

A list of various publications relevant to the geology of Iceland, by George P.L. Walker, his students and co-workers ca. 1950-80.

Note: The list was initially composed in 1980; several papers have been added, including some published subsequently. More recent publications may be found in AGI's Georef or other data bases. Within each section, the papers are arranged by year of publication.

A. Papers by Dr. Walker on the geology of the U.K., especially on igneous rocks from the early Tertiary in Northern Ireland and their secondary alteration.

G.P.L. Walker 1948. A preliminary note on the metamorphic rocks of the Portmuck area, Islandmagee, Co. Antrim. *Irish Nat. J.* 9, 165-168.

G.P.L. Walker 1951. The amygdale minerals in the Tertiary lavas of N.E. Ireland, I. The distribution of chabazite in the Garron plateau area, County Antrim. *Mineral. Mag.* 29, 773-791.

G.P.L. Walker 1955. The amygdale minerals in the Tertiary lavas of Antrim. Ph.D. Thesis, University of Leeds.

G.P.L. Walker and G.P. Leedal 1954. The Barnesmore Complex, County Donegal. *Sci. Proc. Royal Soc. Dublin* 26, 207-243.

G.P.L. Walker and J.V. Ross 1954. A xenolithic monchiquite dyke near Glenfinnan, Inverness-shire. *Geol. Mag.* 91(6), 463-472.

G.P.L. Walker 1959. The amygdale minerals in the Tertiary lavas of Ireland, II. The distribution of gmelinite. *Mineral. Mag.* 32, 202-217.

G.P.L. Walker 1959. Some observations on the Antrim basalts and associated dolerite intrusions. *Proc. Geologists' Assoc.* 70, 179-205.

G.P.L. Walker 1960. The amygdale minerals in the Tertiary lavas of Ireland, III. Regional distribution. *Mineral. Mag.* 32, 503-527.

G.P.L. Walker 1960. The amygdale minerals in the Tertiary lavas of Ireland, IV. The crystal habit of calcite. *Mineral. Mag.* 32, 609-618.

J.K. Charlesworth and eight others, 1960. The geology of North-East Ireland. *Proc. Geologists' Assoc.* 71, 429-459.

G.P.L. Walker 1962. A note on occurrences of tree remains within the Antrim basalts. *Proc. Geologists' Assoc.* 73, part 1, 1-18.

G.P.L. Walker 1970. The distribution of amygdale minerals in Mull and Morvern (Western Scotland). West Commemoration volume, University of Saugar, India, 181-194.

G.P.L. Walker 1975. A new concept of the evolution of British Tertiary intrusive centres. *J. Geol. Soc. London* 131, 121-141.

G.P.L. Walker 1979. The environment of the Tertiary igneous activity in the British Isles. *Bull. Geol. Survey of G. Br. (Flett Symposium volume)* 70, 5-6.

B. Papers by Dr. Walker on his own research on the geology of Iceland (including two popular-science articles, in 1964 and 1967)

G.P.L. Walker 1959. Geology of the Reyðarfjörður area, eastern Iceland. *Quart. J. Geol. Soc. London* 114, 367-393.

G.P.L. Walker 1960. Zeolite zones and dike distribution in relation to the structure of the basalts of eastern Iceland. *J. Geology* 68, 515-527.

G.P.L. Walker 1962. Tertiary welded tuffs in eastern Iceland. *Quart. J. Geol. Soc. London* 118, 275-293.

G.P.L. Walker 1963. The Breiðdalur central volcano, eastern Iceland. *Quart. J. Geol. Soc. London* 119, 29-63.

G.P.L. Walker 1964. Geological investigations in eastern Iceland. *Bull. Volc.* 27, 1-15.

G.P.L. Walker 1964. Iceland's volcanoes. *The Times Science Review*, Spring issue, 3-5.

G.P.L. Walker 1965. Some aspects of Quaternary volcanism in Iceland. *Trans. Leicester Lit. Philos. Soc.* 59, 25-40.

G.P.L. Walker 1965. Evidence of crustal drift from Icelandic geology. *Phil. Trans. Roy. Soc. London* A258, 199-204 (in continental drift symposium issue).

G.P.L. Walker 1966. Acid volcanic rocks in Iceland. *Bull. Volc.* 29, 375-402.

G.P.L. Walker 1967. Volcanics of eastern Iceland. *Spectrum*, Dec. 1967 issue, 9-11.

