
Assignment Ten

- 1 Explain what is meant by "Industrial cycle".
- 2 Fully explain the meaning of each of the following: Hi-Tech/sunrise industry, Diversification, Transnational, Rehabilitation, Enterprise Zone.
- 3 Many of the most modern industries can be described as *footloose* and are often located on industrial estates (which are located either on the outskirts of urban areas or in brown-earth gap-sites).
 - a. Describe a footloose industry you have studied.
 - b. Give at least 3 reasons for the location of industrial estates
 - i. on the outskirts of urban areas
 - ii. in rehabilitation areas.
 - c. Prepare a design (model) for an industrial estate incorporating planned infrastructure and indicate the types of industries likely to occupy the estate.
- 4 Study Fig.50 carefully.
 - a. Describe the main changes which have occurred in the Clydebank EZ **between 1981 and 1993**
 - b. Suggest reasons for the main changes in employment rates illustrated in Fig.50.
 - c. Compose an advert to be placed in a national newspaper to show the advantages of locating a new industry in the Clydebank Enterprise Zone.
- 5 Prepare an answer to the following question, "What are the advantages and disadvantages for locating industry in both rehabilitated industrial areas and modern industrial estates?"

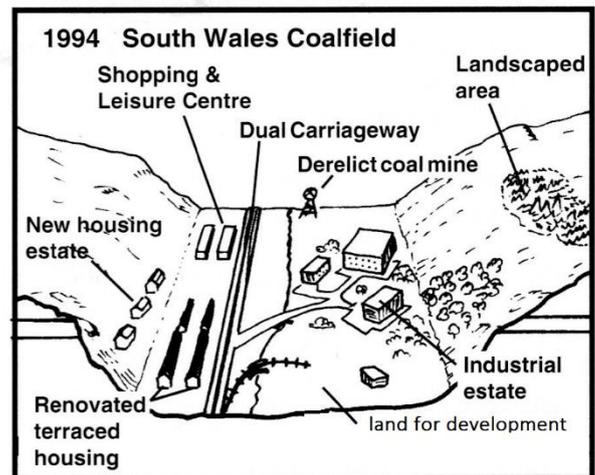
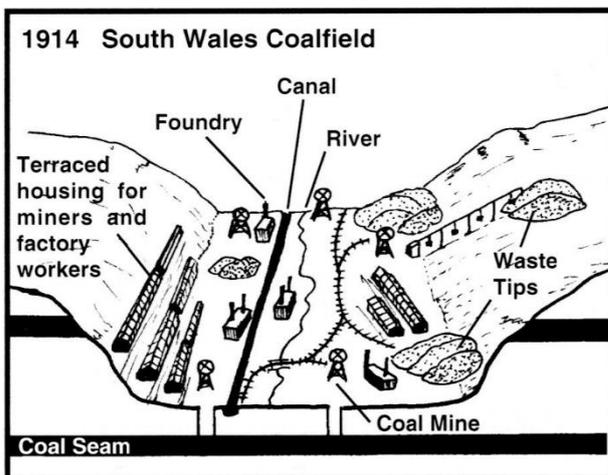
EXAM STYLE QUESTIONS

INDUSTRIAL CHANGE

- Scotland and the North of England have experienced a marked decline in traditional "heavy" industry. Describe the social, economic and environmental implications of the decline of traditional industries.
- Look at the sketch diagram below. Do you think that site X is a suitable location for an electronics factory or a paper factory? Support your answer with reasoned argument.



- For any of the industries in question 2 explain the advantages of the **location** for the particular industry.
- The iron and steel industry has changed location in the UK since the 1700's. Explain the factors which account for the concentration of the steel industry, in the late 1990's, into only a few sites.
- Describe and explain the changes in the industrial landscapes shown below.



- For an industrial area you have studied, describe the attempts to bring about redevelopment and comment on their success or failure.
- Many industrial areas in British cities are no longer suitable for present day factories. Indicate some alternative uses of old industrial areas, referring to named examples you have studied.

8 Examine the advertisement below for **Corby**.

- i. What advantages are there for businesses setting up in Corby?
- ii. What advantages do you think Corby has over other Development areas shown on the map?

Development areas: nowhere else comes within miles of Corby

If you're planning to develop your business you need look no further than Corby.

