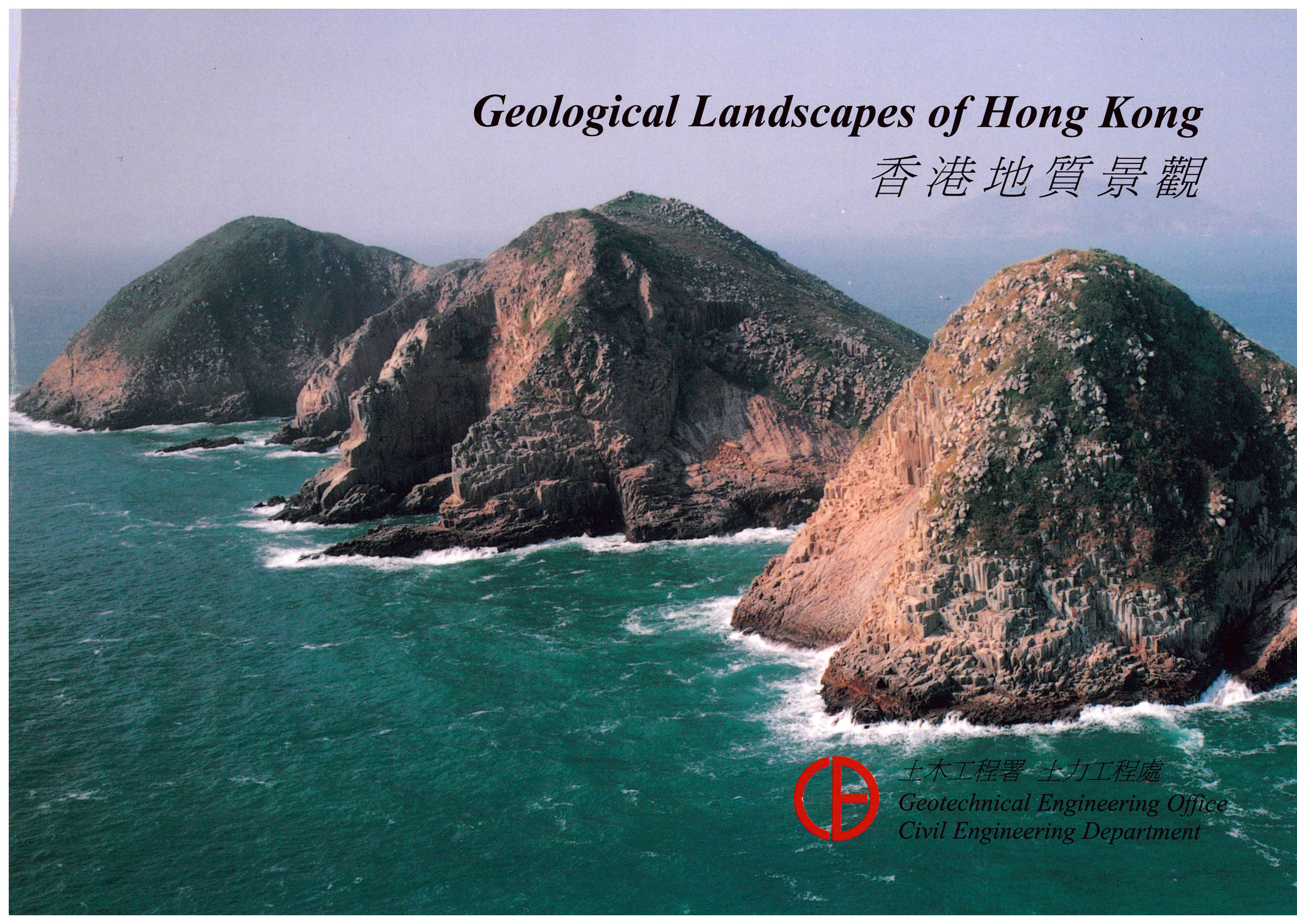


Geological Landscapes of Hong Kong

香港地質景觀



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Back cover: Weathered mudstone on Tai Tsan Chau, eastern New Territories

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Geological Landscapes of Hong Kong 香港地質景觀

This book was published to commemorate the 20th anniversary of the opening the Geotechnical Engineering Office of the Civil Engineering Department. It contains photographs of the wide variety of geological landscapes to be found in Hong Kong and describes, in simple terms with accompanying sketches, how they were formed.

為紀念土木工程署土力工程處成立二十週年出版此圖集。內容以圖片展示香港多姿多采的地質景觀，並用簡淺的語言介紹這些景觀的形成。

Acknowledgements 鳴謝

The majority of the photographs in this book were taken by Lloyd Homer (Wellington, New Zealand). The text, sketches and design were undertaken by Chris Fletcher, Rod Sewell and K. W. Lai, with contributions by other members of the Hong Kong Geological Survey: Diarmad Campbell, Phil Kirk, X. C. Li and Raynor Shaw. Technical and cartographic assistance was provided by T. T. Leung, Y. C. Leung, K. C. Yip, W. H. Ho, P.L. Chan, K.W. Wong, Y.L. Lee, F.M. Leung and S.W. Lam.

本圖集大部份照片均由 Lloyd Homer 先生（新西蘭威靈頓）拍攝。文字內容、示意圖和設計由范卓賢先生、蘇偉賢先生和黎權偉先生負責，並獲香港地質調查組其他成員：甘沛霖先生、郭偉傑先生、李曉池先生和蕭偉立先生提供寶貴意見。梁德棠先生、梁有志先生、葉劍全先生、何偉康先生、陳寶蓮小姐、黃貴華先生、李有良先生、梁鳳美小姐和林秀惠小姐提供技術及製圖協助。

Further information on the geology of Hong Kong can be found on the Civil Engineering Department webpage
有關香港地質的資料，可瀏覽土木工程署網頁。

