

## ABERDEEN CITY COUNCIL

### BACKGROUND REPORT

<b><u>Name of Committee:</u></b>	EDUCATION, CULTURE AND SPORT
<b><u>Date of Meeting:</u></b>	7 JANUARY 2010
<b><u>Title of Report:</u></b>	THE CONTRIBUTION OF GRANITE TO THE ECONOMIC AND CULTURAL LIFE OF ABERDEEN
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### BACKGROUND REPORT

#### 1. Background

In 1800 Aberdeen created an unrivalled granite industry. The Aberdeen granite industry developed from the 18th century, with stone first sent to London for paving in 1764 and the construction of Portsmouth docks a few decades later. Throughout the 19th century the industry expanded and the area became a world-renowned producer of granite. The industry was of huge importance to the local economy, and materials and skills were so plentiful that much of the city of Aberdeen was constructed from granite. A relatively sophisticated transportation system (canal and railways) allowed material from quarries further inland to be transported to the coast, and the stone was exported in great quantities to the main urban centres.

There were many granite quarries in and around Aberdeen, producing stone of varying colour and texture, and exploited for a wide variety of uses. At its peak in 1900, the Granite Industry employed 2500 men and boys in 90 firms and a further 250 in quarries within the city boundary. Approximately 70 000 tonnes were being exported overseas, including to America, although most of the Granite quarried was kept for local building purposes. In 1821 exports of granite to London reached nearly 35000 tonnes. Such was the demand that in 1930 Alexander Macdonald invented a machine which dressed and polished the granite, which brought tremendous impetus to the industry. In 1865 there were 20 granite quarries in operation in and around Aberdeen.

Granite has shaped the architecture of the City of Aberdeen. Among the most prominent of the City's buildings is the Marischal College: the second largest granite building in the world. Another example is the fountain which stands at the centre of Victoria Park. The fountain is made of 14 different granites, presented to the people by the granite polishers and master builders of Aberdeen. The attached leaflet sets out further examples

## **2. Exhibitions and displays**

A number of books have been produced on the impact of the Granite industry on the North East of Scotland. Some work has been undertaken by services in Aberdeen City Council to bring to the attention of the public the importance of the industry.

A number of exhibitions and displays have been held in the past including one in 1985 and another in 1996. In August of this year a talk was held at Aberdeen Art Gallery which gave an insight into the role of granite merchants, manufacturers and craftsmen in shaping the City. The talk outlined the history of the industry from 1880s to 1930. A leaflet was produced which was free to public and can be found at the Council's website which outlines key aspects of the impact of the industry and points to the features visible in the city today which are the legacy of the granite industry. A copy of that leaflet is attached for information.

In November 2006 a DVD capturing a moment in the long history of Aberdeen's granite industry was launched at the City's Maritime Museum. Entitled Sculpture in Granite, the film was made in 1965 by Nan Taggart, daughter of John Aberdein Taggart, owner of the Taggart granite yard. The film documentary recorded the men and technologies of Aberdeen's granite industry over 40 years ago.

Some resources are available for schools to use which outline some of the features of the Granite industry and can be found on the City website.

