geological society of hong kong

NEWSLETTER

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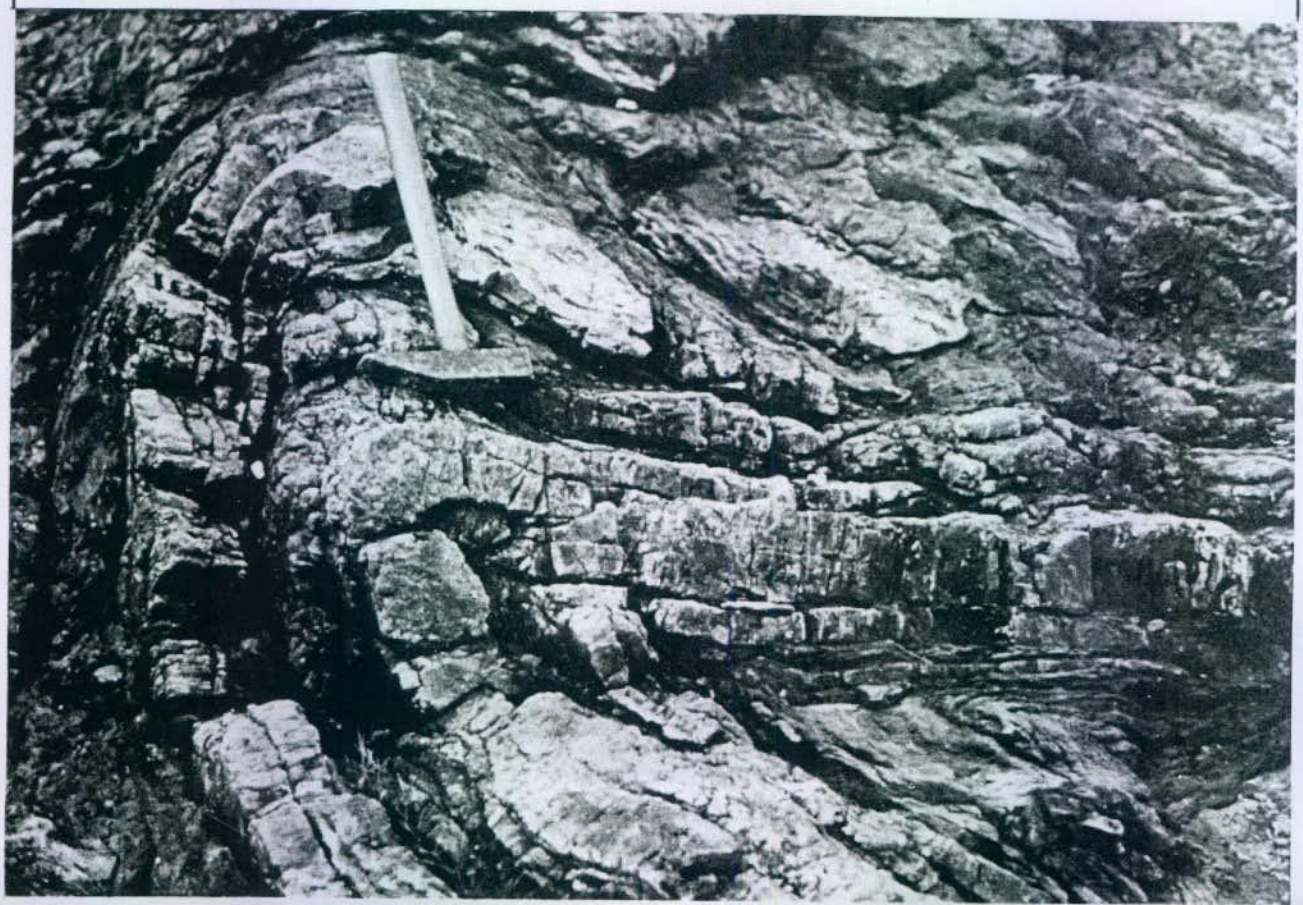

GEOLOGICAL SOCIETY OF HONG KONG

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Typescripts must be accurate and in their final form. Two complete copies should be sent to the Secretary. Typescripts should be double-spaced, including references, on one side of the paper only with a 2.5 cm margin on each side. A4 paper is preferred. All pages should bear the author's name and be numbered serially.

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Cover Photograph - Courtesy - Dr. D.R. Workman
Fold in Tolo Harbour Formation
Ma Shi Chau

LOWER JURASSIC FOSSIL ASSEMBLAGES AT SHAM CHUNG, NEW TERRITORIES, HONG KONG

Lee Cho Min
Department of Civil and Structural Engineering
Hong Kong Polytechnic

Since 1980, a large number of fossils of different kinds have been collected by the author from both sides of a headland about 500 metres northwest of Sham Chung Ferry Pier, on the southern shore of Tolo Channel, in the New Territories of Hong Kong (Figure 1).

The fossils were found in what is marked on the 1971 geological map of Hong Kong as the RBs Formation, which Allen and Stephens (1971) considered to be intercalations in the Repulse Bay Formation of Middle-Upper Jurassic age although there is no paleontological evidence for this supposition.

The fossil bearing beds comprise blackish grey mudstone, shale and yellowish white or grey muddy siltstone. Bedding of the mudstone is not very clear. Some beds of the fossil bearing layers contain carbon, cherty and pyritic tubercles and lenticles.

The nature of the strata is similar to that of the Tolo Channel Formation, in which the ammonite Hongkongites hongkongensis Grabau was found by Heanley (1924).

Fossil assemblages present include bivalves, ammonites, gastropods, crinoids and fossil plants (Plates 1-3).

Bivalves	:	Mytilus lamellosus Terquem: Plate 1
		Cardinia cf. hybrida (J. Sowerby): Plate 2a
		Cardinia cf. toriyamai Hayami: Plate 2f
		Parainoceramus sp.: Plate 2b
		Hiatella curta J. Chen: Plate 2c
		Chlamys subulata Goldfuss: Plate 2d
		Palaeoneilo hulukouensis jinjiensis J. Chen: Plate 2e
		Oxytoma bifurcata Fan
		Isognomon sp.
Gastropods	:	Amberleyidae: Plate 2g
		Gen. et sp. A (indet)
Ammonites	:	Coroniceras spp.: Plates 3a and 3c
		Coroniceras rotiforme (Sow.): Plate 3i
		Asteroceras sp.: Plate 3b
		Arnioceras sp.: Plate 3d
		Phylloceras sp.: Plate 3e
		Arietites cf. semicostatus (Yang & Bird): Plate 3f
		Arietites semiostatus (Yang & Bird) Fig.: Plate 3h
		Agassiceras sp.: Plate 3g
		Echioceras sp.
Crinoid	:	Pentacrinus cf. shahuensis Shao
Fossil-plants	:	Nilssonia sp.
		Glossophyllum? sp.

The fossil assemblages, particularly the bivalves and ammonites, compare with those in the fossil zones and representative beds in Great Britain and Guangdong Province, China, which belong to the Sinemurian Stage of the Lower Jurassic.

Detailed studies of the fossils and the stratigraphy of the fossil locality are still in progress.

Acknowledgements

The writer wishes to thank Mr M.J. Atherton, Senior Lecturer in the Department of Civil and Structural Engineering, Hong Kong Polytechnic, for his interest and support. Sincere thanks are due to Mr Nan Yu, Director of the Stratigraphy - Palaeontology Committee of the Geological Society of Guangdong Province and Mr Wen Shi-xuan, Mr Yu Wen, Mr He Kwo-xiong and Mr Zhou Zhi-yan, palaeontologists of the Nanjing Institute of Geology and Palaeontology, Academia Sinica, who tendered preliminary comments on the identification of these fossils.