G.P.L. Walker 1968. The productivity of volcanoes. *Royal School of Mines J.* 18, 33-42.

G.P.L. Walker 1971. Compound and simple lava flows and flood basalts. *Bull. Volc.* 35, 579-590.

G.P.L. Walker 1972. Petrology of the volcanic hyaloclastic sandstone. Additional Report, p. 365-369 in: Site 115 (Section 7 of Initial Reports of the Deep Sea Drilling Project, vol. XII, by a Shipboard Scientific Party led by A.S. Laughton). National Science Foundation, Washington, D.C.

G.P.L. Walker 1974. The structure of eastern Iceland. In: Geodynamics of Iceland and the North Atlantic Area (NATO ASI volume C11), ed. L. Kristjansson. Reidel Publ. Co., Dordrecht, Holland, 177-188.

G.P.L. Walker 1974. Eruptive mechanisms in Iceland. *Ibid.*, 189-201.

G.P.L. Walker 1975. Intrusive sheet swarms and the identity of crustal layer 3 in Iceland. *J. Geol. Soc. London* 131, 143-161.

G.P.L. Walker 1975. Excess spreading axes and spreading rate in Iceland. *Nature* 255, 468-470 (with discussion in vol. 261, 75-76, 1976).

G.P.L. Walker 1982. Topographic evolution of eastern Iceland. *Jökull* 32, 13-20.

C. Papers by Dr. Walker and co-authors on research based on his mapping in the Tertiary formations of Iceland.

G. Bödvarsson and G.P.L. Walker 1964. Crustal drift in Iceland. *Geophys. J. Royal Astr. Soc.* 8, 285-300.

S. Moorbath and G.P.L. Walker 1965. Strontium isotope investigation of igneous rocks from Iceland. *Nature* 207, 837-840.

N.H. Gale, S. Moorbath, J. Simons and G.P.L. Walker 1966. K-Ar ages of acid intrusive rocks from Iceland. *Earth Planet. Sci. Lett.* 1, 284-288.

P. Dagley, R.L. Wilson, J.M. Ade-Hall, G.P.L. Walker, S.E. Haggerty, T. Sigurgeirsson, N.D. Watkins, P.J. Smith, J. Edwards and R.L. Grasty 1967. Geomagnetic polarity zones for Icelandic lavas. *Nature* 216, 25-29.

I. McDougall, N.D. Watkins, L. Kristjansson and G.P.L. Walker 1976. Potassium-argon and paleomagnetic analysis of Icelandic lava flows: limits on the age of Anomaly 5. *J. Geophys. Res.* 81, 1505-1512.

N.D. Watkins and G.P.L. Walker 1977. Magnetostratigraphy of eastern Iceland. *Am. J. Sci.* 277, 513-584.

(Note: It may be mentioned that Dr. Walker contributed to various research projects connected with Iceland leading to other publications. For instance, a paper by M. Slaughter and W.T. Kane: The crystal structure of disordered epistilbite, *Zeitschr. Kristallogr.* 130, 68-87, 1969, deals exclusively with samples of this zeolite collected by Walker in Berufjörður).

D. Joint papers by Dr. Walker and his graduate students on research in Iceland.

G.P.L. Walker and I.S.E. Carmichael 1962. Garronite, a new zeolite from Ireland and Iceland. *Mineral. Mag.* 33, 173-186. (Abstract and discussion by J.A. Mandarino in *Am. Mineral.* 48, 711-712, 1963).

G.P.L. Walker and I.S.E. Carmichael 1962. Low-potash gismondine from Ireland and Iceland. *Mineral. Mag.* 33, 187-201.

I. L. Gibson and G.P.L. Walker 1964. Some composite rhyolite/basalt lavas and related dykes in eastern Iceland. *Proc. Geologists' Assoc.* 74, 301-318.

D.H. Blake, R.W.D. Elwell, I.L. Gibson and G.P.L. Walker 1965. Some relationships resulting from the intimate association of acid and basic magma. *Quart. J. Geol. Soc. London* 121, 31-49.

G.P.L. Walker and D.H. Blake 1966. The formation of a palagonite breccia mass beneath a valley glacier in Iceland. *Quart. J. Geol. Soc. London* 122, 45-61.

I.L. Gibson, D.J.J. Kinsman and G.P.L. Walker 1966. Geology of the Fáskrúðsfjörður area, Eastern Iceland. *Soc. Sci. Islandica, Greinar IV(2)*, 1-52.