# Aberdeen's Granite Trail

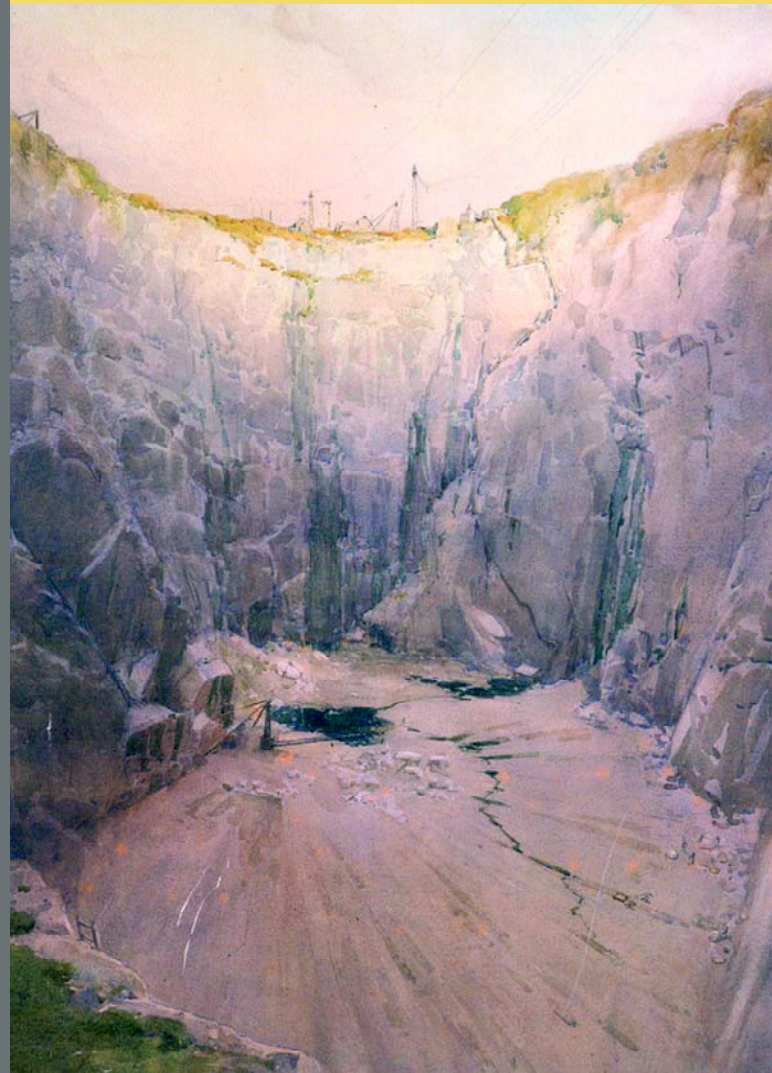
**Aberdeen's Granite Trail**  
is one of a series of themed trails  
being developed around the City.

These are part of the  
Energising Aberdeen programme,  
supported by the City Growth Fund.

Further details about these trails can be found at:  
[www.aberdeencity.gov.uk/acc\\_data/service/cd\\_trails.asp](http://www.aberdeencity.gov.uk/acc_data/service/cd_trails.asp)



A guide to Aberdeen's granite industry



## For further information contact

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[www.aberdeen-grampian.com](http://www.aberdeen-grampian.com)

For public transport information contact Travel Line  
on **0870 608 2608**  
or visit [www.travelinescotland.com](http://www.travelinescotland.com)

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**01224 522070**



**ABERDEEN**  
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# Aberdeen's Granite Trail

Front Cover: Illustration of Rubislaw Quarry in it's heyday - watercolour by  
Watson Charleton

This trail is intended to inform you about buildings and streets in Aberdeen. Those featured can be viewed from publicly accessible areas, but please respect residents privacy.

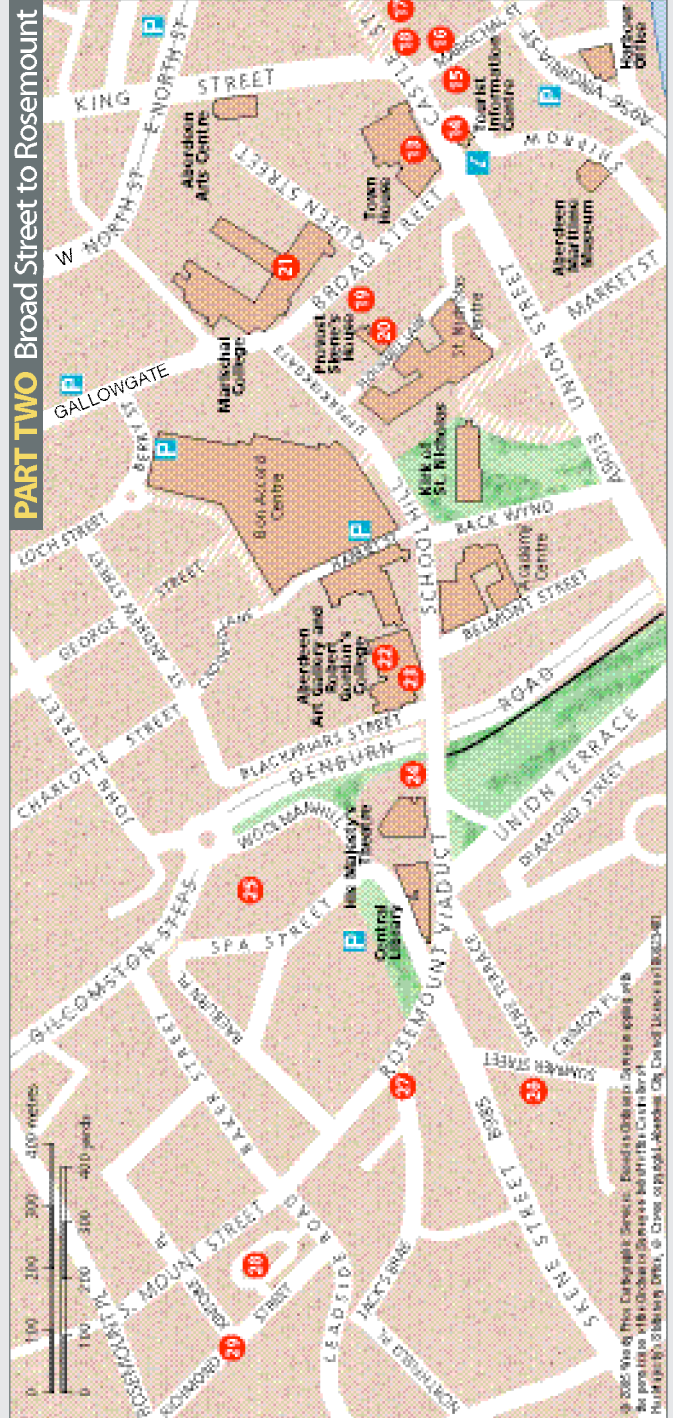
There is no implication that buildings or private land can be entered. Please take care crossing roads.