www.info.gov.hk/ced



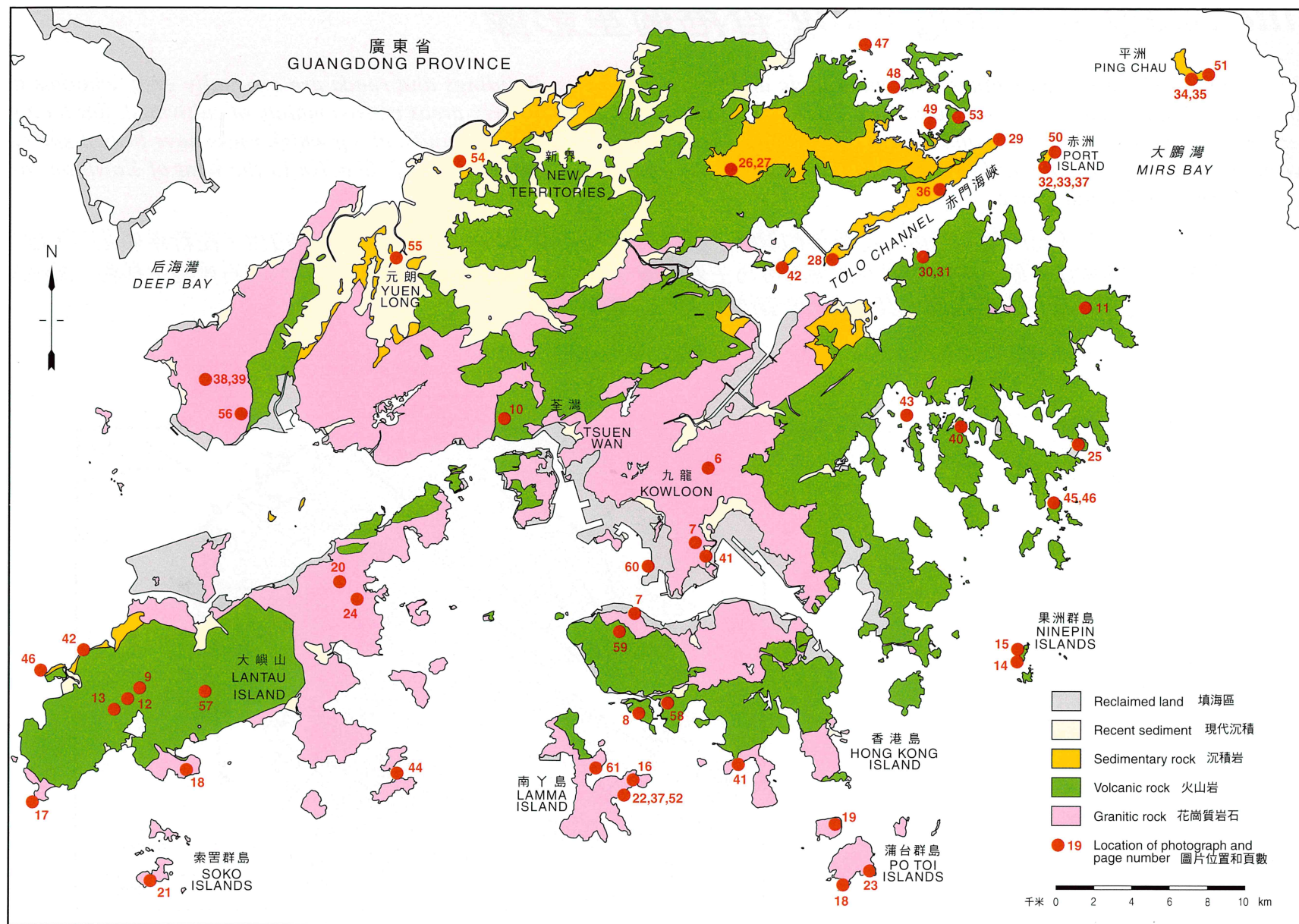
Geology of Hong Kong 香港地質

The present day landscape of Hong Kong has been controlled mainly by the nature of the underlying rocks, with each rock type displaying characteristic weathering features and landforms. Locally, other distinctive landscapes result from the deposition of sediment in river valleys, coastal erosion and landslides.

There are three main types of rock in Hong Kong: volcanic rock that erupted as ash and lava flows from now extinct volcanoes; granite that formed deep beneath the earth's surface from molten rock; and sedimentary rock that originally accumulated in ancient seas, lakes and river deltas. These rocks were formed between 400 and 50 million years ago and have been uplifted during earth movements to their present position. The distribution of the three rock types is shown on the geological map of Hong Kong.

香港現今的景觀主要受岩石性質的影響，不同岩石有不同的風化特點和地貌特徵。其他獨特景觀亦可由河流沉積，海岸侵蝕和滑坡作用形成。

本港有三大類岩石：火山岩是古火山噴出來的火山灰和熔岩流；花崗岩是在地殼深處冷凝了的岩漿；沉積岩是在古代海洋、湖泊和河流三角洲中的沉積。這些岩石形成於四億年至五千萬年之間，在地殼運動時上移至現在的位置。香港地質圖展示了這三類岩石的分佈。



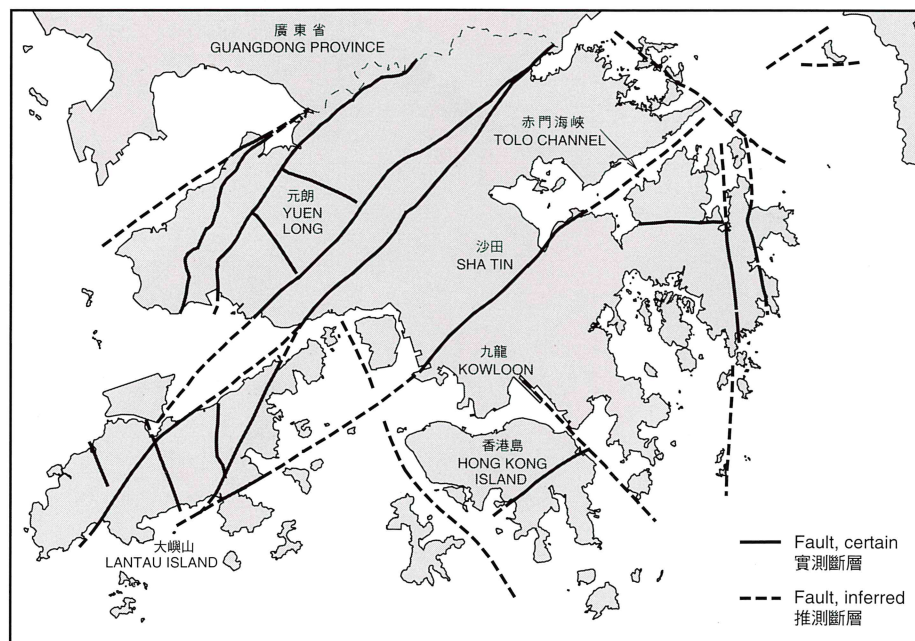
Geological map of Hong Kong with the locations of photographs identified by page number

香港地質圖附各圖片的位置和在本圖集的頁數

Satellite image of Hong Kong 香港衛星影像

The satellite image of Hong Kong displays both man-made and natural features. Buildings and roads are generally grey, whereas the recent reclamations are brilliant white. In the northeast New Territories, the mottled greenish-grey areas consist mainly of cultivated, flat land underlain by recent sediments. The straight valleys and inlets that cut across Hong Kong follow major faults, along which rocks have been displaced during earth movements. The most prominent fault can be traced southwest from Tolo Channel, through Sha Tin to the west of Kowloon; other fault directions can be seen on Lantau Island.

香港的衛星影像顯示了天然和人為的地形特徵。建築物和道路一般呈灰色，近期的填海工程則呈明亮的白色。在新界東北部，斑狀綠灰色的地區是近代沉積物形成的耕作平原。筆直的河谷和港灣常為主要斷層穿越之處。地殼運動時斷層兩側的岩石曾發生移動。最明顯的一條斷層是由赤門海峽向西南經沙田至九龍西部。其它明顯的斷層可見於大嶼山。



Map of major faults in Hong Kong

香港主要斷層分佈圖



Satellite image of Hong Kong

香港衛星影像

Rock landforms 岩石地貌

In Hong Kong, the hard volcanic rocks generally form the higher ground with angular ridges and sharp peaks, in contrast to the more easily weathered granites that make up the lower lying areas. However, a few of the granites are resistant to weathering and are upstanding.