G.P.L. Walker and R.R. Skelhorn 1966. Some associations of acid and basic igneous rocks. *Earth Sci. Reviews* 2, 93-109.

E. Ph.D. theses by Dr. Walker's students, and papers by them based on these and/or subsequent research. Some papers dealing only in part with material from Iceland are omitted.

I.S.E. Carmichael:

Volcanic geology of Thingmuli, eastern Iceland. Thesis, 1962, 132 p.

I.S.E. Carmichael 1960. The feldspar phenocrysts of some acid glasses. *Mineral. Mag.* 12, 588-608.

I.S.E. Carmichael 1960. Pyroxenes and olivines from some Tertiary acid glasses. *J. Petrol.* 1, 309-336.

I.S.E. Carmichael 1963. Crystallization of feldspar in volcanic acid liquids. *Quart. J. Geol. Soc. London* 119, 85-131.

I.S.E. Carmichael 1964. The petrology of Thingmuli, a Tertiary volcano in eastern Iceland. *J. Petrol.* 5, 435-460.

I.S.E. Carmichael 1967. The mineralogy of Thingmuli, a Tertiary volcano in eastern Iceland. *Am. Mineral.* 52, 1815-1841.

I.L. Gibson:

The Reyðarfjörður acid volcanic centre, eastern Iceland. Thesis, 1967, 267 p.

I.L. Gibson 1966. The crustal structure of eastern Iceland. *Geophys. J. Royal Astr. Soc.* 12, 99-102.

I.L. Gibson 1966. Crustal flexures and flood basalts. *Tectonophysics* 3, 447-456.

I.L. Gibson 1969. A comparative account of the flood basalt volcanism of the Columbia plateau and eastern Iceland. *Bull. Volc.* 33, 419-437.

I.L. Gibson 1969. Origin of some Icelandic pitchstones. *Lithos* 2, 343-349.

I.L. Gibson and J.D.A. Piper 1972. Structure of the Icelandic basalt plateau and the process of drift. *Phil. Trans. Royal Soc.* A271, 141-150.

I.L. Gibson, G.F. Marriner, D.P. Matthey, R.N. Thompson and D.A. Wood 1976. Is the extrusive portion of the oceanic crust really compositionally zoned? *Bull. Soc. Géol. France* 18, 897-902.

D.A. Wood, I.L. Gibson and R.N. Thompson 1976. Elemental mobility during zeolite facies metamorphism of the Tertiary basalts of Eastern Iceland. *Contrib. Mineral. Petrol.* 55, 241-254.

D.A. Wood and I.L. Gibson 1976. The relationship between depth of burial and intensity of magnetization for basalts from eastern Iceland. *Geophys. J. Royal Astron. Soc.* 46, 497-498.

J.D.A. Piper, M.G. Fowler and I.L. Gibson 1977. Dyke magnetization, magnetostratigraphy, and upper crustal structure in the Reyðarfjörður area of eastern Iceland. *Tectonophysics* 40, 227-244.

I.L. Gibson (ed.) 1979. Crust of oceanic affinity in Iceland. *Nature* 281, 347-351. (Note: This is a preliminary account of the 1978 deep core drilling project in Reyðarfjörður. Detailed papers including several co-authored by Dr. Gibson, appeared in *J. Geophys. Res.* 87, issue B8 p. 6359-6667, 1982.)

A.E. Mussett, J.G. Ross and I.L. Gibson 1980. $^{40}\text{Ar}/^{39}\text{Ar}$ dates of eastern Iceland lavas. *Geophys. J. Astr. Soc.* 60, 37-52.

D.H. Blake:

The volcanic geology of the Austurhorn area, south-eastern Iceland. Thesis, 1964, 192 p.

D.H. Blake 1966. The net-veined complex of the Austurhorn intrusion, south-eastern Iceland. *J. Geol.* 74, 891-907.

D.H. Blake 1968. Gravitational sorting of phenocrysts in some Icelandic intrusive sheets. *Geol. Mag.* 105, 140-148.

D.H. Blake 1970. Geology of the Álftafjörður volcano, a Tertiary volcanic centre in south-eastern Iceland. *Science in Iceland* 2, 43-63.

D.H. Blake 1970. Welded tuffs and the Mælifell caldera, Álftafjörður volcano, south-eastern Iceland. *Geol. Mag.* 106, 531-541.