## Key to symbols

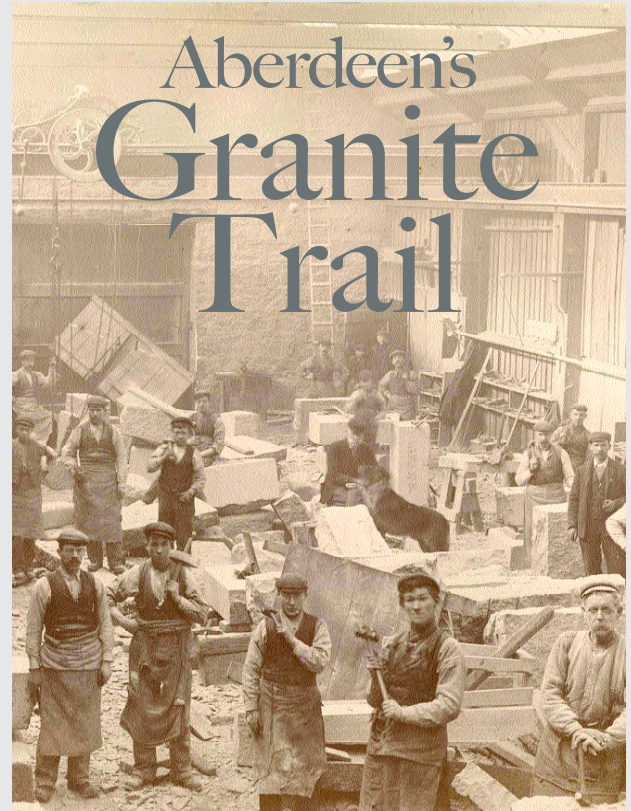
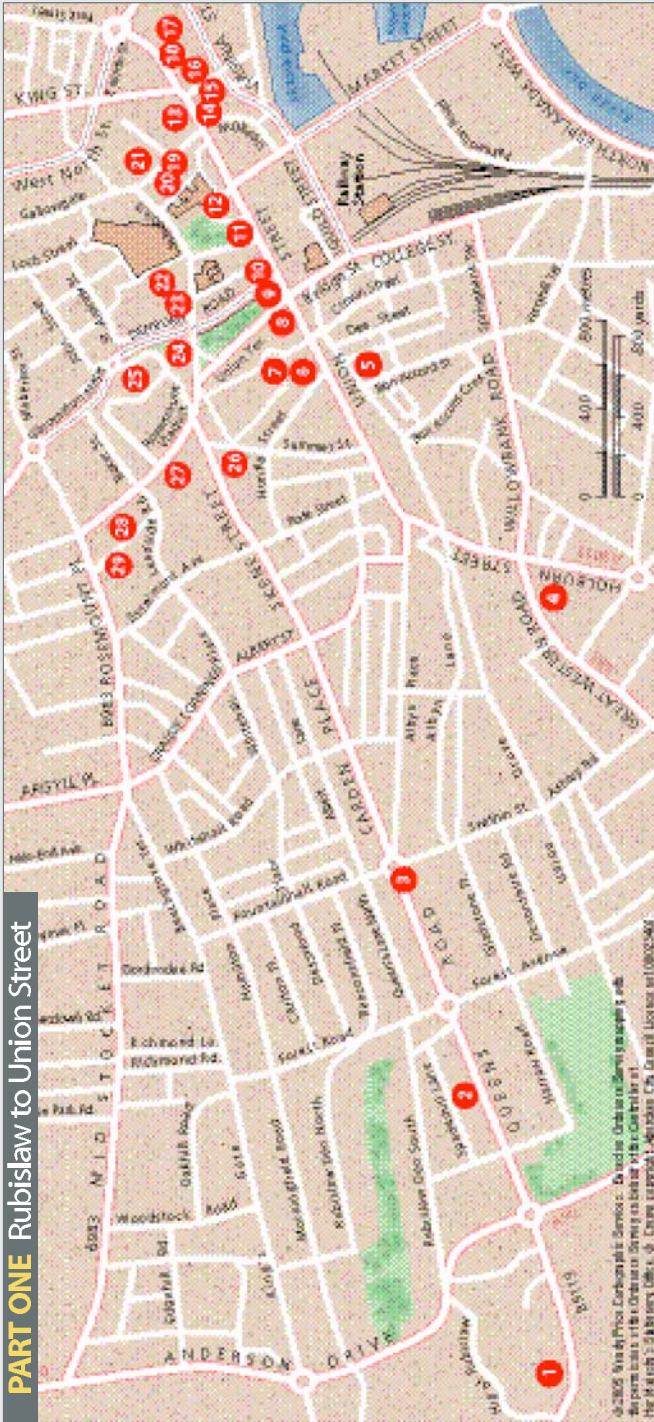
Accessible from street indicated