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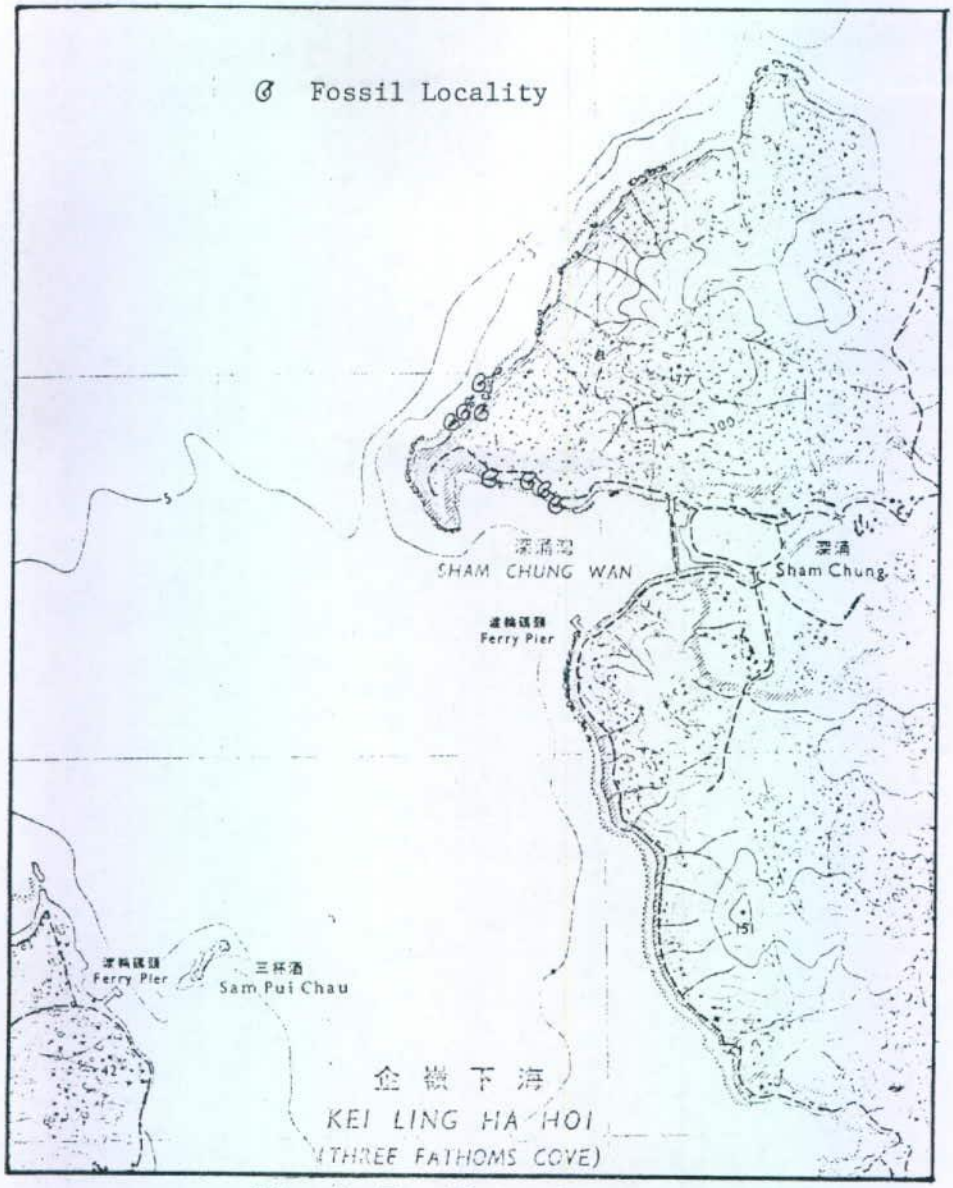

Fig. 1 Fossil Locality

Plate 1 Bivalves and plant fragments (there is also an ammonite mold immediately below A).

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a (x1.7)

b (x1.7)

c (x1.7)

d (x1.6)

e (x1.8)

f (x1.2)

g (x1.2)

Plate 2

a (x1.7)

b (x1.6)

c (x1.2)

d (x1.8)

e (x1.8)

f (x1.1)

g (x1.6)

h (x1.5)

i (x1.0)

Plate 3

NOTE ON AMMONITES (ARIETITIDAE) FROM SHAM CHUNG, TOLO CHANNEL

P.S. Nau
Department of Geography and Geology
University of Hong Kong

Ammonite fossils were discovered by the writer near Sham Chung in May of this year. Figure 1 shows the fossil locality. The accompanying plate shows three of the specimens found at that time (A-C) and a further specimen (D) found at the same location during the Geological Society's field excursion to Sham Chung on 23rd September.

All the specimens have strong, straight, well-spaced ribs ending in small nodes. Clearly displayed in one of the fragments (C in the plate) is a tall keel bordered by shallow furrows. As can be seen from the plate, the ammonites are quite large. Specimen D is 120 mm in maximum diameter. This specimen and specimen A are both somewhat oval in shape owing to deformation.

The specimens found in May were identified as Coroniceras sp., from photographs, by Mr Cao Baosen, Regional Geological Survey Team, Fujian Province.

Several specimens, including A, B and C in the plate, were taken to the Geological Museum in London during the summer for identification. They were examined by Dr H. Ivimey-Cook and Dr M.K. Howarth of the British Geological Survey and by Professor D.T. Donovan. It was agreed that:

".... they are all Coroniceras sp. from the later part of the bucklandi Zone/early semicostatum Zone of the Lower Sinemurian Substage (Lower Jurassic)" (Dr Ivimey-Cook, 31st August 1984).

Coroniceras belongs to the Family Arietitidae, Superfamily Psiloceratacеae, of the Order Ammonoidea. It may be noted that the genus Hongkongites Grabau 1928, found on the opposite side of the Tolo Channel near Fung Wong Wat (Heanley, 1924, Grabau, 1928, Williams, 1943) and also considered to be Lower Sinemurian, is quite distinct from Coroniceras. It belongs to a different family of the same superfamily.

Stratigraphic implications

The fossil-bearing rocks at Sham Chung are black carbonaceous and micaceous shale and indurated black micaceous mudstone. They were mapped by Allen and Stephens (1971) as a sedimentary rock unit within the Repulse Bay Formation (RBs, Figure 1, insert geological map). However, the fossiliferous strata underlie the oldest volcanic rocks of the Repulse Bay Formation in the vicinity, and are unlikely to be RBs. The discovery of Coroniceras sp. means that this rock unit (fossiliferous mudstone and shale and associated conglomerate and sandstone) should be included in the Tolo Channel Formation (Lower Lias) rather than Repulse Bay Formation. The Tolo Channel Formation can be correlated with the Jinji Group of the Lower Jurassic in the Kaiping-Enping area of Guangdong Province.

There are plant remains in the same beds as the ammonites, but most of them are indeterminate. One fragment, likely to be a gingko, is being studied in more detail in the hope of positive identification.

The fossil assemblage of ammonites and plant remains suggests that the sediments were littoral deposits.

1 cm

1 cm

1 cm

4 cm

Coroniceras sp.

Tolo Channel shoreline, north of Sham Chung Wan

Acknowledgements

Thanks are due to Mr Cao, Dr Ivimey-Cook, Dr Howarth and Professor Donovan for their identification of the specimens and to Dr D.R. Workman for taking the specimens to London and for editorial comment.

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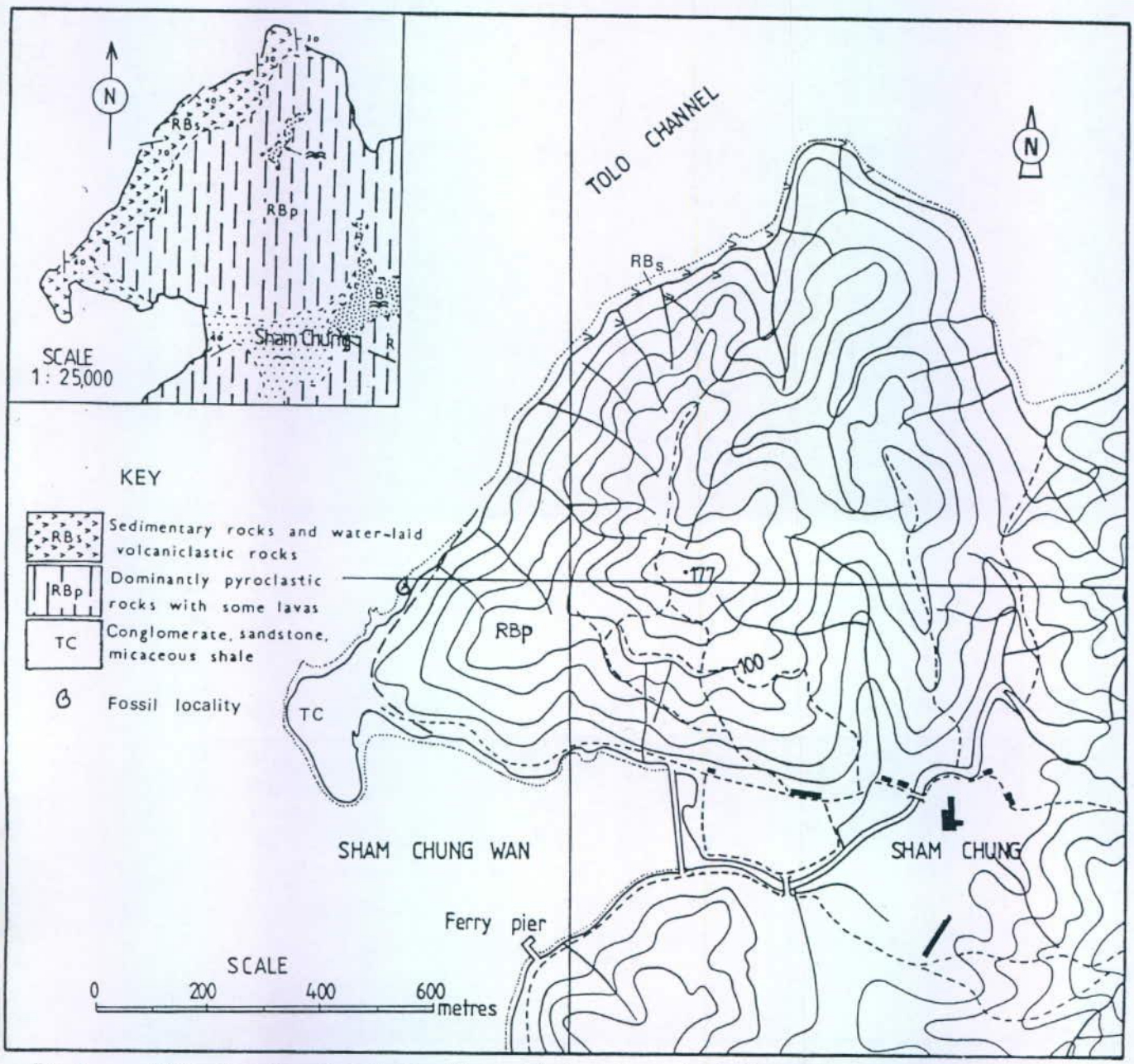

