

SHALE editions

The edition number, which is called a “printing”, is shown under the date in the top righthand corner of the “Contents” page. If there is no number, then what you have is a first edition.

Consult the list below for details of the differences between printings, but note the following does not include simple spelling mistakes, grammatical errors, or formatting errors unless they affect the meaning of the content in some non-obvious way. Correction of typographical and layout errors may thus result in a new printing, even though nothing is noted here.

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SHALE 1, November 2000

Notes:

Wrangellia was probably below sea level before it reached North America **1** (27). Note added with Printing 7.

Corrected errors:

Volume number: Volume numbers were dropped after the first issue. *SHALE* Vol.1 No.1 should be referred to simply as *SHALE* No.1, see **2** (4). Corrected with Printing 4.

Acalá Galiano, **1** (front cover), **1** (1) and **1** (12–21) should be Alcalá Galiano. Corrected with Printing 5.

Galiano was commander of the *Sutil*, not the *Mexicana* (**1**, inside front cover). Corrected with Printing 6.

Galiano galleries **1** (12, fn. 3), should be Galiano gallery. Corrected with Printing 5.

Tomàs Bartroli, **1** (21), should be written Tomás Bartroli (accent change). Corrected with Printing 6.

Sidney, New South Wales, **1** (40), should be Sydney, New South Wales. Corrected with Printing 2.

Guipúzcoa **1** (42), is a province, not a city. Corrected with Printing 5.

Davison Bay **1** (44) should be Davidson Bay. Corrected with Printing 6.

In the early settlers box, **1** (25), “Stubbins” should probably be “Stubblings”. although both occur in records. Corrected with Printing 7.

The preferred name for the late-Cretaceous basin between Vancouver Island and the mainland is now the “Nanaimo Basin” because its geography was different to the present-day Strait of Georgia **1** (26). Corrected with Printing 7.

The age of the solar system is now reckoned to be about 4.6 billion years **1** (26). Corrected with Printing 7.

The age of the Chicxulub crater is now reckoned to be about 65 million years **1** (26). Corrected with Printing 7.

The term “drifting continents” is archaic and should be “plate tectonics” **1** (26, 35). Changed with Printing 7.

Early sedimentation was from Vancouver Island contrary to what is suggested in the footnote, **1**(fn. 4). Footnote re-written with Printing 7.

The relationship between claystone, siltstone, and mudrock (a mix of claystone and siltstone) is poorly explained in **1**(fn. 4). Shale can technically be any of these lithified muds but only as long as it is laminated; however, “shale” is a term very commonly used incorrectly for all or any of these regardless of lamination. Footnote re-written with Printing 7.

The process described in the box “Transformations” **1** (32) is wrong in suggesting that the Nanaimo Group sandstones are cemented with calcite and laumontite. The most common cement for upper Nanaimo Group sandstone is clay. Changed and expanded with Printing 7.

SHALE 2, March 2001

Notes:

Comments on climate change, **2** (30), were qualified in **3** (2–3, or 37–38).

For extensive corrections to “A French note”, **2** (36–37), see **3** (3 or 38).

11500 BC **2** (28). The radiocarbon date of the shells in the Boulton sandpit were measured as 12500 BP (conventional or uncal.). The latest calibration (2004) databases with a reservoir correction of 950 radiocarbon years gives a calibrated date of 11 435 BC. The original version is thus as correct as any.

Corrected errors:

Norman Morrison, **2** (13), should be *Norman Morison*. Corrected with Printing 2.

tle:tx^w, **2** (24), should be *tle:ltx^w*. Corrected with Printing 2.

Footnote 5, **2** (32), should be modified to include ...sea blush (*Plectritis congesta*). Corrected with Printing 2.

The statement that the stands of arbutus at Stokes Road are due to fire, **2** (33), has been challenged. Corrected with Printing 2.

...natural plants display..., **2** (33), should be ...native plants display.... Corrected with Printing 2.

SHALE 3, January 2002

Notes:

Déné may be related to the ancient Siberian language Ket. Footnote **3** (21, fn.3) added in Printing 3.