Accessible via ramp or steep slope

Not wheelchair accessible







*Erran Granite Works, Aberdeen, circa 1890*

# Aberdeen's Granite Trail

Aberdeen is the Granite City. Look around. Granite buildings are everywhere, ranging from the grandest of monuments to the humblest of tenements.

The North East of Scotland's geological base is granite. Colours range from light white-grey to blue, pinks and reds. Granite has long been incorporated into local buildings and structures. Its hardness means it is difficult to quarry and work, so in the past, stone was often gathered as suitable boulders or very simply dressed. The Tower of Drum (c1300) and the more elaborate Crathes Castle (1500s), illustrate the early use of granite in fortifications.

The expansion of commerce and industry in the 18th century increased demand for granite. Greater traffic with iron shod cartwheels increased the need for more durable road surfaces. Granite was ideal for this and Aberdeen began to export the stone, particularly to London. Civil engineering projects, such as harbour works and bridges further increased demand, while merchants and manufacturers looked to granite to give them more imposing buildings and decorative features. Crucial to the expansion of the industry was Aberdeen's access to the sea with thousands of tons of stone transported through its harbour.



The single most significant breakthrough in the 19th century to granite working, came with the adoption of steam power. In the early 1830s, Alexander MacDonald designed a steam driven polishing machine that revolutionised the production of polished granite slabs and made it economically feasible for relatively large-scale production to take place. MacDonald also devised a steam-powered saw and lathe and gradually the granite trade moved away from the old hand crafted industry into what we now recognise as the modern trade.

However, until power tools were introduced at the end of the 19th century, all carving was still carried out by hand and this continued right into the middle of the 20th century. Granite setts, (cassies as they are known locally), continued to be cut manually.

By the end of the 19th century Aberdeen was the world centre for the granite trade. Quarries in the North East supplied the growing market for stone used in building, roads, sculptures and granite memorials. Thousands of gravestones were manufactured from the simplest of markers to elaborate tombs. Granite yards were dotted throughout the city.

Then just at the moment Aberdeen's granite industry was enjoying its greatest success, there came the threat of rivals. The USA began to restrict imports of stone. The new road-making materials, concrete and steel for building and the growing popularity of cremations, all had a devastating impact on granite production. Despite granite yards introducing new machinery and amalgamating during the 20th century, it was not sufficient to save the industry. By the 1970s only a few working quarries remained and most of the yards closed.