Fig. 1 Map showing fossil locality with insert geological map

REPORT ON VISIT BY SHENZHEN GEOLOGISTS

C.M. Lee and D.R. Workman

During the week of 24th to 30th September 1984, the Society had the pleasure of hosting six visitors from the Geological Bureau of Shenzhen City, who visited various places of geological interest, construction sites and offices (and of course did some sightseeing) during their stay in Hong Kong.

The group was led by Mr Zhang Mau-de, the director of the Geological Bureau of Shenzhen City, and Mr Zhou De-yu, the chief geological engineer of the Bureau (newly-elected Honorary Member of our society). The other members of the party were: Mr Chen Ching-an, deputy director, Mrs Chau Xien, Vice-chief engineer, Mr Zhang Yu-ching, engineer, and Mr Liang Xi, engineer.

On the morning of Monday 24th September, following their arrival, the visitors were welcomed at the Geotechnical Control Office. Dr A.D. Burnett gave an introduction to the organization of the G.C.O. and this was followed by visits to the Geotechnical Information Unit, Computer Centre and Geological Survey Unit. In the afternoon, the group visited the Department of Geography and Geology, University of Hong Kong.

An informal discussion meeting was held in the Geology Laboratory of Hong Kong Polytechnic on the evening of the first day. After an introduction by Dr Burnett, Mr Zhou gave a talk on the geology of Shenzhen (reported separately in this issue) and C.M. Lee briefly reviewed the geology of Hong Kong for the benefit of our guests. Before the meeting, Dr K.K. Wong, the Head of Department of Civil and Structural Engineering, Hong Kong Polytechnic, received the visitors.

The second and third days, Tuesday and Wednesday, were devoted to field work in the northern and northwestern New Territories. Among the geological features visited were outcrops of the Port Island Formation at Bride's Pool; Repulse Bay Formation at Bride's Pool and Ma Shi Chau; Bluff Head Formation at Harbour Island (our visitors considered that the conglomerate and quartz sandstone were similar to the Devonian deposits of the Tai Beng Peninsula near Shenzhen City); Tolo Harbour Formation at Ma Shi Chau (these marine shales and siltstones were thought not to be exposed in Shenzhen), and Lok Ma Chau Formation at Crest Hill near Lo Wu (metamorphosed quartzites and phyllites which strike toward an area in Shenzhen underlain by very similar metamorphic rocks dated there as Lower Carboniferous).

Also examined were the contact between Sung Kong Granite and Needle Hill Granite, and feldspar porphyry dykes, at Kau Wa Keng; the Tsim Bei Tsui Fault at Lau Fau Shan; a fault contact between Castle Peak Granite and Repulse Bay Formation at Tai Hing Estate, Tuen Mun, and a contact between Castle Peak Granite and Repulse Bay Formation at Butterfly Beach, Tuen Mun.

On the Thursday, the visitors visited Taikoo Shing M.T.R. Station and the Kornhill site, the materials laboratory of the Public Works Department at North Point and the Mount Butler quarry.

On the Friday morning, Mr Zhang and Mr Zhou met Dr A.W. Malone and Dr Burnett in the G.C.O. and visited the offices of Charles Haswell & Partners (Far East). The visitors then called upon Dr Stephen Hui, Honorary Member of our society, who hosted a luncheon in their honour, and in the afternoon visited Intrusion-Prepakt (Far East) Limited and another construction site.

Saturday was devoted to seeing some of the sights of Hong Kong and Kowloon, including Ocean Park, and the party returned to Shenzhen on Sunday, 30th September.

The Society is indebted to the G.C.O., M.T.R., Charles Haswell & Partners and Intrusion-Prepakt for kindly arranging the visits referred to.

TRANSLATION OF LETTER TO THE CHAIRMAN

October 1984

Dr A.D. Burnett
Chairman,
Geological Society of Hong Kong.

We thank you for the visit to Hong Kong organized by you and your society. All the programmes were very interesting. The scientific results of your stratigraphic and structural studies are very valuable to us. The Soil Laboratory, M.T.R. piling operations and the quarry we visited deeply impressed us.

Although we stayed in Hong Kong for only seven days, we had a compact programme and it was a joyful experience.

The Geological Bureau of Shenzhen City, the Geological Society and their members and myself would like to express our gratitude to you, Dr Malone, Mr Yim, Mr C.M. Lee, Mr K.W. Lai and Mr K.W. Li for the excellent programme.

Shenzhen and Hong Kong are divided by a river only, and the geology is very similar. We both are interested in the same studies and have good foundations for scientific co-operation.

We hope to see you again in Shenzhen during the next year and to co-operate with you for the prosperty of Hong Kong and the construction of Shenzhen City.

Sincerely,

Zhang Man-De (signed)
Director of the Geological Bureau
of Shenzhen City

Zhou De-Yu (signed)
Chief Engineer of the Geological Bureau
of Shenzhen City
President of the Geological Society
of Shenzhen City

GEOLOGICAL TABLES AND MAPS OF THE SHENZHEN DISTRICTS

Shenzhen Geological Bureau
Translated by P.S. Nau and W.W.-S. Yim

The tables and maps reproduced here were presented at a lecture to the Society at the Hong Kong Polytechnic on 24th September by Mr Zhou De-Yu, Chief Engineer of the Geological Bureau of Shenzhen. We are responsible for any inaccuracies introduced in the translation.