香港堅硬的火山岩常形成具陡脊和尖峯的高山，與易風化形成低地的花崗岩呈強烈對比，只有少數花崗岩能抗風化形成山嶺。



Lion Rock composed of resistant granite, north of Kowloon

九龍北部的獅子山由堅硬花崗岩組成

Volcanic rocks of western Hong Kong Island overshadow the weathered granites that underlie Victoria Harbour

香港島西面的火山岩遠高於埋在維多利亞港下面的風化花崗岩

Low-lying area of Kowloon, composed of weathered granite, is flanked to the north by a ridge of volcanic rock and a resistant granite

九龍的平地由風化花崗岩組成，北部的山脈由火山岩和堅硬的花崗岩形成



Volcanic rocks 火山岩

Between 165 and 140 million years ago there were several active volcanoes in Hong Kong. One of the largest volcanoes was on Lantau Island and, at times, Hong Kong was covered by thick layers of hot ash. Some of the volcanic rocks contain fragments of pumice (frothy glass) ejected from the volcanoes.

一億六千萬至一億四千萬年前，本港有多個活火山，其中最大的火山在大嶼山，當時厚層灼熱的火山灰覆蓋全港。有些火山岩還含有火山爆發出來的浮石碎屑（泡沫玻璃）。



Close-up of a volcanic rock on Ap Lei Chau, with elongate fragments of greenish grey pumice

鴨脷洲含綠灰色拉長浮石碎屑的火山岩近觀



Boulders of volcanic rock below Lantau Peak, southern Lantau Island

大嶼山南面鳳凰山下火山岩的巨礫

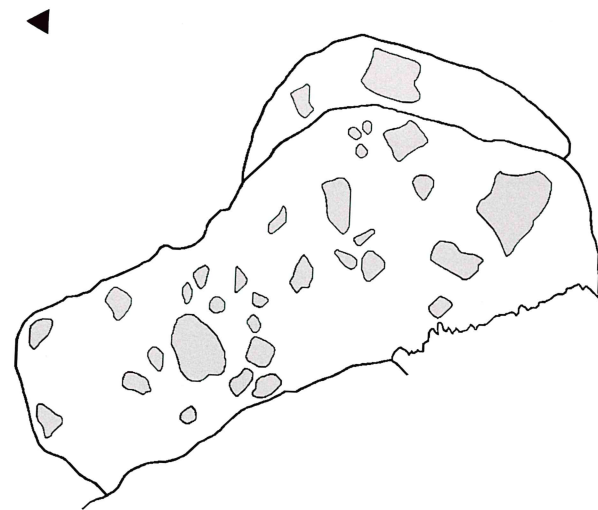
Volcanic rocks form the craggy tops to most of the mountains in the New Territories. Commonly, the volcanic rocks are cut by numerous vertical joints (planar splits). Close to the centres of the extinct volcanoes the ash contains angular blocks ejected from the volcanic vents.

新界大部份陡峻的山峯都是由火山岩組成。通常火山岩會被很多垂直節理切割（平面裂口）。近古火山口中心，火山灰內含有由火山頸噴出來的稜角狀岩塊。



Angular blocks in a volcanic rock near Shek Lung Kung, Tsuen Wan

荃灣石龍拱附近火山岩中的稜角狀岩塊



Sketch of the angular blocks near Shek Lung Kung

石龍拱附近稜角狀岩塊示意圖



Layers of volcanic rock cut by numerous vertical joints, Sharp Peak, eastern New Territories

新界東部的蚺蛇尖，大量垂直節理切割火山岩的岩層

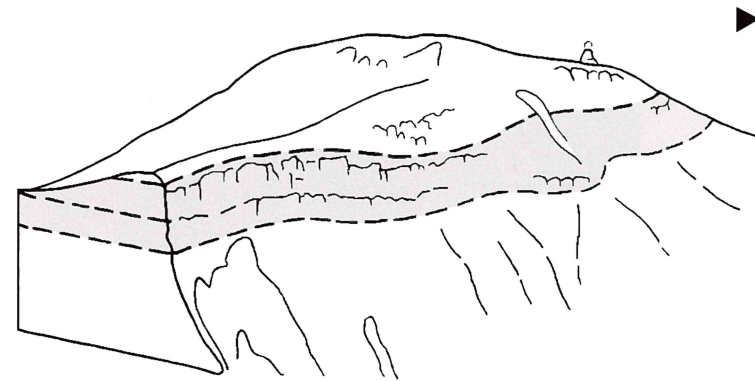
Commonly, the volcanic rocks consist of distinct layers that vary in thickness from a few millimetres to many metres. The thickest layers can be traced over long distances, and several now form prominent cliffs. Each layer was probably deposited during separate volcanic eruptions.

通常火山岩由幾毫米至幾米厚的不同岩層組成。巨厚的岩層可延伸很遠，有些還形成突出的懸崖。每個火山岩地層可能是在不同時期火山噴發堆積而成。



Thin layers of ash make up this volcanic rock at Ngong Ping, Lantau Island

大嶼山昂坪的火山岩由薄層的火山灰凝固而成



Sketch of horizontal volcanic rock layers (shaded) at Ngong Ping, showing a section through the hill

昂坪的水平火山岩岩層（陰影部份）通過山上的剖面示意圖



Thick layers of volcanic rock at Ngong Ping, Lantau Island

大嶼山昂坪的厚層火山岩

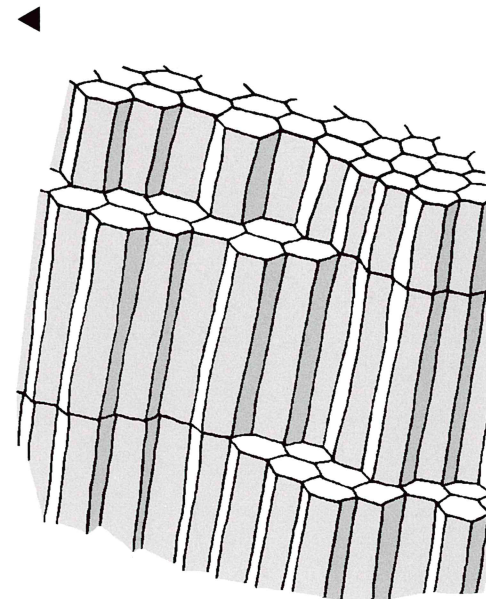
The thickest volcanic rock layers occur along the coast and off-shore islands of eastern Hong Kong. During cooling, the volcanic ash layers developed spectacular columnar joints. The columns are commonly six-sided and formed in a similar way to the cracks seen in dry mud.

香港東面沿岸和離島出現最厚的火山岩層。火山灰岩層冷卻時形成壯觀的柱狀節理。這些節理常呈六邊形，類似泥土乾旱時出現的乾縮裂紋。



Close-up of the six-sided columns on the Nine Pin Islands

果洲群島上六邊形柱狀節理的近觀



Sketch of the form of the columnar joints

柱狀節理形狀示意圖



Columnar joints in volcanic rocks on the Nine Pin Islands

果洲群島上火山岩的柱狀節理

Granites 花崗岩

The granite bodies of Hong Kong were originally deep reservoirs of molten rock that were the source for the volcanic eruptions. As the volcanic activity diminished the molten rock slowly hardened beneath the earth's surface to form a mass of interlocking crystals of different minerals.