Corrected errors:

There was an error in the page numbers in the first printing. Pages **3** (37–38) should be **3** (2–3). Corrected with Printing 2.

Picture caption **3** (26), Lt. Dawnes, should be Panter-Downes. Corrected with Printing 2. See also comments **8** (43–44).

SHALE 4, June 2002

Notes:

The speculation on the meaning and origin of the inscription F.O.E. 11.1621, **4** (25–27) is all wrong. The Fraternal Order of Eagles were not involved and the inscription dates from November 1904. See *SHALE 22*.

Corrected errors:

Photograph of forested shoreline and its reflection added in Printing 3 on **4** (42) to clarify text.

Parti Québécoise, **4** (34), should be Bloc Québécoise. Corrected with Printing 2.

The origin of the surname “Seward”, **4** (8, fn.6) was probably “seaweed” not “seweed”. I once met an Indian who had proudly reverted to using “Seaweed” as his proper family name. Corrected with Printing 3.

Table on inside back cover should be the same as that on page **7** (4). Corrected with Printing 3.

...darker shales... **4** (12) was correct in the first printing, but a mistake was made in Printing 2 in which it was changed to ...darker shells.... “darker shales” is correct. Corrected with Printing 3.

SHALE 5, December 2002

Corrected errors:

...meaning years ago from the time of writing, or if an extra year or two is insignificant, from 2000 AD..., **5** (inside back cover), should be ...meaning years from 2000 AD. Corrected with Printing 2.

...date is 1955 AD..., **5** (inside back cover), should be ...date is 1950 AD. Corrected with Printing 2.

12...120 BC, **5** (inside back cover) at the bottom, should be ≈12120 BC. Corrected with Printing 2.

14...120 BC, **5** (inside back cover) at the bottom, should be ≈14120 BC. Corrected with Printing 2.

***SHALE* 6, April 2003**

Corrected errors:

...one cubic metre per tonne..., **6** (31), should be ...one tonne per cubic metre. Corrected in Printing 2.

The square root sign, **6** (6), did not print. It was corrected by hand in Printing 1.

Uncorrected errors:

The area of Manhattan Island is closer to 87km² than the 57 km² quoted at **6** (3).

***SHALE* 7, January 2004**

Corrected errors:

Recent revisions to dates in the Tertiary Period, **7** (4) are: Paleocene 56-65; Eocene 34-56; Oligocene 23-34; Miocene 5-23; Pliocene 2-5. Neogene should be 2-23, and Paleogene 23-65. Corrected with Printing 2.

The implication **7** (5) that only one river was involved is almost certainly wrong given the time span involved. Corrected with Printing 2.

There are no scales on the graph, **7** (31). The vertical scale is stress with arbitrary units ($F1 = 4$, $F3 = 1$, $k = 0.58$); the horizontal scale is the angle ϕ . Note that the smaller of the angles of the X-shaped fracture, χ , is $2 \times (90 - \phi)$, so for $45^\circ < \phi < 67.5^\circ$, $45^\circ < \chi < 90^\circ$. Corrected with Printing 2.

The formula $K_2Al_4[Si_6Al_2O_{20}]F(OH)_3$, **7** (44), should be $K_2Al_4[Si_6Al_2O_{20}]F(OH)_3$. Corrected with Printing 2.

Due to a minor computer program error, there are slight errors in endnote, **7** (47). Details are as follows:

The corrected numbers for the top diagram showing cations for sandstone are: aluminium 41 (not 40) and calcium 11 (not 12).

Corrected with Printing 2.

The comment, **7** (47), on the reasons for the higher concentrations of iron and manganese in shale than sandstone has been challenged and is incorrect. The

blue veneer on weathered shale is also due to manganese, not iron. Corrected with Printing 2.

***SHALE* 8, January 2004**

Notes:

The conjectures in the editorial as to the cause of the accelerated weathering of the petroglyphs, **8** (4), are out of date and will be revised in a future issue of *SHALE*.