FIG. 1 SIMPLIFIED GEOLOGICAL MAP OF SHENZHEN

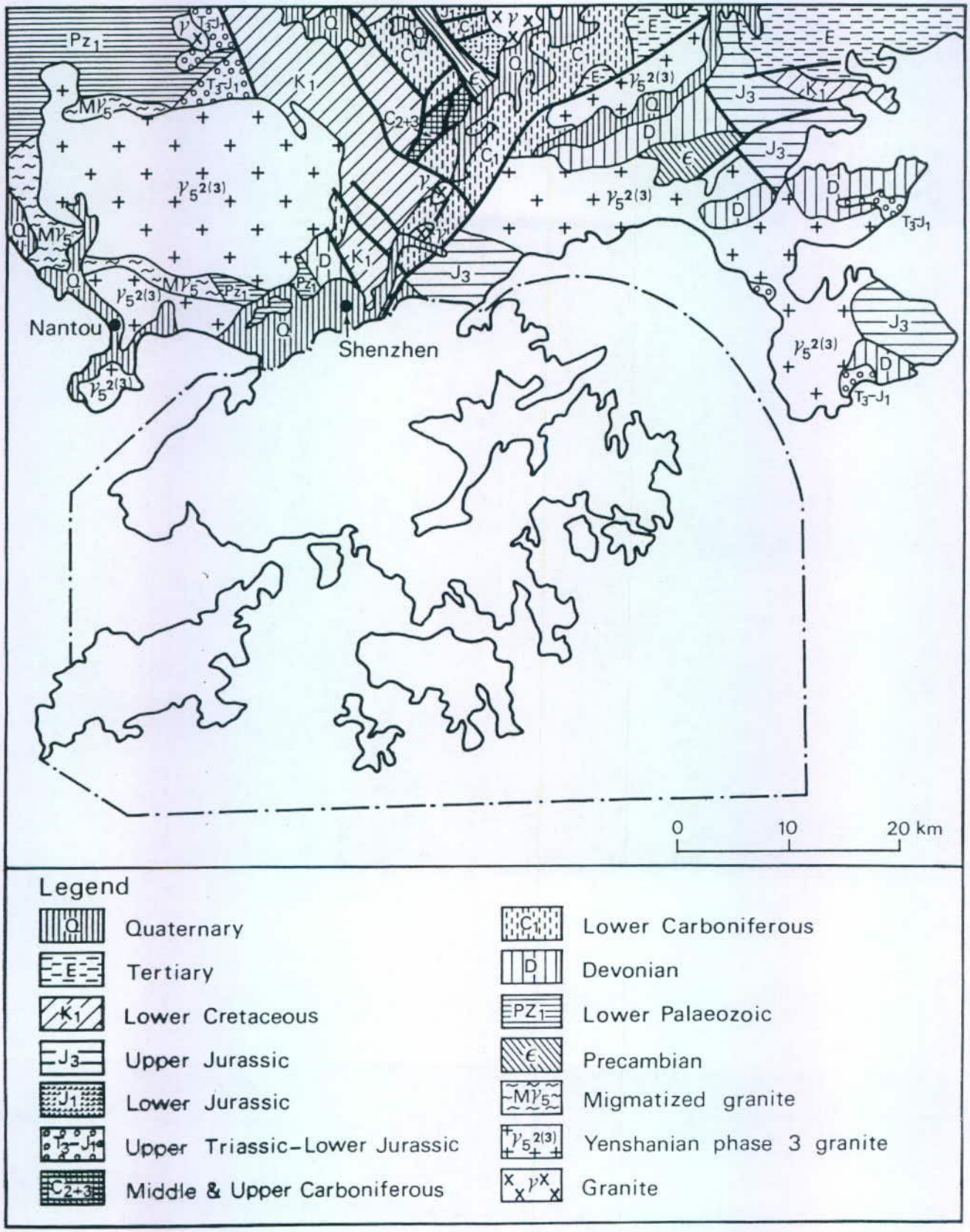

FIG. 2 CALEDONIAN STRESS FIELD MAP OF SOUTHERN CHINA

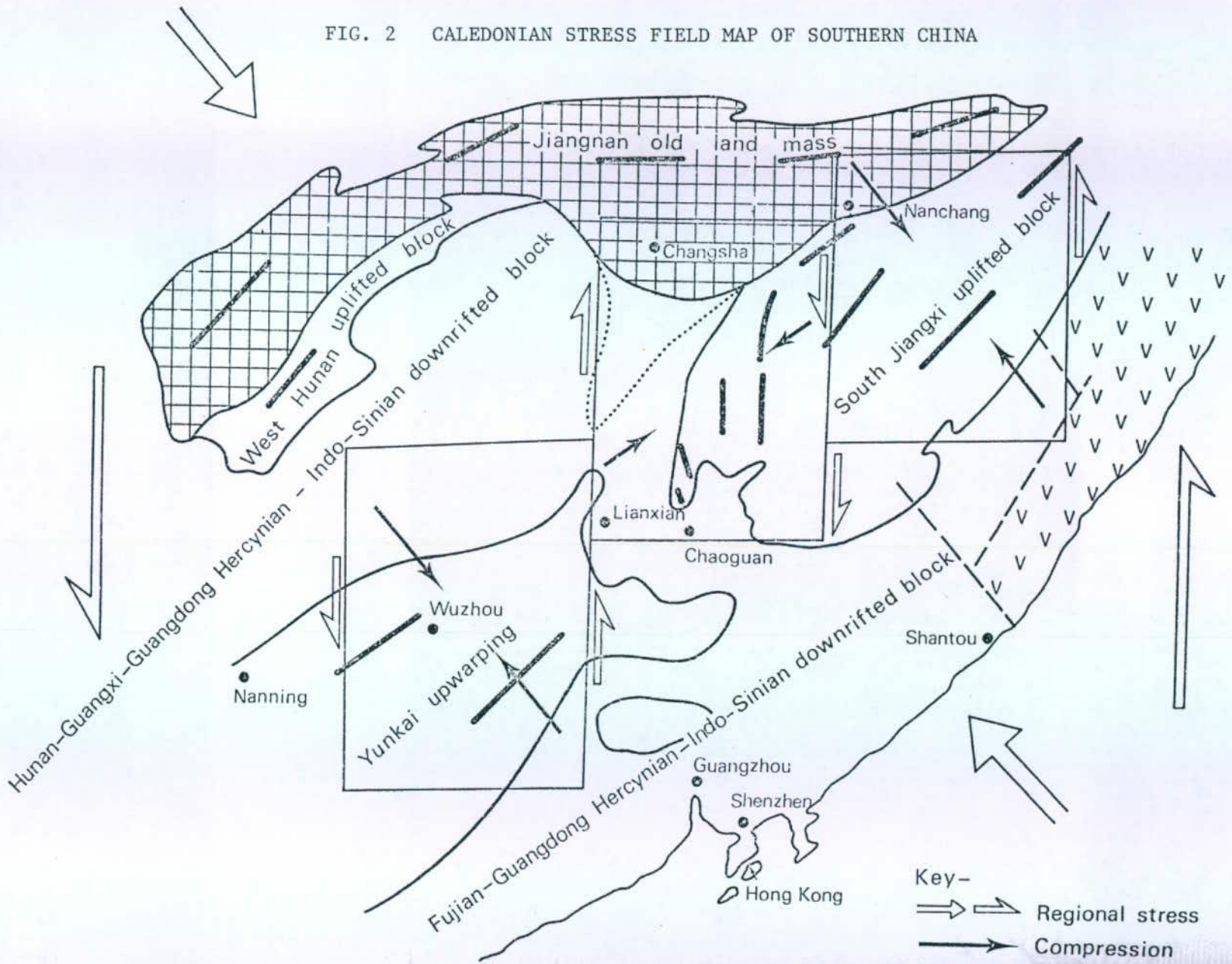

FIG. 3 SIMPLIFIED TECTONIC MAP OF SHENZHEN

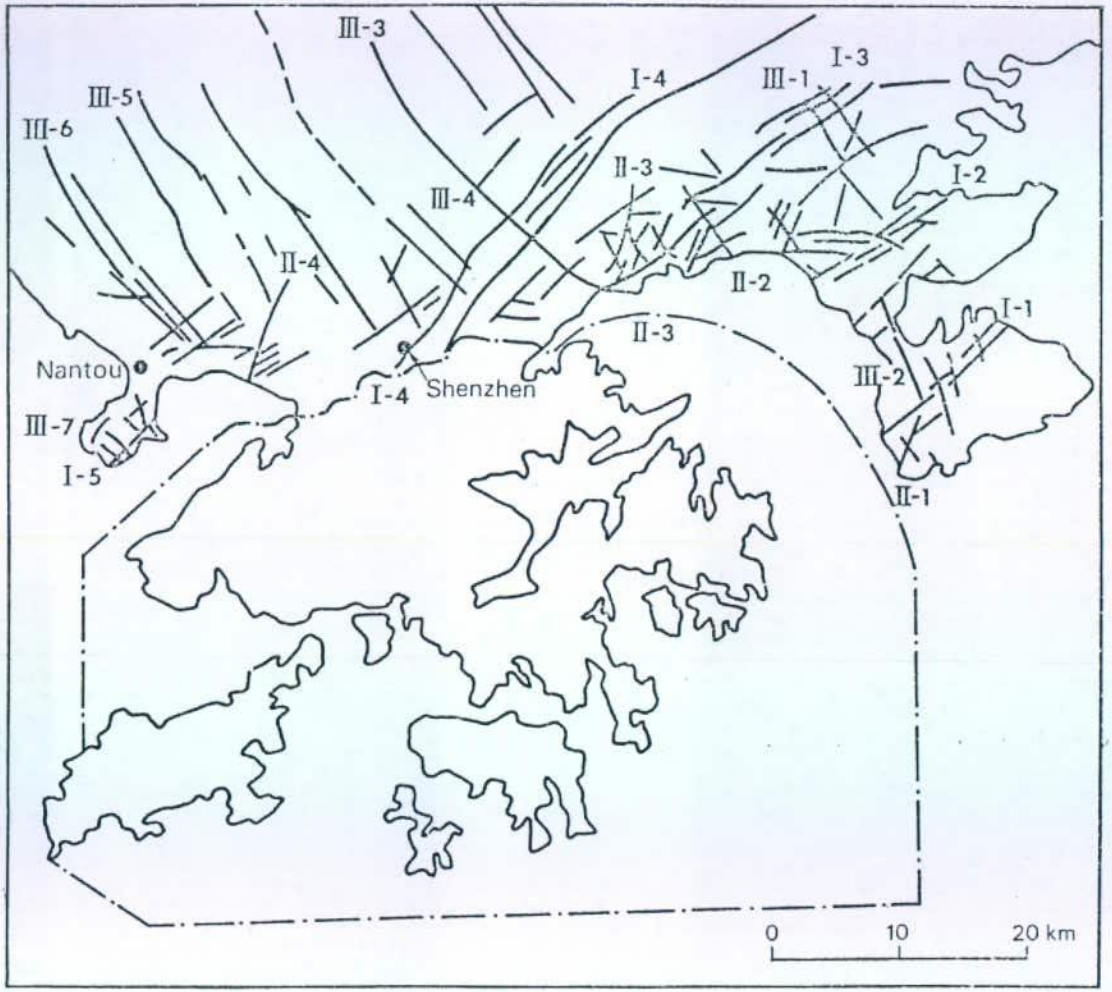

FIG. 4 LINEAMENT MAP OF SHENZHEN AND THE NEW TERRITORIES

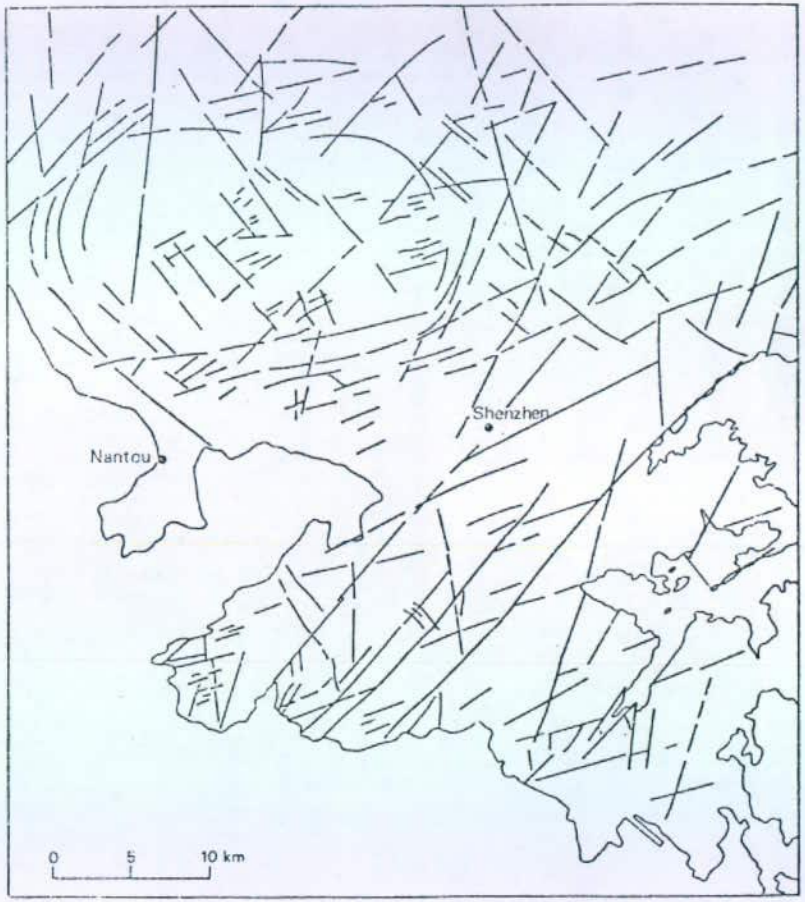

TABLE 1 SUMMARY STRATIGRAPHIC TABLE OF SHENZHEN DISTRICT

Era-them	System	Series	Group/ Formation		Lithological Description	Thickness	Fossil and Age	Remarks and localities
Cenozoic	Quaternary	Upper Holocene Q_4^3	Shajing F.		Mixed fluvial and marine facies: upper part - grey clayey silt, silty clay; lower part - dark grey argillaceous silt	3-5	^{14}C 2530±90-640±70	Uplift rate: Pingshan 0.3 mm/year Henglang 0.28-0.33 mm/year
		Middle Holocene Q_4^2	Chiwan F.		Dark grey mud or argillaceous silt. Mainly marine facies	5-10	^{14}C 7080±160-2890±120	Uplift rate: Baishizhou-Shekou 0.75-0.87 mm/year Yinxu 1.25 mm/year
		Lower Holocene Q_4^1	Songgang F.		Greyish white to grey sand or coarse sand and gravel. Mainly fluvial facies	3		
		Upper Pleistocene Q_3	Pingshan F		Fluvial and swamp facies: Upper part - yellow or brown clay and sand; lower part - grey sand and gravel. Shenzhen urban area: upper part - black clay; lower part - greyish white sand and gravel	5-15	^{14}C 2184+720-1875+550 Peat at Pinghai-Danshui: ^{14}C 30200±1110-18250±280	
	Tertiary N	Lower Tertiary	Danxia G. Edn		Red sandstone, conglomerate, pebbly sandstone; cemented by argillaceous or carbonaceous material. Mauve polymictic conglomerate, rhyolitic tuff and pebbly sandstone outcrops at Xasha, Shenzhen	>820		Danshui area
Mesozoic	Cretaceous K	Lower Cretaceous	Tongxia G.	Upper sub-group K_{1tu}^b	Greyish white, mauve and greyish purple tuffaceous shale, silty shale, fine sandstone with clayey shale at the top	unknown		Shawan