本港的花崗岩來源於地殼深處的岩漿庫，亦即火山爆發的源頭。隨著火山活動減少，岩漿在地殼深處慢慢冷凝硬化，形成由不同礦物交織結晶而成的岩體。



Close-up of medium-grained pink granite at Ngai Tau, Lamma Island, intruded by a fine-grained, light grey rock

南丫島垭頭細粒淺灰色岩石侵入中粒粉紅色花崗岩的近觀



Low granite cliffs on the Fan Lau peninsula, Lantau Island; the hills in the background are made of volcanic rock
大嶼山分流半島的花崗岩矮崖；背景群山為火山岩

Several sets of joints were developed in the granites as they cooled. In places, the planar joint faces are revealed where blocks of granite have fallen away. However, where the granites have been exposed to the action of waves and rain the joint faces and sharp corners become rounded.

花崗岩冷卻時發育幾組節理。有些地方當花崗岩的岩塊滑落，會露出板狀的節理面。在海浪和雨水作用下，裸露花崗岩的節理面和稜角會變得圓滑。



Vertical and horizontal joints in granite on Po Toi Island

蒲台島上花崗岩的垂直和水平節理



Rounded joint blocks in a granite outcrop near Lo Kei Wan, Lantau Island

大嶼山籬箕灣附近花崗岩的圓滑節理面



Several joint sets and some joint faces exposed in low granite cliffs on Lo Chau, Po Toi Islands

蒲台群島螺洲的花崗岩矮崖上出露幾組節理和一些節理面

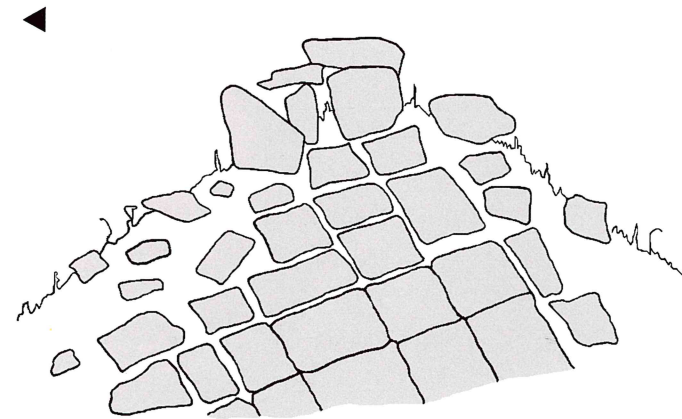
Many inland exposures of granite appear broken and weathered, although fresh rock occurs at depth. Upstanding, angular crags, called tors, form the hill tops and these are surrounded by an apron of loose blocks that have rolled down the slope.

花崗岩在地表雖呈破碎風化現象，但在深處卻表現完整和全無風化。它們常形成稜角分明，堅挺的山頂稱為突岩。突岩常被滾下山坡的石塊形成的坡積裙所圍繞。



Weathered blocks of granite on a hill top near Lo Fu Tau, Lantau Island

大嶼山老虎頭附近山頂上花崗岩的風化岩塊



Section through the hill at Lo Fu Tau showing the core of jointed granite

老虎頭山上節理發育的花崗岩核部剖面



A pile of loose boulders at the base of a low hill capped with granite tors on Tai A Chau, Soko Islands

索罟群島大鴉洲花崗岩的巨大礫石散佈於小山包上并在山腳形成巨礫堆

Dykes 岩牆

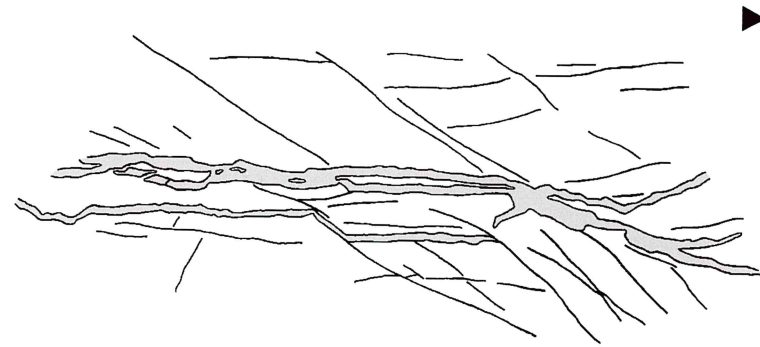
Dykes are formed when molten rock is forced into joints and cracks in solid rock and hardens quickly. There are many types of dyke in Hong Kong and they vary in width from a few centimetres to over a hundred metres, and some can be traced for several kilometres.

岩牆是熔融的岩漿擠進岩石的節理或裂縫中迅速冷卻而成。香港有多種岩牆，其寬度由幾厘米到超過一百米，長度有些可延伸達數公里。



Dark coloured, fine-grained dyke in granite at Tung O Wan, Lamma Island

南丫島東澳灣花崗岩內的深色細粒岩牆



Sketch of the dykes (shaded) and joints at Tai Kok Tau

大角頭岩牆（陰影部份）及節理示意圖



Series of dark coloured dykes intruded along two joint sets at Tai Kok Tau, Po Toi Island

蒲台島大角頭沿兩組節理侵入的暗色岩墻

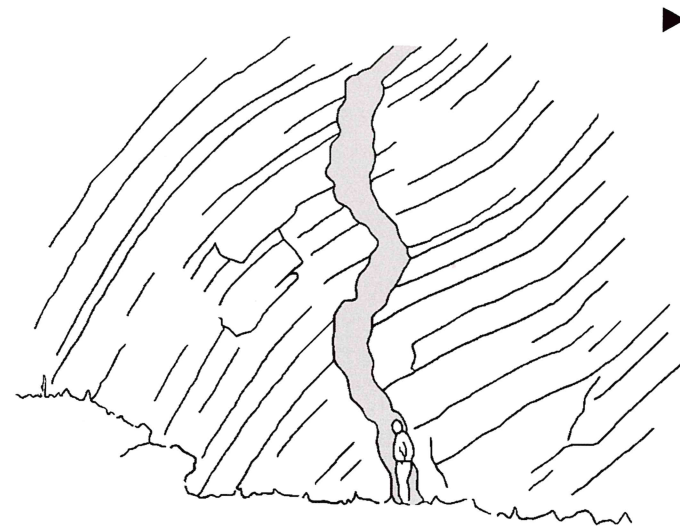
The margins of the dykes can vary from straight to highly indented and irregular, due mainly to the molten rock finding the easiest pathway when it was intruded. The slight bending of columns in volcanic rocks can produce zones of weakness that were opened and filled by molten rock.