Corby is a **DEVELOPMENT AREA** so your business gets the help of Development Area benefits. For most companies this means the better deal for them of either 15% grants on plant, machinery and equipment or £3000 per job created. There is also selective assistance for some job creating projects.

Corby is also a **STEEL OPPORTUNITY AREA** and this means even more incentives.

Corby is England's first Enterprise Zone. There are factories off the peg, from 500sq.ft. to 50,000sq.ft., some of which are free until 1991. You can also choose from offices, warehouses and hi-tech buildings.

Corby has EC aid for all small businesses. £1 million is now available to aid efficiency.

Above all, Corby is right in the heart of England. Within 80 miles of London, 50 miles from Birmingham. Well placed for any business that needs fast, inexpensive, easy access to the big SE and Midland population centres.

However far you look, you will find that as a total package for business success, nowhere else comes within miles of Corby

DEVELOPMENT AREA
as defined by the Department of Trade & Industry (from 1984).

Name _____

Company _____

Position _____

Address _____

For more information, send to Roy Jackson,
Director of Industry, Corby Industrial Development
Centre, Douglas House, Queens Square,
Corby, Northamptonshire, England.
Telephone Corby (0536) 62571 Telex 341543

CORBY WORKS

Ordnance Survey Mapwork Questions

These questions can be answered by referring to any of the following map extracts:

- | | |
|---|---|
| a. Motherwell 1: 25 000 Extract No 763/NS65/75 | b. Sunderland 1 : 50 000 Extract No 863/88 |
| c. Middlesborough 1 : 50 000 Extract No 827/93 | d. Liverpool 1 : 50 000 Extract No 744/108 |

- 9 Quoting map evidence, indicate any negative **environmental consequences** of the old industrial landscapes shown on the maps.
- 10 For any of the following industrial locations, describe the advantages of the **site**, using map evidence.

Motherwell (GR 7756)	Sunderland (GR 3458)
Middlesborough (GR 5722)	Liverpool (GR 3798) and/or (GR 4484)
- 11 **Modern industrial estates** are located at the following grid references.

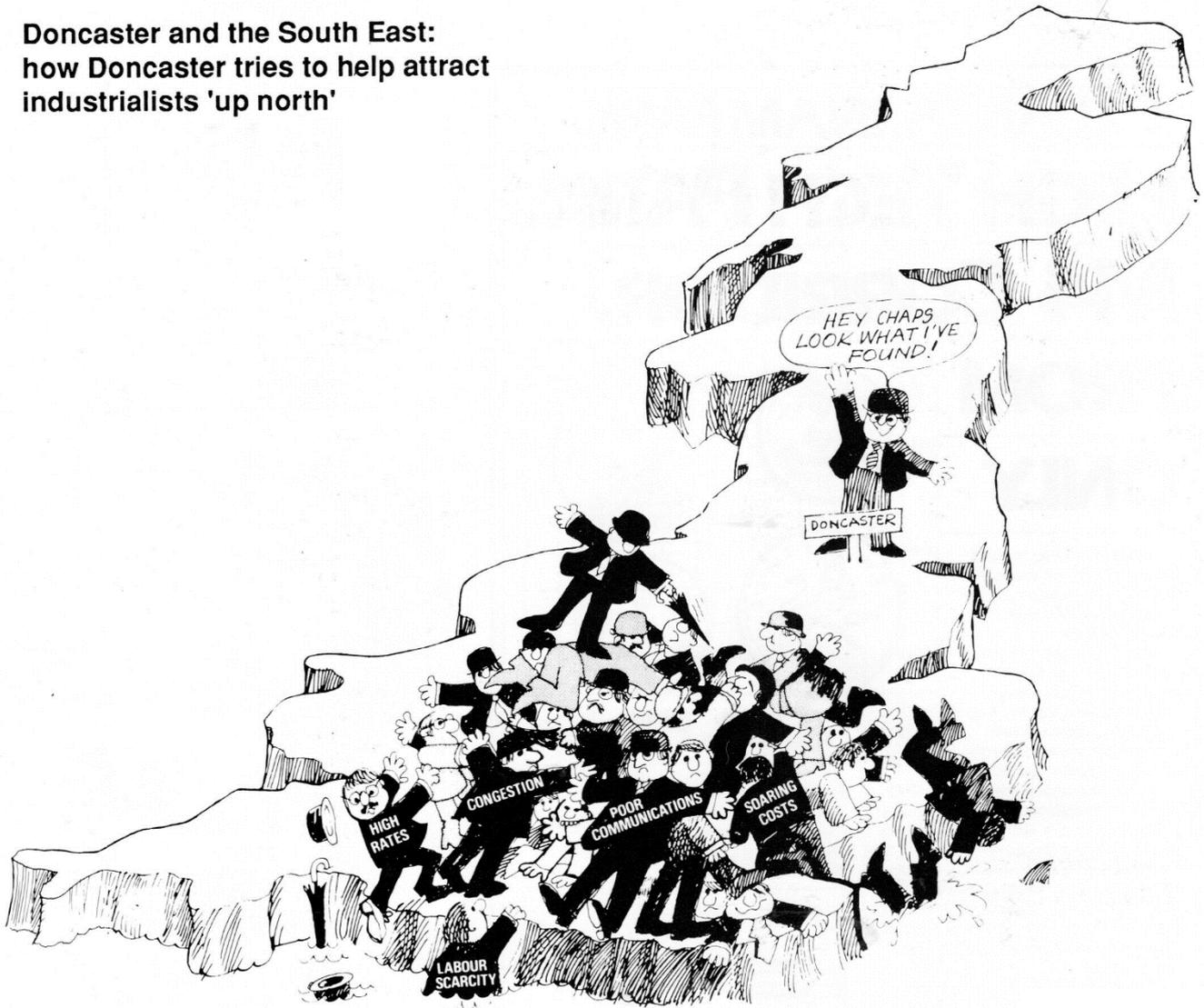
Motherwell (GR 7658)	Sunderland (GR 3256)
Middlesborough (GR 4620)	Liverpool (GR 4398)