				Lower sub-group K_{1tu}^a	Lower part - greyish white, mauve tuffaceous pebbly sandstone, arkosic sandstone, sandstone, siltstone; middle part - tuffaceous shale, siltstone and pebbly sandstone; upper part - Calc-silico-hornfels	>746	Onychiopsis elongata (Geyler) Elatides sp. Brachyphyllum sp.	
	Jurassic J	Upper Jurassic J_3	Geojiping G.	Upper sub-group J_{3gj}^b	Terrestrial acidic volcanic rock series: dark grey rhyolite-crystal tuff, rhyolitic breccia lava-tuff with dacitic-rhyolite tuff-lava, flow-banded porphyry, quartz siltstone and black shale	1093- >1600		Wu Tong Mt., Bijia Mt.
				Lower sub-group J_{3gj}^a	Lacustrine acidic volcanic rock series of inland sea: upper part - dark grey, greyish white rhyolitic crystal tuff, rhyolitic breccia crystal tuff, rhyolitic ignimbrite with flow-banded porphyry; lower part - greyish white tuffaceous conglomerate, tuffaceous siltstone, silty shale with rhyolitic tuff	>720		Nanao, Xiaqisha
	Triassic - Lower Jurassic T-J	Upper Triassic - Lower Jurassic T_3-J_1	Upper$_b$ J_3-J_1		Upper part - greyish white thickly-bedded fine to medium quartz sandstone, pebbly sandstone with siltstone; lower part - thin to thickly-bedded dark grey argillaceous siltstone, silty mudstone with fine arkosic sandstone, near base either fine arkosic sandstone or pebbly arkosic sandstone	unknown	Fossils from Pingtouling: Equisetius sp. Neocalamites sp.	Kuichong-Pingshan
			Lower$_a$ T_3-J_1		Terrigeneous detrital rock formation and littoral facies: greyish white, grey, dark grey thickly-bedded quartz sandstone, arkosic sandstone and quartz siltstone, carbonaceous shale, mudstone, locally with pebbly quartz sandstone, and intraformational conglomerate	>528	Protocardia transeverse Fan P. Philippiana (Dunker) P. Suborbicularis Fan Lucinila problematica Asterte sp. Entolium sp.	Nanao, Shuitousha

TABLE 1 (CONTINUED)