Corrected errors:

The letter on the left of **8** (32) should be signed “Woodall”, not “Goodall”. Corrected with Printing 2.

The correct spelling, **8** (34), is dendrochronology (two errors). Corrected with Printing 2.

Uncorrected errors:

The names, “Richard Chappel, Thomas Degnan, and Thomas Jones” on **8** (25) should be “Richard Chapple, Thomas Degnen, and Thomas McGuffie”.

***SHALE* 9, August 2004**

Notes:

The conjecture that the weathering of the beach in Lavender Bay is due to surf, **9** (25), is wrong. See extensive comments **10** (37-44).

In drawing the fractures in the Malaspina Galleries article, I should have pointed out that for simplicity I was ignoring the dip of the fractures and portraying them as being perfectly vertical, which they’re not; **9** (54, 56). Noted in Printing 2. Also, I suggested that the thin beds of mudrock in the sandstone were relatively impervious. In fact, the opposite is more likely—water seeps are often from a little below, not a little above, the beds. In any event, the interbeds do assist in bringing groundwater to the erosion surface; **9** (56).

Corrected errors:

Sample 02 on **9**(33) should be Samples 02-01 and 02-02. Corrected with Printing 2.

Hexahydrate, **9** (39), should be *hexahydrite*. Corrected with Printing 2.

The conjecture that the spheroidal weathering of mudrock, **9** (48), is due to shrinkage is wrong. This will be revised in a future issue of *SHALE*. Noted with Printing 2.

Due to a computer program error, many of the numbers in the endnote, **9** (49–52), are slightly incorrect. Corrected with Printing 2. Details are as follows:

On **9** (49), note that the bottom two diagrams are by weight, not as annotated or as intended, by number. The corrected numbers for the bottom diagram showing anions in the host mudrock are: silicon 84 (not 92) and carbon 15 (not 7). The corrected numbers for the diagram above it showing anions in the nodule are: carbon 64 (not 51), silicon 22 (not 28), phosphorus 9 (not 12), and sulphur 5 (not 9).

On **9** (49), in the first table, calcium 43 (not 42), sub-total 90 (not 89), aluminum [8] (not 9), others 0 (not 1).

On **9** (49), in the bottom table, carbon 42 [64] (not 50 [71]), silicon 35 [22] (not 28 [17]), phosphorus 15 [9] (not 13 [7]), and sulphur 8 (not 9).

On **9** (50), second nodule type A results, aluminum (8) (not 9), carbon (64) (not 71), silicon (22) (not 17), and phosphorus (9) (not 7).

On **9** (50), third nodule type B results, aluminum (8) (not 9), carbon (64) (not 71), silicon (22) (not 17), and phosphorus (9) (not 7).

On **9** (50), fourth nodule type S results, aluminum (8) (not 9), silicon 65(22) not (63(17)), phosphorus 23(9) not 22(7), and carbon 11(64) not 14(71).

On **9** (51), fossil nodule results, sodium 2 (not 3), carbon 51(64) (not 60(71)), silicon 41(22) (not 33(17)), phosphorus 6(9) (not 4(7)), and sulphur 2 (not 3).

Another possibility for the mineral containing manganese other than manganite is birnessite **9** (48, 50). Added with Printing 2.

***SHALE* 10, January 2005**

Corrected errors:

The “approximately equal to” symbol “ \approx ” in ...corrected azimuth $\approx 5^\circ$..., **10** (26), was not printed. Added with Printing 2.

The annotation “P280” is missing from the diagram, **10** (29) top right. Added with Printing 2.

***SHALE* 11, May 2005**

Notes:

It may not be true that surface water is supported mostly by “glaciofluvial” deposits **11** (40). They may be glacial. Much of the clay is a product of feldspar weathering possibly in the late-Pleistocene.

Corrected errors:

The weight of the evidence is that Alexander Shaw, **11** (9), was born in 1835, not as assumed in 1833. Corrected with Printing 2.

The caption for the photograph **11** (14) is wrong. The children are standing on the steps of the school, not the Community Hall. The building in the background is the house built for the schoolteacher. Corrected with Printing 2.