岩牆的邊緣可以是整齊的、鋸齒形的或不規則的形狀，這是由於熔融的岩漿沿着最易的途徑侵入所造成。火山岩微彎的柱狀節理可成為熔融岩漿進入和填充的軟弱部位。



Crystal-rich dyke with irregular and straight margins near Discovery Bay, Lantau Island

大嶼山愉景灣附近一條富含斑晶，具不規則和整齊邊緣的岩牆



Sketch of the dyke (shaded) at High Island Reservoir

萬宜水庫岩牆（陰影部份）示意圖



Irregularly shaped dyke in columnar-jointed volcanic rocks at High Island Reservoir, eastern New Territories
新界東部萬宜水庫具柱狀節理火山岩中不規則形狀的岩墻

Sedimentary rocks 沉積岩

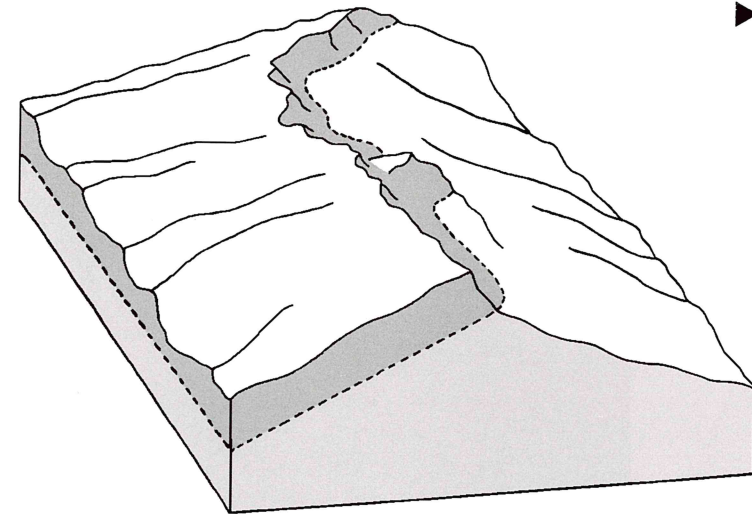
The exposed sedimentary rocks of Hong Kong consist of rock fragments that were eroded from ancient mountains and deposited together with animal and plant remains on the sea floor, over lake beds or in river deltas. The sediment layers were originally horizontal but have been subsequently tilted.

香港的沉積岩是由古代山上的岩石受風化侵蝕，沖刷下來的岩石碎屑夾雜動植物遺體，沉積在海底、湖底或河流三角洲而成。沉積岩層原本是水平的，後來因地殼活動才變得傾斜。



Cliff face at Ping Fung Shan composed of layers of sandstone that lie parallel to the ridge top

屏風山的懸崖表面由多層與崖頂平行的砂岩層組成



Sketch showing the rock structure of Ping Fung Shan. Layers of hard sandstone (darkly shaded) form the cliffs above softer volcanic rocks (lightly shaded)

屏風山岩石構造示意圖。顯示堅硬的砂岩層（深陰影）形成陡崖，覆蓋在較軟的火山岩上（淺陰影）



Tilted sedimentary rock layers on Ping Fung Shan, Pat Sing Leng range, eastern New Territories
新界東部八仙嶺屏風山傾斜的沉積岩層

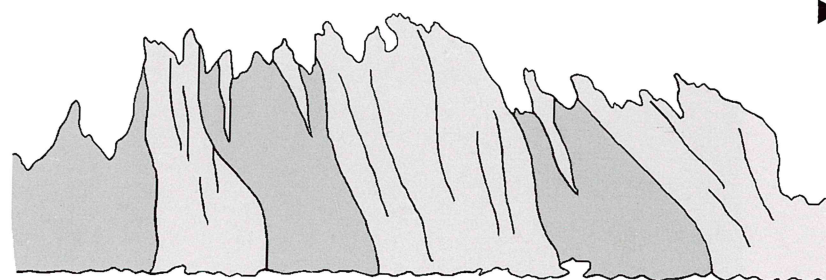
The oldest rocks in Hong Kong were deposited as gravel, sand and mud in a large river delta, nearly 400 million years ago. These sediments are now conglomerate, sandstone and mudstone, that in places have been tilted to the vertical. Some of these rocks contain shell, plant and fish fossils.

香港最古老的岩石大約在四億年前，由大型河流三角洲的礫石和砂泥沉積，形成現今的礫岩、砂岩和泥岩。後來因地殼運動岩層變得傾斜甚至垂直。有些岩石含有貝殼，植物和魚化石。



Close-up of vertical sandstone and conglomerate layers on Harbour Island, Tolo Channel

赤門海峽白沙頭洲垂直的砂岩和礫岩地層近觀



Sketch of sandstone (lightly shaded) and mudstone (darkly shaded) layers at Bluff Head

黃竹角咀的砂岩（淺陰影）和泥岩（深陰影）示意圖



Sea cliffs at Bluff Head, Tolo Channel, formed of tilted, vertical layers of light grey sandstone and red mudstone
赤門海峽黃竹角咀的海蝕崖，是由傾斜至垂直的淺灰色砂岩和紅色泥岩組成

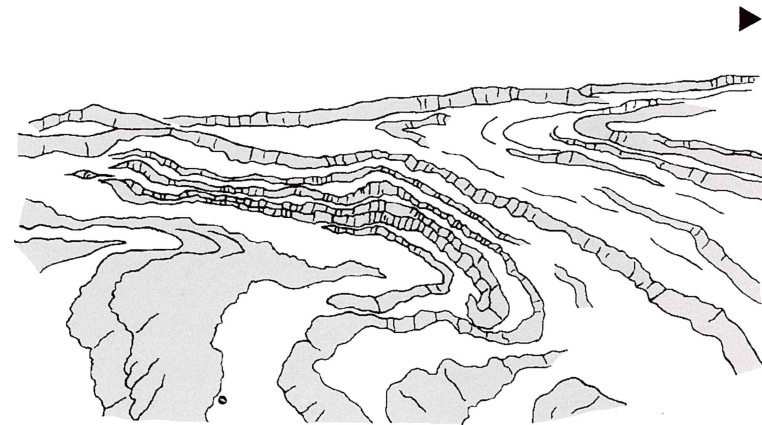
About 145 million years ago, several shallow lakes formed in ancient valleys. These were slowly filled with layers of sand, mud and ash, that in places were disturbed by earth movements. These rocks contain plant fossils derived from the vegetation that fringed the lakes.