Palaeozoic	Carboniferous C	Middle-Upper Carboniferous C_{2+3}	Hutian		Greyish white, grey finely crystalline limestone and dolomitic limestone. At Longgang, lenticular limestone occurs within the dolomitic limestone	unknown	Fossils from Shihuikeng quarry: Triticites sp. (Late Carboniferous)	
		Lower Carboniferous C_1	Cashui Member C_{1dc}	Upper sub-member C_{1dc}^b	Upper part - yellowish brown, mauve, greyish green argillaceous siltstone with thinly-bedded fine sandstone; lowr part - greyish white, greyish yellow, mauve pebbly sandstone with fine quartz sandstone; pebbly quartz sandstone layer at the base	>249	Rhodea hsianghsiangensis Neuropteris gigantea C_1-C_2 Echinoconchus elegans C_1-C_2 Choristites Weinigensis C_2 Kansuella maxima C_1 Schachertella sp. D_3-C_1	Heao
				Lower sub-member C_{1dc}^a	Upper part - grey, greyish-black, mauve coarse quartz sandstone, pebbly sandstone, siltstone, silty shale, with lenticular limestone or coal and ferrugenous siltstone. Lower part - greyish black medium quartz sandstone; locally with pebbly sandstone, calcareous sandstone, argillaceous siltstone, silty shale containing carbonaceous shale or coal seams	>495	As above	Heao, Henggany
			Shidengzi Member C_{1ds}		Upper part - pale grey to dark grey crystalline limestone interbedded with fine-grained limestone; lower part - grey to dark grey fine-grained limestone with quartz sandstone, siltstone and shale At Longkou Mine, there is a conglomerate layer cemented by calcareous material at the lower part of this member. Beneath this conglomerate, there are sandstone and siltstone which may be attributed to the Menggongao F. This layer alters into a white marble interbedded with dolomitic marble	>400	Syringopora aff. Dingmanal C_1 Lithostrotion portloki var. Sinensis C_1 Kueichouphyllum sp. C_1 Eostaffella sp. C_1 Eotuboritina sp. D_3-P_1 Endothyra globulus C_1	Kuichong, Pingshan, Henggang, Longkou, Puluwei
	Devonian D	Upper Devonian D_3	Shuantou D_{3sh}	Upper sub-member $D_3^{sh^b}$	Slightly metamorphosed clastic deposit of littoral facies composed of conglomerate, pebbly sandstone, sandstone and siltstone. There is a conglomerate layer at the lower part	unknown	Fossils from Paiya Mt., Dapeng Peninsula Stigmaria sp. Sublepidodendron sp. Sublepidodendron mirabile (Nath.) Hirmer	Jingxinbei, Wangmu, Dapeng Peninsula, Paiya Mt.
				Lower sub-member D_{3sh}^a	Grey to dark grey fine to medium sandstone, siltstone, arkose, interbedded with spotted silty slate and phyllite. Diopside hornfels and lenticular dolomitic limestone occur at Tzyxia, Henggang Mt.	unknown	Rhodea sp. Rhodea cf. hsianghsiangensis Sze Archaeocalamites scrobiculus (Schloth.) Sew	Dapeng Peninsula, Henggang Mt., Tzy Mt. etc.
	Lower Palaeozoic PZ_1				Compound granite, compound gneiss, migmatitic granulite, banded migmatite, augen migmatite, banded quartzite metamorphosed sandstone and mica-quartz schist. The rocks have been deeply metamorphosed with lineament trends of E-W and NW-SE which are distinct from those of the upper Palaeozoic strata.		K-Ar (Biotite) age 230 m.y.	Fuyong, Huangtian, Xiameilin, Bijia Mt., Buji, Shawan

TABLE 2 SUMMARY TABLE OF IGNEOUS INTRUSIONS IN SHENZHEN

Age of intrusion	Name of igneous body	Lithology	Area of intrusion	Dating	Remarks
Yenshanian intrusive igneour rock phase 2 (Jurassic) $\eta\gamma_5^{2(2)}$, $\gamma\delta_5^{2(2)}$	Yantianao monzonitic granite $\eta\gamma_5^{2(2)}$	Fine-grained porphyritic biotite-monzonitic granite, gneiss-like hybridized monzonitic granite and gneiss-like monzonitic-granitic hybrid rocks. Composed of microcline-microperthite, potassium feldspar, quartz, biotite, hornblende	9.2 km^2		Yenshanian $\gamma_5^{2(3)}$ granite of phase 3 intruded into Upper Devonian strata
	Yantian monzonitic granodiorite $\eta\gamma_5^{2(2)}$, $\gamma\delta_5^{2(2)}$	Fine and medium-grained porphyritic biotite-monzonitic granite, occasionally with fine-grained porphyritic granodiorite	13 km^2		
Yanshanian intrusive igneous rock phase 3 (Late Jurassic-Early Cretaceous) $\gamma_5^{2(3)}$	Tunyang Granite $\gamma_5^{2(3)}$	A composite rock mass composed of fine to medium-grained biotite granite. Marginal facies is a fine-grained porphyritic biotite hybridized granite (previously named Wangzhukeng, Sanhe, Xinshuyan rock masses). Transitional facies is a medium-grained biotite granite composed of potassium feldspar, plagioclase, quartz and biotite	90 km^2		Intruded into Upper Triassic to Lower Jurassic strata and monzonitic granite
	Xiajingxin Granite Wangmu Granite Egong Granite				
Complementary phase $\gamma_5^{2(3)A}$	Chiáo Granite $\gamma_5^{2(3)A}$	Fine-grained porphyritic biotite granite consists of potassium feldspar (35-40%), plagioclase (25-30%), quartz (25-35%) and biotite (1-3%). It is an ultra-acidic rock	10 km^2		Intruded into Tunyang granite in the north
Yenshanian phase 4 intrusion (Middle or Late Cretaceous) $\gamma_5^{3(1)}$	Nantou Granite	Marginal facies - fine to medium-grained porphyritic biotite granite. Consisting of potassium feldspar (35-40%) plagioclase (25-30%), quartz (25-30%) and biotite (3-7%) Central core - medium to coarse-grained biotite granite. Grain size 5-8 mm, phenocryst chiefly potassium feldspar constituting 15-20%	248 km^2	106-112 m.y. 127 m.y. (K-Ar)	Intruded into Lower Cretaceous strata. It is younger in the south and older to the north
	Henggang Granite Shizishi Granite Shawan Granite Nanshan Granite	Pink biotite granite differs greatly from Nantou granite			
Yanshanian phase 5 intrusion $\gamma_5^{3(2)}$	Shangjingxin Granite Chaqishan Granite Bantianyun Granite	Stocks or dyke rocks intruded into granites of earlier phases. Grey fine-grained porphyritic biotite granite. Minerals are mainly potassium feldspar (40-45%), plagioclase (25-35%), quartz (30-35%) and biotite (1-3%). Silica-rich and alkali-rich	6 km^2		Sporadically intruded into earlier granites
Dyke rocks		Dykes of acid, intermediate and basic rocks; diorite, fine-grained granite, orthoclase granite, pegmatite, aplite, granite porphyry, quartz-porphyry, felsite-porphyry and quartz veins, etc.			

TABLE 3 SUMMARY TABLE OF FAULT SYSTEMS IN SHENZHEN

Fault trend	Fault zone	Major fault	Scale and attitude of fault zone	Characteristics	Nature of fault zone	Remarks
NE I	1. Yingguanling fault zone	Yingguanling fault Wugongling fault	The fault zone at Dapeng Peninsula is 3 km wide; strikes N45°E and dips NW at 65-75°	Composed mainly of fracture zones, silicified rocks, locally with mylonite etc. Fault planes are slightly undulating. Slickensides on the fault planes and concomitant minor faults are well developed	Early stages were compressional becoming compressional-shear (anti-clockwise) in the later stages	
	2. Wangmu Rear Mt. fault zone	Jingxinbei fault Huashuya fault shuili fault etc.	2 to 5 km in width and over 15 km in length, trends N50-60°E and dips NW at 40-80°	The fault zone consists mainly of fracture zones and silicified rocks. It cuts the Upper Devonian syncline	Occurred after Late Jurassic. They are compressional or compressional-shear (anti-clockwise) in nature	Probably connected with the fault in Tolo Channel
	3. Wutong Mt.-Zhangding fault zone	Xiaomeisha fault, Yantian fault, Xinwei fault, Jingzi fault, Shangping fault etc.	The fault zone trends N40-55°E dips SE at 40°-65° It is 2 to 5 km in width and over 23 km in length	The fault zone occurs mainly within in the Tunyang Granite mass, appearing as zones of mylonitization and silicification. Fault planes are slightly undulating	Anti-clockwise compressional and compressional-shear	Extends through Sha Tau Kok into the New Territories
	4. Shenzhen fault zone	Henggang fault, Tinluo fault, Xikeng fault, Longcun fault, Hengpailing fault, Dapingling fault etc.	The fault zone trends N40-50°E and dips NW at 45-60°. It is more than 4 km in width and extends both northeastward and southwestward	The fault zone appears as intensively compressed fracture zones with tectonic breccia, mylonite and cataclastic rocks with strongly schistosity	Complex multiple stages of activity but still compressional	Extends into Tuenmun
	5. Nantou-Shekou fault zone	South Daling fault, North Daling fault, Antuo Mt. fault, Chiwan fault, etc.	The fault zone trends N40-60°E and dips NW at 65-75°. It is 5 km in width and 7 km in length	The faults appear as strongly silicified cataclastic rocks in mylonitized zones. Tectonic lenses formed by compression are well developed. The majority are 1 to 12 m in width but some are up to 100 m	In granite mass ($\gamma_5^{3(1)}$) is anti-clockwise compressional	
NNE II	Xiasha-Shangjingxin fault (Dapeng peninsula) Shangdong-Tianzuo fault zone (Tunyong area) Cheukeng-Changbu fault zone (Dameisha) Wanglou Mt. fault zone (Shahe)		The faults trend N°0-35°E and dip NW or SE at 40-80°. They are small in scale, 1 to 10 m in width and 2 to 10 km in length	Each individual fault may occur as cataclastic rocks, mylonites, fault breccia and schistose zones. They cut across the NE trending faults. Early stages are tensile-shear while later stages are compressional-shear	Tensile-shearing to compressional-shearing	
NW III	1. Bijia Mt. - Bagang fault 2. Xiangshui-Wangmu fault zone 3. Cheukeng-Shakeng fault zone 4. Yantian-Shawan fault zone 5. Xili fault zone 6. Yangliugang-Jiangang fault 7. Shekou fault zone		The faults trend N20-40° W and dip NE or SW at 35-85° Each fault zone is large and continuous	Fault zones are chiefly silicified rocks, silicified fracture zones, zones of mylonite and tectonic breccias, occasionally with injection of dyke rocks. These faults cut across the NE trending faults	Early stages are compressional or tensile, while later stages are compressional. Movement of faults are mostly anti-clockwise	
E-W						Sporadically distributed

MARINE STUDIES GROUP

The Marine Studies Group is continuing to meet monthly in the Society Room, Hong Kong Museum of History Kowloon Park. All members of the Society are welcome to attend. The programme to February 1985 is as follows:

Date	Topic
7th January	Current pattern of sedimentation in the Harbour area (M.L. Chalmers)
4th February	Geology of Quaternary sediments along the new Shatin to Tai Po Trunk Road (A.J. Barry)

All meetings commence at 6:00 p.m.