The correct spelling of “Lilian Roth [or Rath?]”, **11** (16), is “Roth”. Corrected with Printing 2.

That evaporation from sandstone is a “possible cause” of honeycombing is more certain than implied **11** (38). Corrected with Printing 2.

Kaolinite and *montmorillonite* should be reversed **11** (40). The latter is far more common. Corrected with Printing 2.

The groundwater reference list, **11** (43–44), should have included: D.M. Allen and G.P. Matsuo, *Results of the Groundwater Geochemistry Study of Hornby Island, British Columbia*, Islands Trust Report, April 2002. Corrected with Printing 2.

***SHALE* 12, November 2005**

Nothing noted.

***SHALE* 13, June 2006**

Corrected errors:

It is unlikely that the viceroy of Peru, Francisco Gil, was Pantoja’s mentor **13** (23, fn.35). Corrected with Printing 2.

Uncorrected errors:

There is a mis-spelling, “Horcasistas”, of what should have been “Horcasitas” on **13** (38).

***SHALE* 14, September 2006**

Nothing noted.

SHALE 15, May 2007Uncorrected errors:

Figure 16 on **15** (31) is Figure 17.

Notes:

Bricks stamped I-XL (meaning “I excel”), **15** (32,fn.9) were made by I-XL Industries Ltd., an Albertan brick-making company. Their bricks can be found throughout western Canada. Probably the few such bricks found lying on the ground on Gabriola were brought here recently and have no particular historical significance. Noted with Printing 2.

SHALE 16, July 2007Corrected errors:

The last sentence of Appendix 1 on **16** (38) doesn't make sense. It should be replaced with: “Finding such a deposit that dates to within the last 2000 years would support the rising sea level hypothesis.” Corrected with Printing 2.

SHALE 17, September 2007Notes:

The text and caption on **17** (48) implies that *Betelgeuse* appears highest in the sky at azimuth 194°. This is wrong. All stars in the southern sky are at their maximum height as they cross the meridian at azimuth 180°. This error was addressed in the box **18** (13). Noted in Printing 3.

Corrected errors:

The museum petroglyph replica top left **17** (46) is as seen in the museum grounds but nevertheless is a mirror image of the original. Mirrored to accord with the original in Printing 2. See **18** (9).

The figure in the caption on **17** (57) should be 109° not 119°. Corrected with Printing 2.

The reference to ferric iron **17** (52) might need to be the more soluble ferrous iron, but a significant source of iron is the weathering of biotite, which does expel ferric rather than ferrous iron. Changed to ferrous in Printing 2 but should be put back again to the original ferric. Corrected with Printing 3.

The unregistered site #2 (UR-2) **17** (10,14) is DgRw 254. Corrected with Printing 3.

SHALE 18, April 2008Corrected errors:

The footnote **18** (26, fn.39) is incomplete. It should have read: Wagner, *Cartography...*, p.499 says Eliza made the change, but this is unlikely as Pantoja didn't know about it and yet says all naming was done “in the presence of the commander, chief of the expedition [Eliza]”. Corrected with Printing 2.

In the footnote **18** (52, fn.32), “Cedar Fm. –770 m: Protection Fm. –610 m” should have been “Cedar Fm. –610 m: Protection Fm. –770 m”. Corrected with Printing 2.

The mirror note **18** (36–7) contains several errors. See [mirrors](#), which is a re-written version. Corrected with Printing 2.

SHALE 19, November 2008Corrected errors:

“Murray” **19** (11) should be “Murray”. Corrected with Printing 2.

In caption **19** (18), 123°51'30"W should be 123°51'36"W. Corrected with Printing 2.

In the footnote **19** (42, fn.4), “Dennis E. Canessa” should have been “Dennis G. Canessa”. Add at the end “Her daughter, Donna L. Weiss, lives with her.” Corrected with Printing 2.

“1840” **19** (43) should be “1850”. Corrected with Printing 2.