約一億四千五百萬年前，在古代的谷地形成一些淺水湖泊。這些湖泊逐漸被一層層砂泥和火山灰填滿，有些地方曾受地殼活動影響。岩石中還含有湖邊生長的植物化石。



Close-up of thin layers of light and dark coloured mudstone and sandstone at Lai Chi Chong

荔枝莊薄層狀、深淺色相間的泥岩和砂岩的近觀



Sketch of the folded sedimentary rock layers at Lai Chi Chong

荔枝莊褶皺的沉積岩層素描圖



Folded layers of sandstone, mudstone and volcanic ash on the rocky shore at Lai Chi Chong, Tolo Channel
赤門海峽荔枝莊海灘上褶皺的砂岩，泥岩和火山灰層

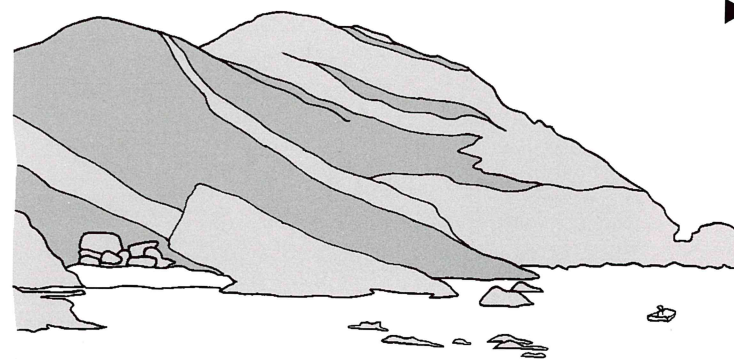
Around 140 million years ago, following a period of major volcanic activity, Hong Kong was covered by a large flood plain. The climate was extremely dry, but occasional flash floods brought down boulders and gravel from the surrounding mountains. The desert conditions made most of the rocks red.

約在一億四千萬年前主要的火山活動結束後，當時香港被大片泛濫平原覆蓋。氣候極端乾燥，偶爾發生洪水將週圍山上的巨礫和礫石沖刷下來。沙漠環境使大部份岩石變成紅色。



Red conglomerate from Port Island composed of boulders, cobbles and gravel of volcanic rock, mudstone, sandstone and quartz

赤洲紅色礫岩中的礫石和卵石是由火山岩、泥岩、砂岩和石英組成



Sketch of the cliffs at Port Island, showing the main sandstone (lightly shaded) and mudstone (darkly shaded) layers

赤洲陡崖上主要的砂岩（淺陰影）和泥岩（深陰影）岩層示意圖



Tilted, layers of red sandstone, mudstone and conglomerate in the cliffs of Port Island
赤洲陡崖上傾斜的紅色砂岩、泥岩和礫岩岩層

The youngest rocks in Hong Kong were deposited in a shallow lake in the east of Mirs Bay around 50 million years ago. Silt and mud was carried into the lake by rivers that drained the surrounding hills. The rocks contain many fossils including insect and plant remains.

香港最年輕的岩石形成於約五千萬年前的淺水湖中，分佈於現今大鵬灣東部地區。當時週圍山上大量的砂泥受雨水沖刷，沿着河流帶入湖中。這些沉積岩含有不少昆蟲和植物化石。



Close-up of rock layers on Ping Chau; each layer was deposited in a single year

平洲岩層近觀：每個薄層代表形成於一定年代的沉積



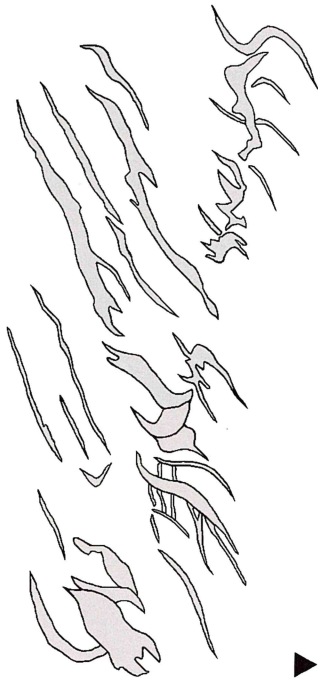
Finely layered siltstone and mudstone on Ping Chau

平洲的薄層狀粉砂岩和泥岩

Veins 岩脉

Many rocks of Hong Kong are cut by white veins of quartz and calcite. They were formed by the filling of cracks by minerals that crystallised out from water passing through the rock. The form of the veins is dependent on the earth forces at the time of original cracking of the rock.

香港許多岩石都被白色石英脉和方解石脉所切割。這些岩脉是由礦物透過岩石的溶液結晶出來，并充填於不規則裂隙而成。岩脉的形狀取決於當時造成岩石破裂的地應力。



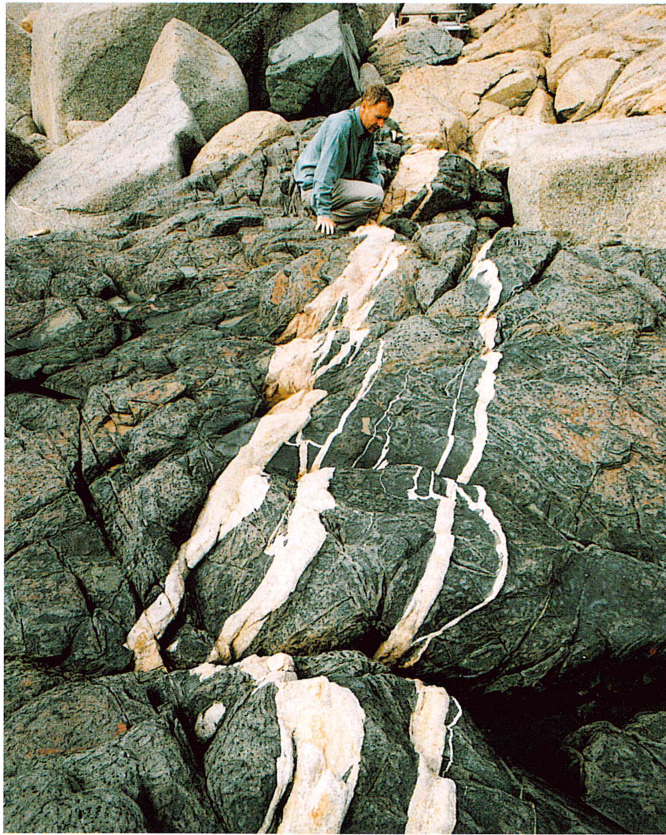
*Sketch of the curved veins
at Fung Wong Wat*

赤門海峽鳳凰笏的彎曲
岩脉示意圖



*Curved quartz veins in sandstone at
Fung Wong Wat, Tolo Channel*

赤門海峽鳳凰笏砂岩中彎曲的石英脉



Irregular quartz veins on Lamma Island
 南丫島上不規則的石英脉



Network of calcite veins in red sandstone on Port Island
 赤洲紅色砂岩中的網狀方解石脉

Weathering 風化作用

Rocks exposed to the atmosphere weather and the rock surfaces become discoloured and pitted, with some minerals in the rock being altered to white clay. In Hong Kong most of the granites weather more readily than the volcanic rocks, thus they are more susceptible to erosion by wind and water.

岩石暴露在空氣中會遭受風化；使岩石表面退色和出現斑點，岩石中某些礦物會變成白色粘土。香港大多數花崗岩比火山岩更易風化，更易受到風和水的侵蝕。



Steep gullies in weathered granite, near Castle Peak

青山附近風化花崗岩中的陡峭沖溝



Deeply weathered granite hills in the Castle Peak area, western New Territories

新界西部青山地區遭受強烈風化的花崗岩山丘

Many rock outcrops display forms that are the result of weathering and erosion of the softer material. Weathering can extend many metres below the ground along joints leaving only irregularly shaped blocks of fresh rock. The action of the weather on the rocks above ground forms rock sculptures.