A few manufacturers though, held on and can still be found turning out high quality work using a mix of the old craft skills and the latest technologies.

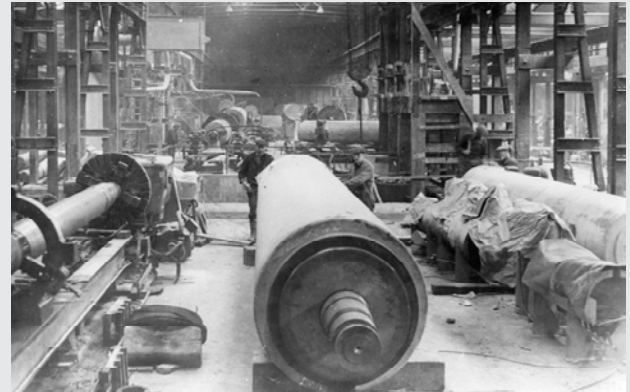
Despite most of the industry having gone, its heritage is there for all to see. Our list of buildings and sites will introduce you to some of the significant phases in the trade's history.

The two-part trail is easily followed. Start and stop as you wish. Granite gems are all around, so remember to look up, as many fine details are found above head height.

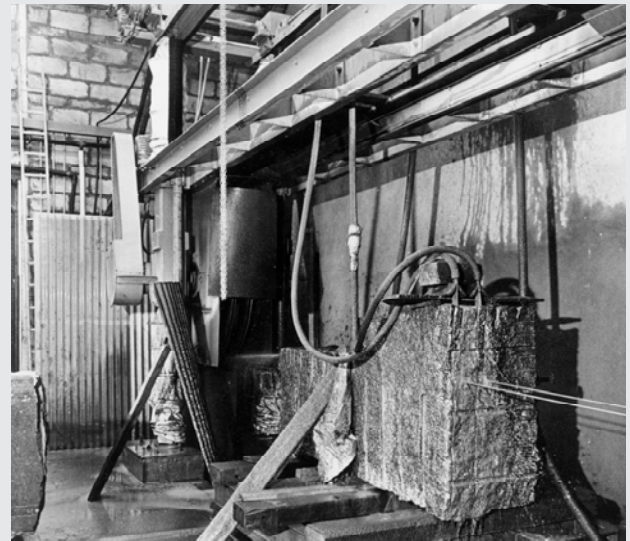


*Cowdray Hall/War Memorial under construction, circa 1924*

By the late 19th century, many of the new technologies were coming from the USA. About 1886, the idea of using pneumatic powered tools came to Aberdeen from Vermont. This was very quickly adopted as it increased the rate of production of carved stone. About the same time, the "Jenny Lind" polisher also came from America. It was called a Jenny Lind because the hum of the polishing head was said to resemble the voice of the great Swedish singer. This machine was ideal for producing polished gravestones. The 20th century saw further technical advances: circular saws, some multi-bladed, and with diamond tips, made an appearance. These cut through stone at an unprecedented rate.



*Large granite rolls being turned at Pittodrie Granite Turning Company, circa 1960*



*Aberdeen-made Twin Wire Saw cutting granite in a local yard, circa 1960*

Wire saws, boring machines, portable hand polishers and sandblasting were amongst other innovations: they all tended to undermine, or replace hand craft skills. However, as with other industries, the granite trade must remain competitive to stay alive. New technologies can give that edge.

# Granite

## TECHNOLOGY

Historically, the great stumbling block in the development of the granite trade was the very hardness of the stone and the limitations this imposed on working it with hand tools. About 1834, Alexander MacDonald set about solving this problem. He designed a machine for polishing stone. Using an Aberdeen comb works' steam engine he showed that a smooth surface could be achieved by running sand and water beneath an iron polishing head.



*Settmaker A Harvey at work in Kemnay Quarries, circa 1950*




*Masons James Philip and George Cooper carving the War Memorial, circa 1924*

Alexander MacDonald went on to develop a steam saw and a steam lathe. However, even with steam sawing, the process of cutting a single large block, again with sand as the cutting agent, could take months. In the 1880s, chilled iron replaced sand and this increased the rate of cut significantly. A block, which previously took months of work, could now take as little as ten days. Further development of this technology enabled the granite trade to produce relatively thin slabs. When polished these slabs were ideal as decorative fronts for buildings.