Change the sentence **19** (46), “They lived in the lower mainland...” to “They lived mainly in the lower mainland. However, Caroline in her later years lived with her daughter in Kamloops, where she died at 94 in 1972.” Corrected with Printing 2.

Delete comma **19** (46), “...my informant”. Corrected with Printing 2.

Change **19** (46), “...Byron and Hogel (“Jack”), and a daughter Zelma” to “...Byron and Hogel (“Jack”), and a daughter Rosabel”. Corrected with Printing 2.

SHALE 20, April 2009

Notes:

There is an additional note on the relationship of the faults on Gabriola with each other in **22** (pp.34–5).

Corrected errors:

Some of the captions **20** (48–51) were truncated in the printed version. Corrected with Printing 2.

NW: Berry Point: Observations: 294, ND

	dev.	ori	amp	$\sigma/2$	%
ND-BP-E	+0°	N76° W	0.2	±3.8°	4
ND-BP-C1	+1°	N55° W	0.5	±9.0°	24
ND-BP-C3	-4°	N29° W	0.5	±4.8°	13
ND-BP-B	-2°	N5° W	0.3	±6.1°	10
ND-BP-A	-3°	N26° E	1.0	±6.7°	36
ND-BP-G	trace	N51° E observed			
ND-BP-F	+1°	N74° E	0.2	±11.9°	13

NW: Berry Point: Observations: 71, DM
DM-00-022, DM-00-023, DM-00-024,
DM-00-025

	dev.	ori	amp	$\sigma/2$	%
DM-BP-C1*	+11°	N45° W	0.2	±7.0	10
DM-BP-H	-2°	N14° E	0.6	±9.0	37
DM-BP-A	+0°	N29° E	0.6	±6.0	25
DM-BP-F	-2°	N71° E	1.0	±4.0	28

*or DM-BP-C2? (dev. = -9°)

NW: Leboeuf Bay: Observations: 202, DM
DM-00-018, DM-00-019

	dev.	ori	amp	$\sigma/2$	%
DM-LB-E	-7°	N83° W	0.5	±3.5°	8
DM-LB-C1	-8°	N64° W	0.5	±8.0°	17
DM-LB-C3	+0°	N25° W	0.5	±10.0°	22
DM-LB-B	+1°	N2° W	0.9	±4.0°	16
DM-LB-A	-3°	N26° E	0.5	±6.0°	13
DM-LB-G	-7°	N40° E	0.3	±18.0°	24
DM-LB-F	trace	N73° E?			

NW: Descanso (east): Observations: 43, ND

	dev.	ori	amp	$\sigma/2$	%
ND-DE-E	trace	N76° W?			
ND-DE-C1	-3°	N59° W	0.9	±5.5°	37
ND-DE-C2	+0°	N36° W	0.5	±6.0°	23

ND-DE-B	-5°	N8° W	1.0	±4.0°	30
ND-DE-H	+0°	N16° E	0.2	±6.5°	10

Dan Mackie's results not included as they involve detail around the fracture in Cox's Bay.

C: Interior (south): Observations: 50, ND

	dev.	ori	amp	$\sigma/2$	%
ND-IS-E	+7°	N69° W	0.2	±6.0°	17
ND-IS-H	+1°	N17° E	0.9	±6.5°	80
ND-IS-A	+5°	N34° E	0.1	±2.5°	3

C: Brickyard Beach: Observations: 23, ND

	dev.	ori	amp	$\sigma/2$	%
ND-BY-E	+2°	N74° W	1.0	±3.5	60
ND-BY-H	-1°	N15° E	0.2	±7.0	24
ND-BY-A	-2°	N27° E	0.3	±3.0	16

On page **20** (48), top left, the diagram annotations are wrong for ND-BP-E (should be -76° not -77°); ND-BP-C1 (should be -55° not -50°); ND-BP-C3 (should be -29° not -28°); ND-BP-B (should be -5° not 1°); and ND-BP-F (should be 74° not 71°).
Corrected with Printing 2.