岩石中較軟的礦物經風化侵蝕後能在岩石露頭上留下各種形態。風化作用可沿節理延伸到地下深處，而留下一些形狀不規則的岩塊。在地面，風化作用可在岩石表面留下刻蝕紋。



*Cores of fresh rock in jointed weathered volcanic rock at
Kau Sai Chau, eastern New Territories*

新界東部滯西洲具節理風化火山岩中的新鮮石核



*Delicate rock sculptures in granite at
To Kwa Wan, Kowloon*

九龍土瓜灣的精美天然花崗岩岩雕



*Pitted surfaces on granite boulders at
Chung Hom Kok, Hong Kong Island*

香港島春坎角花崗岩滾石上的斑點狀侵蝕面

The vivid colours seen on many rock surfaces are commonly caused by weathering; exposure to air and water oxidises the iron minerals in the rock to give red and brown stains. The most intense staining occurs along or close to joint surfaces.

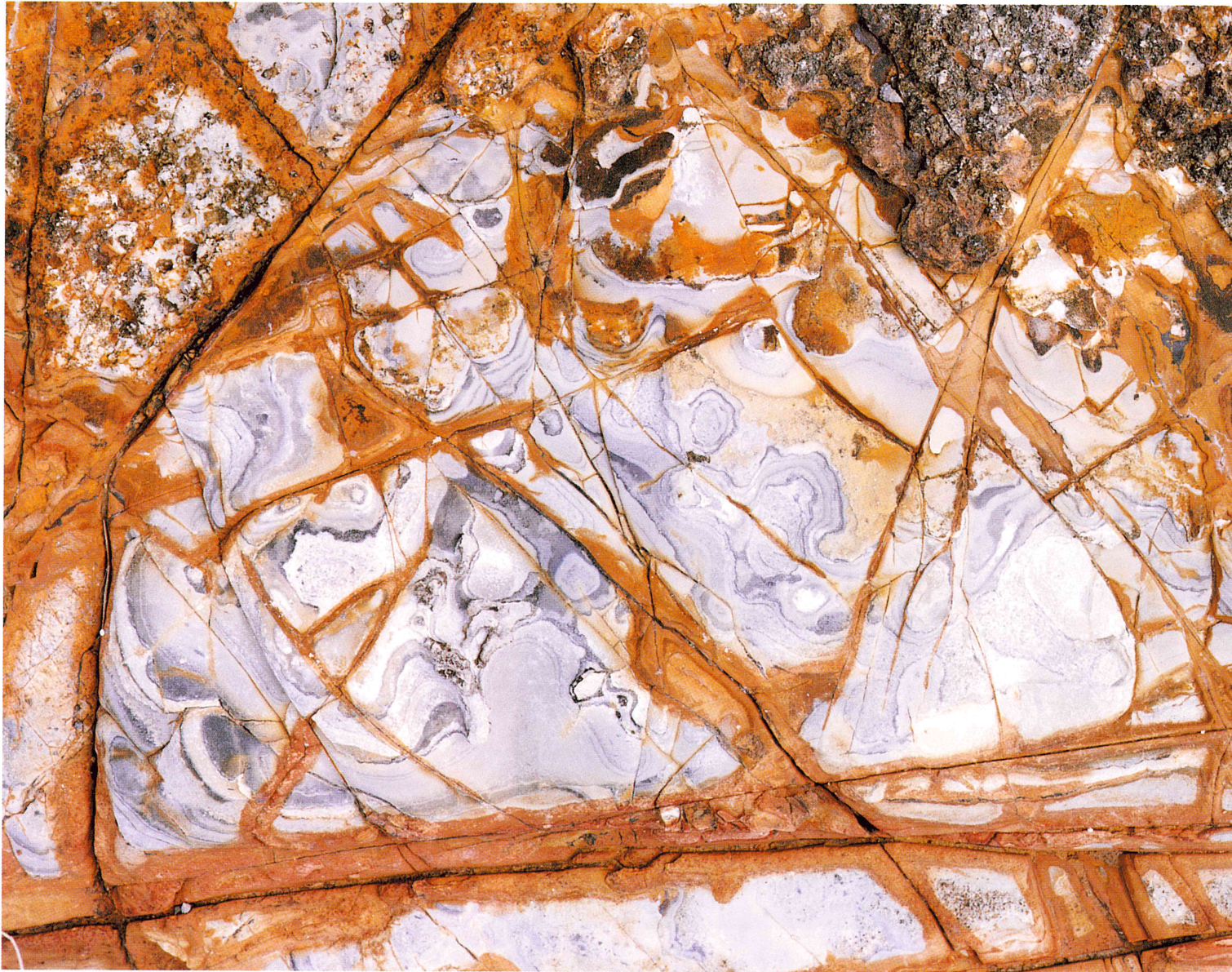
風化作用常在岩石表面形成斑斕的色彩。由於暴露於空氣和水中，使岩石中含鐵礦物氧化，產生紅色和褐色的銹斑。沿節理面及其兩側，這種銹斑變得格外明顯。



Red iron stains on sandstone at Tai O, Lantau Island
大嶼山大澳砂岩面上的紅色鐵銹斑



Brown weathering crust partially covering white sandstone on Ma Shi Chau, Tolo Harbour
赤門海峽馬屎洲褐色風化殼將白色砂岩部份覆蓋



Dark and light grey mudstone layers cut by iron-stained joints on Tai Tsan Chau, eastern New Territories
新界東部西貢海東面的大鑛洲，鐵質污染的節理切割深灰色和淺灰色的泥岩岩層

Coastal features 海岸特徵

Erosion of the coast by wave action has produced cliffs, caves, arches and sea stacks. These features are controlled by the rock type and the structures within the rocks; for example columnar-jointed volcanic rocks form high cliffs with caves whereas granite cliffs are generally lower and less steep.

波浪對海岸的侵蝕造成海蝕崖、海蝕洞、海蝕拱和海蝕柱等。這些景觀的形成取決於岩石的種類和岩石的內部構造，例如具柱狀節理的火山岩常形成高海蝕崖和海蝕洞，而花崗岩常形成低緩的海蝕崖。



Two low granite islands connected by a sandy beach, Cheung Chau
長洲兩個花崗岩小島由沙洲連結起來



High cliffs and caves in columnar-jointed volcanic rocks on Fu Tau Fan Chau, eastern New Territories

新界東部伙頭墳洲具柱狀節理火山岩中的海蝕崖和海蝕洞

Sea arches 海蝕拱

Sea arches are formed where soft rock is washed out by wave action from two sides of a headland or rock promontory. At first, waves cut notches at the base of cliffs, these develop into caves and finally, if the headland is narrow enough, a natural arch is created.

海蝕拱是由波浪對岩石岬角兩側的軟弱岩石的沖刷作用所形成。首先波浪在懸崖底部沖刷成浪蝕龕，進而形成海蝕洞，最後若海岬夠窄，再侵蝕就會形成天然拱。



Sea arches on Fu Tau Fan Chau, eastern New Territories
新界東部虎頭墳洲上的海蝕拱



Natural sea arch at Tai O, Lantau Island
大嶼山大澳的天然海蝕拱



Low sea arch and wave-cut notch in sedimentary rock on Ap Chau, eastern New Territories

新界東部鴨洲沉積岩中一個矮海蝕拱和浪蝕龕

Wave-cut platforms 浪蝕平台

Wave-cut platforms are found around many of the islands along the east coast of Hong Kong. Continual erosion at the base of sea cliffs causes them to collapse, and with time the cliffs recede to leave a rock platform that extends offshore for some distance.