## PART ONE

### Rubislaw to Union Street


#### 1 Rubislaw Quarry

 When this quarry closed in 1971, it was some 450 feet deep. It had been worked for over 200 hundred years. Hundreds of thousands of tons of grey granite had been blasted and cut from the ground. In 1788, Aberdeen's Town Council had not been optimistic about the potential of the quarry and decided to give up its right to work the land. It has been estimated that at least 50% of Aberdeen's buildings are built of Rubislaw stone. Rubislaw also provided stone for the Portsmouth and Southampton docks. However, the depth of hole, the need to continually pump the quarry floor clear of water, poor stone and competition led to the quarry's closure. The hole remains spectacular despite the fact that it is now over half full of water. At present, access to view the quarry is difficult - requiring scrambling up a steep bank or acquiring permission to enter private land.



*Rubislaw Quarry, circa 1880*

#### 2 Queen's Road, No 50

 This large house designed by J. B. Pirie in 1886, is perhaps the most imaginative piece of 19th century domestic architecture in Aberdeen. The house was commissioned by John Morgan, a trained mason who was one of the city's biggest building contractors. As a skilled granite craftsman, he was associated with many of the most prestigious projects, including houses in Aberdeen's west end and Marischal College.

### 3 Queen's Cross



On the south east corner sits a bank, formerly home of photographer George Washington Wilson. Designed by J. Russell Mackenzie and completed in 1865, the house is a remarkable combination of granite and ironwork. To the north and opposite, is the sandstone Rubislaw Church also by Mackenzie (1874). G.W. Wilson was so infuriated at the use of sandstone that he placed a feu on the ground opposite to ensure that only granite houses were built.



Queen's Cross, circa 1880

### 4 Nellfield Cemetery, Great Western Road



With the invention of steam powered polishing in the 1830s came the capability of producing hundreds of thousands of memorial graveyard slabs. Wide ranging examples can be found in this graveyard. There is a surprisingly modest memorial to Alexander MacDonald, father of the modern granite industry, (on the Great Western Road boundary wall, close to the lodge entrance) and an even more modest marker to paupers of the Aberdeen Female Orphans Asylum. On a grander scale is the large Celtic cross, erected in memory of photographer George Washington Wilson.



Nellfield Cemetery

### 5 Bon Accord Crescent and Bon Accord Square (1820s)



These Georgian houses were built by Archibald Simpson to accommodate some of the city's wealthier citizens. Additionally, to the immediate east of the square, on Bon Accord Street, is an interesting example of modern use of granite. Originally a garage, this art deco style building of 1937, was designed by A. G. R. Mackenzie. However, unlike the houses on Bon Accord Square, the granite on the 1937 garage would have been cut using power saws and hand tools.

### 28 Rosemount Square (completed 1946)



This circular Council housing block is a remarkable example of granite being used in a modern art deco style. Modelled along the lines of Vienna's Karl Marx Hof, the building is decorated with sculpture by T.B. Huxley Jones. It is an outstanding example of Council house building, mixing modernity and traditional materials.

### 29 Richmond Street




This is an example of a street laid with granite setts. It is recorded that sometime in the 1760s, Aberdeen began to export stone for paving London streets. Much of the early stone was simply gathered from local land, helping landowners, in some cases, to subsidise agricultural improvement. This 'ad hoc' method of production grew into a major industry with quarries such as Rubislaw helping supply the then expanding market.



Block of granite being lifted from Rubislaw Quarry



**26 Gilcomston Church, Skene Street (1771)**  
(now Denburn Parish Church)

 The significance of the Church, or Chapel of Ease as it was originally known, is that its stone came from Loanhead Quarry. This quarry was a short distance to the north west of the Church. The chapel ministered to the needs of the many handloom weavers and other tradesmen and their families of Gilcomston.

**27 Tenements, Rosemount Viaduct**

 The tenements were built as part of an improvement scheme in the 1880s. These substantial granite buildings include the tallest traditional tenements in the city and display a variety of architectural features such as towers and parapets. The ornate decoration employed here contrasts with simpler motifs seen elsewhere in City tenement blocks.




*Rosemount tenements, circa 1970*




*Tenements, Rosemount Viaduct, circa 1950*


**6 Music Hall, Union Street**

 The Hall is the combined work of Archibald Simpson and James Matthews. Simpson's Assembly Rooms of 1820 fronts Union Street with massive fine-axed Ionic pillars and behind Simpson's work is Matthews' Music Hall of 1858. The individual sections that make up the columns were cut by hand and not by steam driven lathes that were later in use.