Uncorrected errors:

The list of references **20** (40) should have included:

R.K. Dash, G.D. Spence, M. Riedel, R.D. Hyndman, & T.M. Brocher, *Upper-crustal structure beneath the Strait of Georgia, Southwest British Columbia*, International Journal of Geophysics, 170, pp.800–812, 2007.

Some of the captions on **20** (57–9) had no scales.

Figure 1's should include: $d\varepsilon(\theta)/dt$ scale: ± 6 mm/100km/century ε = strain

Figure 2's should include: $d\theta/dt$ scale: $\pm 3.3^\circ$ /million years

Figure 3's should include: $d\varepsilon(\theta)/dt + d\varepsilon(\theta+\pi)/dt$ scale: ± 6 mm/100km/century. Stress is assumed to be proportional to strain.

Figure 4's should include: $d\varepsilon(\theta)/dt - d\varepsilon(\theta+\pi)/dt$ scale: ± 6 mm/100km/century. Stress is assumed to be proportional to strain.

Figure on p.59 should include: Vertical grid scale is 1 mm/year.

SHALE 21, July 2009Corrected errors:

Caption on inside front cover. It should have said "Decourcy Drive", not "McConvey Road". Corrected with Printing 2.

In the article on radiocarbon dates, "Sample 6", **21** (50) should be "Sample 7" and "1455 AD" should be "1445 AD". Corrected with Printing 2.

Add to **21** (50): Sample 8 calibrated with a variable local reservoir correction becomes 1280 AD. Added with Printing 2.

Uncorrected errors:

The figure caption **21** (47) should identify the Thetis Island site as being DgRw-141, not DgRw-41.

SHALE 22, January 2010Uncorrected error:

The last sentence on **22**(37) should have been ... *Nostruceras hornbyense*?

SHALE 23, March 2010Corrected errors:

Photograph **23** (34) is of De Courcy Island, but remarks about the opposite side of the island facing

the Strait of Georgia apply to Valdes Island. Both islands are heavily honeycombed only on the southwest side. Corrected with Printing 2.

SHALE 24, June 2010Notes:

"Dodds" is a local name for Dodd Narrows, **24** (56).

Mention should have been made that Castell Brook, which runs into Lock Bay, at one time did support fish **24** (46–47). Tim Brown, who was born on Gabriola and farms the area, says he fished there as a boy. More recent official records however note the creek as being dry in Sept. 1969, Oct. 1980, and July 1990. Noted in Printing 2.

Corrected errors:

Footnote **24** (11, fn.1) should have included Charlotte Cameron. It was her who also made a transcript of the interview with Lois Rowan. Corrected with Printing 2.

Uncorrected errors:

There are stories on the island of sticklebacks in some streams and ponds, **24** (46), but the natural history of these fish is not known.

The list of creeks **24** (47) should have noted that Stoney Creek was formerly known as Rock Creek.

Dick Brook and Dicks Swamp, **24** (47), are correctly spelled. The suggested alternative spelling "Dyck" should be discarded. Before pre-emption by James Dick & sons, Dicks Swamp was called the "big swamp" or the "great swamp".

Pam Spring and McCall Spring are probably the same with Pam Spring being the slightly earlier name.

No further corrections are being made to the note *Fish and Babbling Brooks*, **24** (46–7). For an up-to-date version see [fish and brooks](#). Better yet, see Nick Doe's [atlas of Gabriola watercourses](#).

SHALE 25, March 2011Uncorrected errors:

The name of Yoshiharu Shinde's wife **25** (5) was Eiko Ishida, not Eika Ishida.

MV *Maquina* should probably have been spelled MV *Maquinna* **25** (10).

***SHALE* 26, November 2011**

Uncorrected errors:

[diagram opposite] in first paragraph **26** (6) should have been [diagram previous page].

Appendix 4, **26** (58–9) contains serious arithmetic errors and has been re-written.

***SHALE* 27, December 2013**

The wharf at Silva Bay Inn (the Boatel) was missed out. This will be corrected in *SHALE* 28.

***SHALE* 28, June 2014**

Last page; June Harrison's book is of course, *The people of Gabriola*, not *Gabiola*.