What factors have influenced the location of the industrial estate?
- 12 Using map evidence, explain why a large number of industries are located in the area of the map extract.
- 13 A **hi-tech computer factory** is proposed for the following grid reference, discuss the advantages and disadvantages of the area for such a development.

Motherwell (GR 733553)	Sunderland (GR 3357)
Middlesborough (GR 4714)	Liverpool (GR 3600)

OVER HERE

**Doncaster and the South East:
how Doncaster tries to help attract
industrialists 'up north'**



Look at the cartoon above, which is used by Doncaster to encourage companies to set up business there.

1. What message is the cartoon trying to put over?
2. Is the cartoon biased in favour of Doncaster? Give reasons to support your answer.
3. In which part of the country would you assume that unemployment was lowest, Doncaster or the South East? Give a reason to support your answer.
4. Argue the case for locating a factory in the South East.
5. List the advantages and disadvantages of locating a factory in Doncaster.
6. What is the effect of industrial concentration in the South East on house prices? Explain your answer.

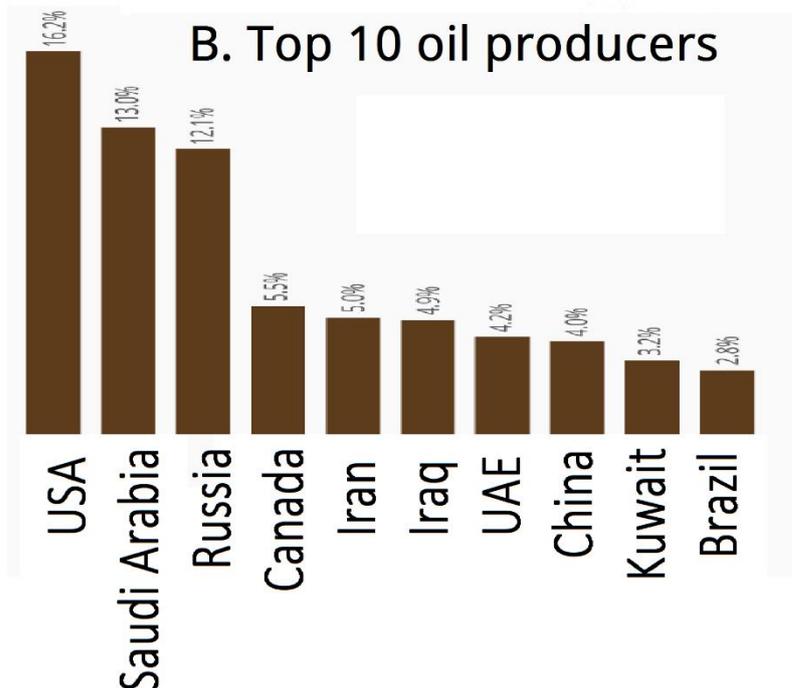
MOVING THE OIL



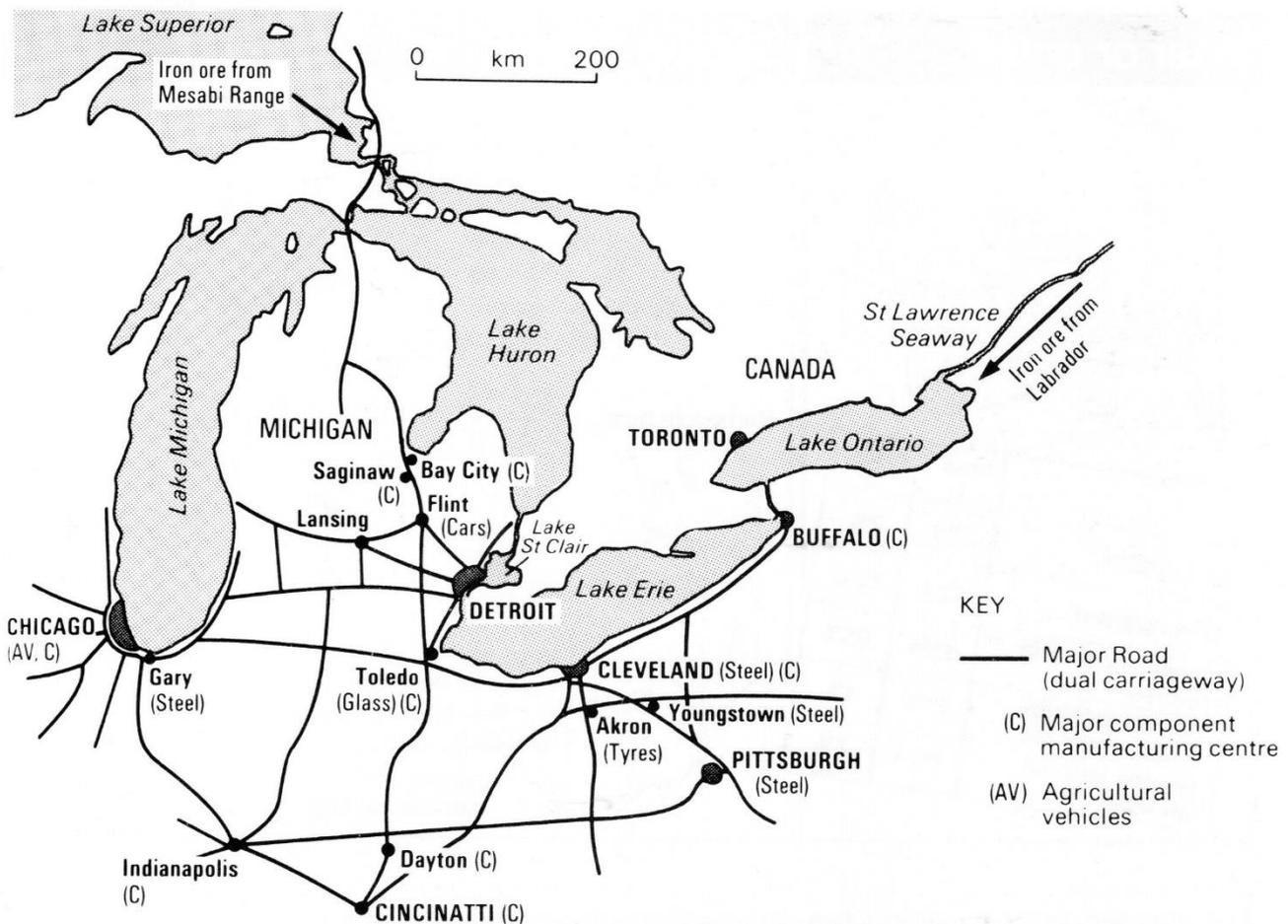
A The movement of oil around the world

Study map A above.