Eight members of the Marine Studies Group visited the South China Sea Institute of Oceanology in Canton between 7th and 9th November. An account of the visit will be given in the next Newsletter.

At the December Conference on Geological Aspects of Site Investigations, the Marine Studies Group will have on display a plan showing sites where reliable stratigraphic data off-shore has been made available by members of the Marine Studies Group.

Further information on the activities of the group is available from Mr Phillip Blacker, Honorary Secretary (Tel. 5-779023).

ARTICLE BY K.L. SIU AND K.M. WONG
"MARBLE AND SUB-SURFACE KARST AT YUEN LONG"
(Newsletter, Vol. 2, No. 5)

Owing to oversight on the part of the society, the authors' acknowledgements in this paper were left out when it went to press. The authors wish to record their thanks to the following:

Mr J. Costello of Freeman Fox (Far East) Limited for his review of the manuscript.

Cheung Kong (Holdings) Limited, Hsin Yieh Architects & Associates and Freefox Testing Limited for their assistance during the course of the investigation.

Staff of Freeman Fox (Far East) Limited for assistance in the preparation of the paper.

LETTER TO THE EDITOR

16th October 1984

Dear Sir,

I refer to the articles in the newsletters of July and September by W.W.S. Yim and P.S. Nau. These articles are based on extracts from the book entitled "Zhujiang (Pearl River) Delta" by Huang et al (1982).

In the articles a reference is made to a Sub-Boreal stage regression and a subsequent transgression dated 2350-1260 years B.P. The authors state that no evidence has so far been found to support the identification of this marine transgression in Hong Kong.

While there may be no evidence of this transgression, may I suggest that a lack of evidence may in fact indicate a marine regression/transgression? I am referring to the archaeological record of sand bar sites, which is summarized by Meacham in "Coastal Landforms and Archaeology in the Hong Kong Archipelago", World Archaeology, Volume 16, No. 1, Coastal Archaeology, 1984. Meacham discusses a major break in the archaeological record between 2380 BP and 1680 BP. He comments that similarities in site selection and many facets of life on either side of the break suggest either continuity in population or recurrence of a coastal life-style, or both. He tentatively ascribes the break to the impact of the Chin-Han southern expansion. An alternative interpretation based on the Pearl River Delta data would be that a minor regression/transgression drew an exclusively coastal dwelling population away from the current sand bars until sea levels once more became high enough for them to return.

I would add that although Meacham starts his "break" at 2380 BP, the only certain late Bronze age date in Hong Kong is in fact 2680 BP (Journal of the Hong Kong Archaeological Society, Volume IX, p.79). The break could thus have been longer than Meacham suggests, placing it squarely within the likely regression/transgression dates of Huang et al (1982).

Yours faithfully,

(Signed) J.N. Shirlaw

MEMBERSHIP NEWS

The Society is very pleased to welcome as an Honorary Member Mr Zhou De-yu, Chief Geological Engineer of the Geological Bureau of Shenzhen City and Chairman of the Geological Society of Shenzhen. We look forward to a continuing strengthening of contacts and co-operation with our fellow geologists in Shenzhen.

A warm welcome is also accorded to the following new members and student members, with apologies for any omissions:

L.O. Allen, W.K. Au, W.L. Au-yeung, F.M. Chan, F.S. Chan, C.K. Cheung, N. Fryer, G. Kwong, Y.H. Lau, W.K. Liu, R.L Langford, R.D. Parritt, K.S. Pun, C.Y. Wong, M.Y. Wong, S.H. Wong and P.Y. Young.

FORTHCOMING PROGRAMME

Teachers Group Field Meeting. Saturday, November 24, 1984

Field Excursion to Ma On Shan: Sunday, December 2, 1984

(see September Newsletter for details of the above two meetings)

Conference on Geological Aspects of Site Investigations: December 17-19, 1984

(see separate announcement)

Marine Studies Group Meetings: January 7, 1985 and February 4, 1985

(see separate news item for details)

January-February 1985. Apart from the Marine Studies Group meetings, the programme for early 1985 has not yet been finalized. Details will be circulated to members in December.

CONFERENCE ON

GEOLOGICAL ASPECTS OF SITE INVESTIGATION

organised jointly by

THE GEOLOGICAL SOCIETY OF HONG KONG

and

DEPARTMENT OF GEOGRAPHY AND GEOLOGY,

UNIVERSITY OF HONG KONG

Date : 17-19 December, 1984

Venue: University of Hong Kong,
2nd floor,
Knowles Building

Proposed Programme of Events

Monday 17th December

Morning Session	-	Registration. Paper contributions with discussion.
Afternoon Session	-	Paper contributions with discussion.

Tuesday 18th December

Morning Session	-	Paper contributions with discussion.
Afternoon Session	-	Field excursion to various sites of interest currently involved in site investigation geotechnical works.

Wednesday 19th December

Morning Session	-	Paper contributions with discussion. Short film, "Jade Shields" on underground construction works in Hong Kong.
Afternoon Session	-	Paper contributions with discussion.
Evening	-	Drinks followed by a Conference Dinner for delegates and their guests at the University of Hong Kong.

Tear off here

Registration Form

Meeting on "Geological Aspects of Site Investigation"

Please complete following:

Name Title Telephone

Address

HK$

Registration $200 (inclusive of coffee, Conference Buffet Dinner and a set of proceedings) .....

Field Trip ($20) Please tick one ☐ Taikoo Shing ☐ Po Shan

Buffet Dinner $70 per guest (inclusive of beer and soft drinks) persons .....

Signature Date Total

Return completed form with crossed cheque payable to "Geological Society of Hong Kong" to Conference Secretary, Department of Geography and Geology, University of Hong Kong, Pokfulam Road, Hong Kong.

會員消息

本會歡迎周德雨先生接受我們的邀請成爲本會的榮譽會員。周先生現任深圳地質局的總地質工程師和深圳地質學會主席。我們展望深圳和香港的科技合作和知識交流，會有進一步的發展。

節目預告

教師組野外聚會：十一月廿四日（星期六）
馬鞍山野外考察：十二月 二 日（星期日）
（以上兩項活動詳情，請參閱九月號通訊）
「探土工程的地質問題」會議：十二月十七日至十九日（詳情見英文版）
海洋研究組聚會：一九八五年一月七日及二月四日（詳情另載）

除海洋研究組聚會外，明年初的活動節目仍未確定。本會將於十二月間再另行通知。

海洋研究組

海洋研究組每月仍在九龍公園香港博物館內的學會室內舉行。凡本會會員都歡迎參加。所有聚會都在下午六時開始。明年一月七日的聚會將會有M. L. Chalmers 的講題「港海內的沉積」；二月四日是A. J. Barry的「新沙田至大埔幹線的第四紀沉積物地質研究」。

在十一月七日至九日間，八位海洋研究組的會員前往廣州參觀南海海洋研究所。下期通訊將會有此行報導。

在十二月間的「探土工程的地質問題」會議期間，海洋研究組將會展出一圖表，顯示出本港離岸各處有可靠的地層資料的地點；該等資料係由小組成員提供。

關於本小組活動的資料，可向小組秘書Phillip Blacker查詢（電話：5-779023）。

深圳市地質局代表團回訪香港紀實

李 作 明

久應我會邀請，由局長張茂德先生及總工程師周德雨高級工程師率領包括副局長陳欽安工程師，副總工程師趙嫻女士，梁熙工程師及張玉慶工程師的深圳市地質局六人代表團，終於九月二十四日抵達香港開展了爲時一周的友好回訪。