**7 Statue of the Duke of Gordon, Golden Square (1841)**

 Designed by Thomas Campbell, it was cut by hand from a 20 ton block of Dancing Cairns stone. The work was carried out at the yard of Macdonald & Leslie, the most important granite yard in the city at the time. The statue now stands in Golden Square but originally, it stood at the Castlegate, close by the Market Cross. Dancing Cairns Quarries (disused) lie north west of the city centre close to Bucksburn and Auchmill. In its last days, the stone from here was crushed and bonded to form Adamant granite paving slabs.

**8 Northern Assurance Offices, Union Street (1885)**

 Now a public house known locally as the 'Monkey Hoose', this is a majestic commercial building designed by architect A. Marshall Mackenzie and built by master mason John Morgan. The entrance screened by grey granite Doric columns, opens to polished pink Corenne granite panels in the vestibule and grand Corinthian columns in the main hall. Corenne Quarry, 23 miles west of Aberdeen, is one of the few local quarries still working today. Its pink stone is fine grained in contrast to the larger grained red granite taken from Stirlinghill Quarry at Peterhead.


**9 Edward VII statue, Union Street**

 The statue was designed by sculptor Alfred Drury and carved by mason James Philip with his assistant George Cooper. Pneumatic and hand chisels were used in the cutting of this Kemnay granite sculpture. The lead mason, James Philip, spent his working life in the granite yard of Arthur Taylor and he was perhaps the best carver ever employed in the city's stone trade.



*Edward VII statue, circa 1913*


## 10 Union Bridge, (completed 1805)

 Commissioned by the Town Council, with advice from Thomas Telford, the bridge was designed by David Hamilton and Thomas Fletcher. With a span of 130 feet, this great engineering feat had every stone dressed by hand using hammers and picks. The arch of the bridge is evidence of the way that Union Street itself was built. From what was the crown of St Katherine's Hill (the north end of Shiprow), a series of arches were built westward. However, most of these arches are now hidden beneath the street. The bridging of the Valley of the Denburn encouraged citizens, particularly the affluent, to escape the noises, smells and unsanitary conditions of the older burgh.



*Union Bridge*


## 11 St Nicholas Church and Screen, Union Street

 Within the 'Mither Kirk', is the 15th Century St Mary's Chapel, a fine example of medieval granitework. The granite of the church's east portion, designed by Archibald Simpson in 1837, was rebuilt following a fire in 1874. The earlier west church portion of 1741 is built of sandstone. Following the fire in 1874, William Smith designed a granite spire to replace the lead covered one destroyed in the blaze. The screen with twelve columns, was designed by John Smith in 1829 and is cut from Dancing Cairns stone. (See note 7).



*St Nicholas Church and Screen, circa 1880*


## 23 Art Gallery and War Memorial, Schoolhill

 The complex, designed by architect A. Marshall Mackenzie (1886/1905 and 1925), is a fine combination of Kemnay and Cornish granites (pink). Within the Gallery are 28 turned and polished granite columns representing the varieties of stone being worked in and around Aberdeen in 1905. As can be seen, even at this relatively early date, the local industry was importing granite from abroad. The design for the War Memorial Lion was the work of William McMillan and was cut in granite by James Philip and George Cooper.




*Art Gallery*

## 24 His Majesty's Theatre, St Mark's Church and Central Library, Rosemount Viaduct (1891-1908)

 These three buildings demonstrate the diversity of granite use: the Theatre's lightness of touch contrasting with the bulky construction of the Church.


## 25 Archibald Simpson's Infirmary, Woolmanhill (1832-40)

 A neo-classical building with a dome, the infirmary set the pattern for the nearby War Memorial, St Mark's Church and His Majesty's Theatre. The erection of the hospital coincided with the introduction of steam powered granite polishing and sawing, marking a new phase for the trade.