1. What type of resource is oil? Give reasons for your answer.
2. Describe the pattern of oil transport shown on the map.
3. Explain the pattern of oil transport shown on the map.
4. Diagram B shows the main oil-producers in 2019 (the UK was 19th)
 - (a) How important is the Middle East as a region for oil production?
 - (b) Which country has had most control over the price of oil? Why?
5. Explain why it is necessary to drill for oil in areas such as area X on map A, which is very remote and has extreme weather conditions.
6. Wars and conflict have ravaged the Middle east for the last 60 years. Describe the problems that this causes for both Middle East and oil-importing countries.
7. What effect does the changing price of oil have on oil-producing and oil-importing countries?



CAR COUNTRY

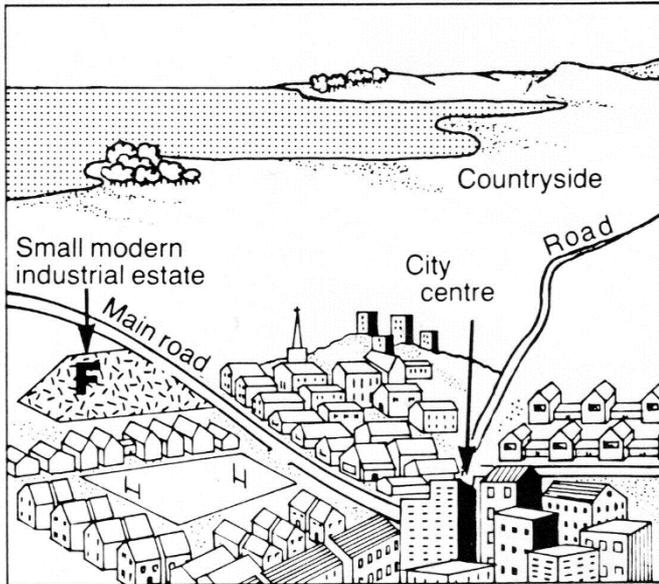


The car industry in the United States began in the 1890s and, because of the size of its domestic market and the use of mass production, rapidly became a giant industry. The USA was overtaken by Japan as the largest car producer in the 1980s, and later by China in 2008. The U.S. is currently the second largest car producer in the world. Despite some manufacturing moving to the southern states since the 1960's, the Great Lakes area still contains the greatest concentration car manufacturing in the USA. This retention of industry despite changing economic circumstances is termed **industrial inertia**.

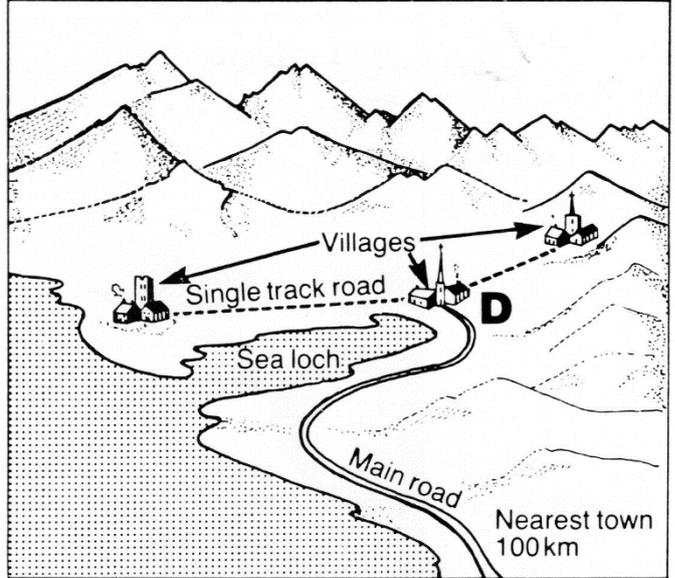
Look carefully at the map above, which shows the situation of Detroit in North America.

1. Describe the situation of Detroit in relation to some of the other cities shown on the map.
2. Detroit is the major city for the production of motor vehicles in North America. Why is this city in such a good location for the motor vehicle industry? (You may use an atlas to help you.)
3. Many of the towns and cities on the map are component manufacturing centres. Why are these centres in this part of North America and not spread more evenly across the country?

FACTORY LOCATION



A



B

Look at diagram A which shows part of a city with a small industrial estate on its outskirts (labelled F).

1. Name one industry that might be found in an estate of this type.

Give **two** reasons why the industry you chose might be found here.

(2)

2. Name **one** industry that would not find this estate a suitable location.
Give **one** reason for your answer.

Industry _____

Reason _____

(1)

3. Look at diagram B list **three disadvantages** that site D has as a location for a major manufacturing industry.

1 _____

2 _____

3 _____

(3)