星期一晨，他們一行甫達紅磡車站便立即展開活動，首先應邀訪問了工務局土力工程處，受到潘納德博士等熱烈歡迎和殷切接待，他向客人們介紹了香港政府機關體制和土力工程處職能，而後引他們參觀了製圖室、航照分析室、台風土力警報中心、土力資料中心及地質測量組，地質人員介紹了當前正在進行的比例尺一比兩萬的地質測量工作方法和成果。

下午客人們訪問了香港大學地質地理系，沃克曼博士及嚴維樞先生介紹參觀該系各種實驗室、圖書館及標本陳列館，而後到了香港理工學院，該院土木與結構工程學系主任黃啓傑博士會見了他們。

晚上六時，在香港理工學院地質實驗室舉行了兩地同行們的會見及學術報告會，我會近三十位會員踴躍參加。潘納特會長致歡迎辭並逐一介紹我們的客人。深圳市地質局周德雨總工程師作了有關深圳市地質構造特徵的精彩的報告，圖文並茂，在香港首次展示深圳市地質成果，無疑將促進和加強深圳河兩岸地質學術交流和對比。該報告及圖件承客人的承諾將在本期通訊另文介紹。我會李作明先生亦向客人們簡單介紹香港地質構造特徵及當前研究程度。

會後，在尖沙咀酒樓設宴招待了客人們，並爲他們洗塵。

第二天及第三天前往新界北部與深圳市接壤地帶作地質旅行。

首日是對新界東北部觀察了新娘潭下白堊統赤洲組下部受變質礫岩及紫紅色板岩，大家注意到礫岩中僅見火山岩礫石而未見花崗岩礫石，同時也觀察附近下覆的淺水灣組火山岩。而後乘車經船灣水庫壩基到東頭洲及白沙頭洲，調查了產泥盆紀魚化石的黃竹角咀組石英礫岩及石英砂岩。他們認爲其岩性與大鵬灣泥盆紀碎屑岩相當。接着又到馬屎洲參觀了深圳市未發現的二疊紀吐露港組海相碎屑岩及附近的淺水灣組凝灰岩。

第三日，首先觀看九華徑宋崗花崗岩與針山花崗岩接觸關係及長石斑岩脉，然後逕直前往河上村羅湖附近，沿坡觀察落馬洲受變質石英砂岩以及千板岩，客人們認爲此組延走向伸入深圳市可與受變質下石炭統測水段相當。接着折向流浮山觀察了尖鼻咀——流浮山斷裂在海邊出露特點：接着觀察了屯門大興邨西山邊青山花崗岩體與被認爲的淺水灣組受變質岩石斷層接觸特點。最後到了屯門蝴蝶灣西海邊看到青山花崗岩與受變質岩石不正常接觸特點。

第四日客人們應邀參觀了地下鐵公司太古城地下車站正在緊張施工鋪軌等建設情況，客人們讚賞建設速度之快。同時參觀了該站上蓋及康山康怡花園劈山平地基工程。下午還參觀了土力工程處屬下北角土力實驗室及畢拉採石場。

星期五土力工程處副處長馬倫博士及我會會長潘納特博士又一次在土力工程處會見張局長和周總工程師。中午深圳市代表團全體成員拜會了本會榮譽會員、著名實業家和慈善家許仕芬博士，許博士親切會見並設宴款待了客人們。這上午張局長和周總工程師還應邀訪問了查爾士顧問工程公司。而下午客人們應邀訪問了預壘（遠東）有限公司以及參觀工地地基打樁操作情況。

經過五日的緊張的野外地質調查、討論及訪問，週末他們一早就登上太平山頂鳥瞰維多里亞港及其兩岸的九龍半島及香港島風光，然後參觀了亞洲著名的海洋公園，欣賞了鯨魚、海豚等表演及觀看了水族館及過山車。而後參觀了香港及九龍市容。

經過六日緊張而又緊密安排的活動，客人們終於周日結束訪問，在下午離開紅磡車站回深圳。

我們收到周總工程師的來信代表了六位來訪者表示謝意，並認爲這次訪問雖然時間緊、安排密、活動多，但都完成了訪問計劃，訪問是成功的。

最後，應該指出土力工程處，地下鐵公司及查爾士顧問工程公司等熱情幫助我會安排深圳市同行回訪香港時到所屬單位參觀訪問，我們表示感謝。

香港新界深埔早侏羅世里阿斯化石群的發現
（簡　　要）

香港理工學院土木與結構工程學系
李　作　明

自從一九八〇年以來，筆者在香港新界吐露港南岸深埔以西約一公里岬角兩側的海岸地帶，陸續發現採集了豐富的早侏羅世里阿斯化石群（見英文版P.2）。

這些化石群發現於原一九七一年Allen和Stephens所作的地質圖上暫定爲所謂中晚侏羅世淺水灣組沉積岩夾層(RBS)中，但未見古生物資料確定其時代。

已知化石群產於八個化石層中。化石產於灰黑色泥質頁岩、泥質岩、黑色粉砂質泥岩、絹雲母頁岩以及黃白色粉砂質泥岩中。泥岩層理不很發育，部份岩層含不同程度和大小不等的含黃鐵礦、泥質、硅質及炭質所構成的結核、團塊和透鏡體。

經過初步鑑定，化石群計有瓣鰓類、菊石、腹足類、海百合、植物化石以及細小的化石等（見英文版P.3-4，現列如下：

瓣鰓類：Mytilus lamellosus Terquem (圖1)
Cardinia cf. toriyamai Hayami (圖2f)
Cardinia cf. hybrida (J. Sowerby) (圖2a)
Hiatella curta J. Chen (圖2c)
Chlamys subulata Goldfuss (圖2d)
Parainoceramus sp. (圖2b)
Palaeoneilo hulukouensis jinjiensis J. Chen (圖2e)
Oxytoma bifureata Fan
Isognomon sp.

菊　石：Arietites cf. semicostatus (Yang & Bird) (圖3f)
Arietites semicostatus (Yang & Bird) (圖3h)
Coroniceras spp. (圖3a, 3c)
Asteroceras sp. (圖3b)
Agassiceras sp. (圖3g)
Arnioceras sp. (圖3d)
Phylloceras sp. (圖3e)
Echoceras sp.
Coroniceras rotiforme (Sow) (圖3i)

腹足類：Gen. et sp. A(indet)　屬種未定A
Amberleyidae (圖2g)

植物化石：Nilssonia sp.
Glossophyllum ? sp.

海百合：Pentacrinus cf. shahuensis Shao

細微化石等

這些化石群應屬濱海至海灣環境的產物。

上述化石群根據瓣鰓類、菊石及植物化石與英國、西歐及中國廣東省化石群比較，應屬早侏羅世早期里阿斯的辛涅繆爾期。因而含化石地層的時代也應相應修正爲早侏羅世里阿斯統了。

化石群及其地層的詳細研究有待進一步深入研究。

謹向鼎力支持本項研究工作的香港理工學院土木與結構工程學系高級講師歐達敦先生致謝。同時，廣東地質學會地層古生物委員會主任南頤先生，中國科學院南京地質古生物研究所文世宣先生、余汶先生、何國雄先生及周志炎先生對化石鑑定提供重要意見，作者致眞誠謝意。

投稿本會通訊簡則

概　則：請將所有稿件，查詢及通訊寄香港地質學會秘書收（煩香港大學地理地質系轉）。本會並不負責刊登在本通訊內文章之版權。如寄來的文章或資料有在過去曾引用過，或現時及將來可能會引用到的話，作者請於來稿時特別註明。

我們歡迎一些專門性的稿件，有趣事項的報導，書評或專題討論等。來稿以簡爲主。雖然有些時候本會可作出例外，但普通稿件請以一千二百字爲限。請盡量減少插圖及附表等，而所有圖表請另外分頁。

所有來稿必須清晰——英文稿用打字機打出，中文則以正楷謄寫。來稿需寄兩份。英文稿（包括援引）必須隔行，不可一紙兩面用；請用A4號紙張。中文稿則請用原稿紙。中英文稿每頁均必須有頁編號及作者姓名。

所有插圖請只寄影印本，待本會通知時始可將原版寄來，而必須註有來稿者姓名。圖表必須用黑色繪在描圖紙或滑面白紙或紙板上；所有綫條或字體之粗幼必須能縮影後仍可保持清晰，所有地圖必須附有公制比例，正北指向及如適用的話附有經緯綫座標。

援　引：來稿者須負責確定所有援引的準確性，而公報之簡寫須以現藏於倫敦地質學會圖書館內倫敦地質學會1978年出版之定期出版物目錄爲準。

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封面圖片：蒙Dr. D. R. Workman 借出
馬屎洲：吐露港組中之摺曲岩石

香港地質學會

通　訊

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