A.E. Annels:

The geology of Hornafjörður region, southeast Iceland. Thesis, 1967, 278 p.

J.G. Jones:

Basaltic volcanism, volcanoes and volcanic rocks of marine and lacustrine environment. Thesis, 1968.

J.G. Jones 1966. Intraglacial volcanoes of south-west Iceland and their significance in the interpretation of the form of the marine basaltic volcanoes. *Nature* 212, 586-588.

J.G. Jones 1968. Pillow lava and pahoehoe. *J. Geol.* 76, 485-488 (with discussion in vol. 77, 732-734, 1969).

J.G. Jones 1969. Pillow lavas as depth indicators. *Am. J. Sci.* 267, 181-195.

J.G. Jones 1969. Intraglacial volcanoes of the Laugarvatn region, southwest Iceland, I. *Quart. J. Geol. Soc. London* 124, 197-211.

J.G. Jones 1970. Intraglacial volcanoes of the Laugarvatn region, southwest Iceland, II. *J. Geol.* 78, 127-140.

S.E. Haggerty:

The Fe-Ti minerals of Icelandic basic rocks and their significance in rock magnetism. Thesis, 1968.

N.D. Watkins and S.E. Haggerty 1965. Some magnetic properties and the possible petrogenetic significance of oxidised zones in an Icelandic olivine basalt. *Nature* 206, 797-800.

N.D. Watkins and S.E. Haggerty 1967. Primary oxidation variation and petrogenesis in a single lava. *Contrib. Mineral. Petrol.* 15, 251-271.

N.D. Watkins and S.E. Haggerty 1968. Oxidation and magnetic polarity in single Icelandic lavas and dikes. *Geophys. J. Royal Astr. Soc.* 15, 305-315.

R.L. Wilson, S.E. Haggerty and N.D. Watkins 1968. Variation of palaeomagnetic stability and other parameters in a vertical traverse of a single Icelandic lava. *Geophys. J. Royal. Astr. Soc.* 16, 79-96.

S.E. Haggerty 1976. Oxidation of opaque mineral oxides in basalts. Chapter 4 in: *Oxide Minerals* (ed. D.G. Rumble III). Mineralogical Society of America, *Reviews in Mineralogy* vol. 3, 100 p. Opaque mineral oxides in terrestrial igneous rocks. *Ibid.*, Chapter 8, 200 p.

M.J. Roobol:

The Vesturhorn acid-basic intrusion, south-east Iceland. Thesis, 1969, 177 p.

M.J. Roobol 1971. Some relations between common acid-basic associations. *Geol. Mag.* 108, 525-531.

M.J. Roobol 1972. Size-graded, igneous layering in an Icelandic intrusion. *Geol. Mag.* 109, 393-404.

M.J. Roobol 1974. The geology of the Vesturhorn intrusion, SE-Iceland. *Geol. Mag.* 111, 273-286.

R.S.J. Sparks:

R.S.J. Sparks, H. Sigurdsson and L. Wilson 1977. Magma mixing: a mechanism for triggering acid explosive eruptions. *Nature* 267, 315-318.

H. Sigurdsson and R.S.J. Sparks 1978. Rifting episode in North Iceland in 1874-75 and the eruptions of Askja and Sveinagja. *Bull. Volc.* 41, 149-167.

H. Sigurdsson and R.S.J. Sparks 1978. Lateral magma flow within rifted Icelandic crust. *Nature* 274, 126-130.

R.S.J. Sparks, L. Wilson and H. Sigurdsson 1981. The pyroclastic deposits of the 1875 eruption of Askja, Iceland. *Phil. Trans. Royal Soc.* A299, 241-273.

(The following paper is based on an undergraduate project supervised by Dr. Walker: R.W. Johnson 1968. Granophyre stock in Southeast Iceland and the distribution of epidote around it. *Science in Iceland, Anniversary volume*, 55-59).

F. Papers by Dr. Walker and co-authors on various aspects of volcanic eruptions, 1966-81. Examples from Iceland are described in several of these papers.

G.P.L. Walker 1966. Colloquium on alkali basalts and their associations. *Proc. Geological Soc. London* no. 1635.

G.P.L. Walker 1967. Nature and viscosity of Etnean lavas. *Nature* 213, 484-485.

G.P.L. Walker 1968. Mount Etna. *Geogr. Mag.* (vol. ??), 929-935.