*Archibald Simpson's Infirmary, Woolmanhill*

## 21 Marischal College, Broad Street

 The College is said to be the second biggest granite building in the world (the largest being the Escorial in Spain). It is a blend of two styles: A. Marshall Mackenzie's 'perpendicular gothic' (1890s) and Archibald Simpson's earlier more austere architecture (1837). The overall style is a combination of different aesthetics and the opportunities given by various granite working technologies. Simpson's older building is built of Rubislawstone and the modern gothic from Kemnay granite




*Archibald Simpson's Marischal College, circa 1880*





*A. Marshall Mackenzie's Marischal College, circa 1900*


## 22 Robert Gordon's College, Schoolhill (1730s)

 The two-storey building designed by William Adam is an early example of building in granite. The stone came from Loanhead Quarry in the Rosemount area of the city. Opened in 1730 by James Emslie, this quarry also supplied stone for the original infirmary and Gilcomston Chapel of Ease.

## 12 Correction Wynd

  The Wynd is an example of granite setts or cassies (the local name derived from the word 'causeway'). Cassies usually came direct from quarries where cassie making was skilled work and paid according to output. The cassie maker sat in a 'cathie' (a small portable hut), reading the grain of the granite and cutting squared and cambered stone that was used for towns and cities across Britain. Setts exports peaked in the 1880s with over 50,000 tons of setts being exported from Aberdeen. The Wynd passes beneath a granite arch (circa 1802) which carries Union Street overhead. The arch is visible evidence of the great civil engineering that was necessary to build the city's main street.


## 13 New Town House, Union Street (1868-1874)

 A proposal that sandstone be used was abandoned when John Fyfe offered to supply the Council with his Kemnay stone at a preferential rate. The result is a building, by architects Peddie and Kinneir, that expresses the confidence of a mature granite industry. With its towers and arcades, it showed what the industry and the town could do. This confidence went so far as to boldly incorporate, at the east end, a medieval sandstone Tolbooth.



*New Town House, circa 1952*

## 14 Athenaeum-Union Building, Union Street (1819-22)


 Archibald Simpson was the architect of this prominent building at the east end of Union Street. It is an important example of the granite trade. Its fine, smooth ashlar work is amongst the earliest illustrations of granite dressed by hammer and puncheon (chisel). Hammers and picks had been the standard tools until 1818 when masons introduced tools associated with sandstone and the lighter hammer and puncheon became the tools of choice.





## PART TWO

### Broad Street to Rosemount



#### 15 James Burns' Banking Company, Castle Street (1801)

 This is an early example of fine quality working and a harbinger of the future. Burns' building demonstrates exactly how elegance and grace is possible with hard stone. An observer of 1794 described how masons achieved the smooth finish - 'picking the surface, exactly as a miller does.....smoothing out by a tool in shape like a small hatchet'. Look to the top of the building and see the fine balustrade.



#### 16 Marischal Street (laid out from 1767)

  Aberdeen's earliest planned street was the first in the city to be paved with granite setts. Its buildings, originally the homes of wealthy merchants, illustrate the use of a more friable easier worked granite, quarried close to the surface at Loanhead. This granite lacks the whiter sparkle of later buildings made from deeper quarried stone. Contrast it with James Burns' Bank at the north west corner of the street.

#### 17 Salvation Army Citadel, Castlegate (1896)

  Modelled on Balmoral Castle by architect James Souttar, it was completed when the granite industry was at its peak. Some 300,000 tons of stone was being quarried locally and 40,000 tons of this was exported through Aberdeen harbour.


#### 18 Market Cross, Castlegate (1686)

  Sandstone was the main stone of buildings prior to the introduction of granite in the 19th century. Standing at the head of Union Street, the sandstone Cross is emblematic of the pre-granite period. Within a hundred years of its construction, the way of life symbolised by it, and its soft stone, was pushed aside to make way for urban and industrial growth and granite.



Market Cross, circa 1900


#### 19 St Nicholas House, Broad Street

 Designed by the City Architects Department in 1962, this is a contrast to Marischal College, opposite. Although the bulk of the block is concrete and glass, the ground floor does incorporate granite as a mark of the City's heritage. Just to the west, and visible from Schoolhill, is the St Nicholas Centre. This shopping centre, opened in 1985 incorporates thin slabs of granite facing which seeks to achieve some continuity with the area's architectural heritage. The mass production of such uniformly thin slabs became possible with the introduction of new sawing techniques.



Provost Skene's House, circa 1950

#### 20 Provost Skene's House, Broad Street

 The earliest portion of this house, on the west side, dates from 1545. It is one of the City's few examples of the pre-industrial use of granite. Here, the stone is incorporated in rubble walling with little working, compared to the fine ashlar stone produced in the 19th century. Where decorative features are called for, such as window margins, softer sandstone is used.