香港東部沿海許多島嶼周圍都可見到浪蝕平台。海蝕崖底部連續受侵蝕而坍塌，日久崖壁後移，形成距崖岸邊有一段距離的浪蝕平台。



*Bird's eye view of the wave-cut platform on Tsing Chau,
northeastern New Territories*

新界東部青洲的浪蝕平台鳥瞰



Small island of Chap Mo Chau surrounded by a wave-cut platform, northeastern New Territories

新界東北執毛洲小島四周的浪蝕平台

Sea stacks 海蝕柱

The collapse of sea arches leads to the formation of isolated columns of rock called sea stacks. They usually occur at the ends of rocky headlands, and with time the stacks are eroded by wave action to leave a chain of small islands.

海蝕拱坍塌後可形成孤立的石柱稱為海蝕柱，通常見於岩岬末端。由於海蝕柱長期受海浪的沖蝕作用，有時會形成一串小島。



Series of eroded sea stacks on Port Island

赤洲一系列受侵蝕的的海蝕柱



Remnants of old sea stacks at Kang Lau Shek, Ping Chau

平洲更樓石殘留的海蝕柱

Recent sediments 現代沉積

Over the last several million years the rocks of Hong Kong have been uplifted, and then worn down and shaped to form the present-day landscape. The sediment eroded from the upland areas has been, and continues to be, deposited along river courses, in estuaries and close to the coastline.

數百萬年以來，香港的岩層曾經上升和遭受剝蝕，形成現今的景觀。由高地剝蝕來的物質沿河流，河口灣和靠近海岸沉積下來。



Rounded boulders of granite on a storm beach at Tung O Wan, Lamma Island

南丫島東澳灣風暴海灘上的花崗岩渾圓礫石



Narrow river plain and stretch of beach on Double Island, northeastern New Territories

新界東北部往灣洲狹窄的河流沖積平原和相連的海灘

In the northwest New Territories, river flood plains and estuaries cover a large area around Yuen Long. Deposits of sand, silt and mud, commonly up to 20 metres thick, have been laid down in old river courses and estuaries, and close to former shorelines.

新界西北部元朗周圍大片地區都是河流泛濫平原和潮區泥灘。厚達廿米的砂，粉砂和淤泥沉積在古河道和潮區上，并接近從前的海岸線。



Meandering stream on the Yuen Long plain
元朗平原上的曲流河道



Yuen Long built on a wide, fertile river flood plain and reclaimed mudflats
元朗是在一個寬廣肥沃的河流泛濫平原和潮區泥灘上填土而成

Landslides 滑坡

The mountains of Hong Kong have been sculptured by landslides over many thousands of years; each major rainstorm triggering many landslides. Although most of these natural landslides are very small and debris only travels for a short distance, a few large landslides reach the valley floor.

千萬年來，香港的山嶺一直都存在滑坡問題。每次暴雨後都會引發許多滑坡（山泥傾瀉），雖然多數天然滑坡規模都較小，泥石移動距離不遠，但少數大型滑坡，泥石移動可遠達谷底平地。



Major landslide below Castle Peak, western New Territories
新界西部青山的大型滑坡



Small landslides on the southern flank of Lantau Peak, Lantau Island
大嶼山島鳳凰山南側的小型滑坡

Man has disturbed the natural form of the land with the construction of roads and buildings, and as a result landslides can sometimes occur. During this century Hong Kong has experienced several major landslides in the urban areas, but fortunately in recent years very few have been fatal.

人類活動如道路和建築物的建設，會改變天然地形，有時能導致產生滑坡。本世紀香港市區曾發生多宗大型滑坡，所幸近年來造成重大損失的滑坡已很少。



Shum Wan Road landslide, Aberdeen, Hong Kong Island on 13th August, 1995

1995 年 8 月 13 日香港島南部香港仔的深灣道滑坡



Po Shan Road landslide, Mid-levels, Hong Kong Island on 18th July, 1972

1972 年 7 月 18 日香港島半山區的寶珊道滑坡

Future landscape 未來景觀

The modern landscape is in a continual state of change, due mainly to the activity of man. Reclamations add to the land areas and change the shape of the coastline, whereas quarries dramatically alter the form of the land.

現代地質景觀主要由於人類活動而在繼續演變。例如填海可增加土地面積和改變海岸線，開山採石也顯著改變了陸地的形狀。



Large reclamation platform in west Kowloon

西九龍大型填海區



Granite quarry at Sok Kwu Wan, Lamma Island

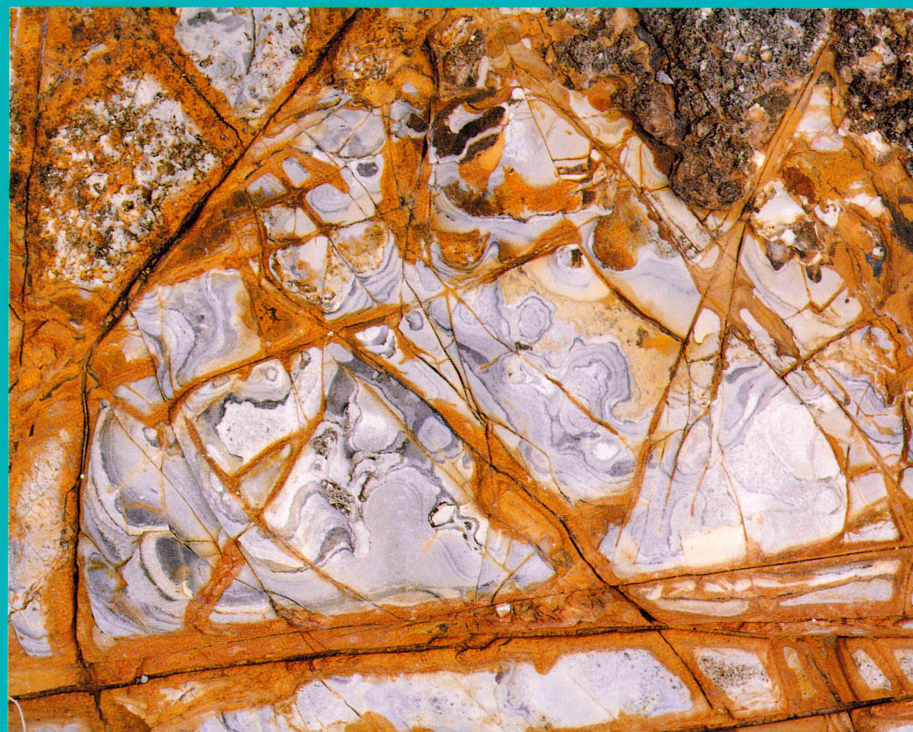
南丫島索罟灣的花崗岩採石場

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