G.P.L. Walker 1969. The breaking of magma. *Geol. Mag.* 106, 166-173.

G.P.L. Walker 1969. Some thoughts about volcanic gases. *Proc. Geol. Soc. London* no. 1655, 103-106.

G.P.L. Walker 1971. Viscosity control of the composition of ocean floor volcanics. *Phil. Trans. Royal Soc.* A268, 727-729.

G.P.L. Walker and R. Croasdale 1971. Two plinian-type eruptions in the Azores. *J. Geol. Soc. London* 127, 17-55.

G.P.L. Walker, L. Wilson and E.L.G. Howell 1971. Explosive volcanic eruptions- I. The rate of fall of pyroclasts. *Geophys. J. Royal Astr. Soc.* 22, 377-383.

G.P.L. Walker 1972. Grain-size characteristics of pyroclastic deposits. *J. Geol.* 79, 696-714.

- Walker G.P.L. 1972. Crystal concentration in ignimbrites. *Contrib. Mineral. Petrol.* 36, 135-146.
- G.P.L. Walker 1973. Explosive volcanic eruptions – a new classification scheme. *Geol. Rundschau* 62, 431-466.
- G.P.L. Walker 1973. Lengths of lava flows. *Phil. Trans. Royal Soc.* A274, 107-118.
- G.P.L. Walker 1973. A brief account of the 1971 eruption of Mount Etna. *Phil. Trans. Royal Soc.* A274, 177-179.
- G.P.L. Walker 1973. Volcanoes and man. *Royal School of Mines J.* 22, 29-35.
- L. Lirer, T. Pescatore, B. Booth and G.P.L. Walker 1973. Two plinian pumice-fall deposits from Somma-Vesuvius, Italy. *Geol. Soc. Am. Bull.* 84, 759-772.
- R.S.J. Sparks and G.P.L. Walker 1973. The ground surge deposit: a third type of pyroclastic rocks. *Nature Phys. Sci.* 241, 62-64.
- B. Booth and G.P.L. Walker 1973. Ash deposits from the new explosion crater of Etna, 1971. *Phil. Trans. Royal Soc.* A274, 147-151.
- R.S.J. Sparks, S. Self and G.P.L. Walker 1973. Products of ignimbrite eruptions. *Geology* 1, 115-118.
- G.P.L. Walker 1974. Volcanic hazards and the prediction of volcanic eruptions. *Misc. Pap. Geol. Soc. London* 3, 23-41.
- S. Self, R.S.J. Sparks, B. Booth and G.P.L. Walker 1974. The Heimaey strombolian scoria deposit, Iceland. *Geol. Mag.* 111, 539-548.
- B. Booth, G.P.L. Walker and J.E. Guest 1975. The output of the Etna volcano. *Nature* 255, 385-387.
- R.S.J. Sparks and G.P.L. Walker 1977. Significance of vitric-enriched air-fall ashes associated with crystal-enriched ignimbrites. *J. Volc. Geoth. Res.* 2, 329-341.
- J.V. Wright and G.P.L. Walker 1977. The ignimbrite source problem: significance of a co-ignimbrite lag-fall deposit. *Geology* 5, 729-732.
- B. Booth, R. Croasdale and G.P.L. Walker 1978. A quantitative study of five thousand years of volcanism on Sao Miguel, Azores. *Phil. Trans. Royal Soc.* A288, 271-319.
- G.P.L. Walker 1979. A volcanic ash generated by explosions where ignimbrite entered the sea. *Nature* 281, 642-646.
- G.P.L. Walker 1980. Low-aspect ratio ignimbrites. *Nature* 283, 286-287.
- G.P.L. Walker 1981. Plinian eruptions and their products. *Bull. Volc.* 44, 223-240.

G.P.L. Walker 1981. Generation and dispersal of fine ash and dust by volcanic eruptions. *J. Volc. Geoth. Res.* 11, 81-94.

G.P.L. Walker 1981. Volcanological applications of pyroclastic studies. In: *Tephra Studies* (NATO ASI vol. C75), eds. S. Self and R.S.J. Sparks, Reidel Publ. Co., Dordrecht, Holland, 391-403.

G.P.L. Walker 1981. New Zealand case histories of pyroclastic studies. *Ibid.*, 317-330.

C.J.N. Wilson and G.P.L. Walker 1981. Violence in pyroclastic flow eruptions. *Ibid.*, 441-448.