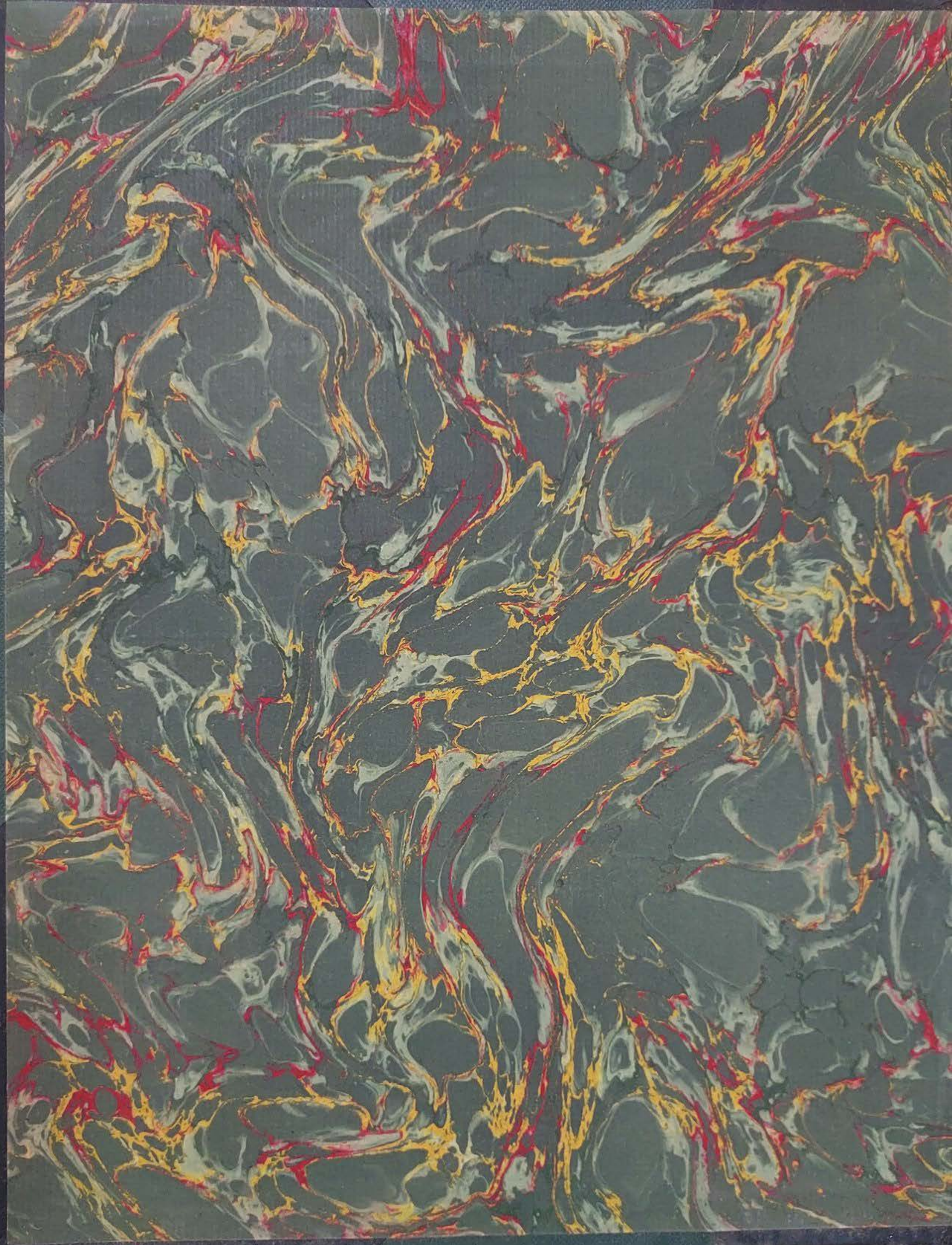
THE JOURNAL OF A VOYAGE IN H.M.S. BEAGLE

CHARLES DARWIN

1831-1836

DARWIN



THE JOURNAL OF A VOYAGE IN H.M.S. BEAGLE

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by

Charles Darwin

Genesis Publications
in association with
Australia & New Zealand
Book Co Pty Ltd
1979

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ISBN 0904351 12 2 — Genesis
ISBN 0 85552 091 4 — Australia & New Zealand Book Co Pty Ltd

Published in 1979 by Genesis Publications Limited
45 Stoke Road Guildford Surrey England GU1 4HT
in association with
Australia & New Zealand Book Co Pty Ltd
23 Cross Street Brookvale NSW2100 Australia

Printed and bound in England

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BUCKINGHAM PALACE

In 1859 Charles Darwin published his *On the Origin of Species by Means of Natural Selection* which was to establish him as one of the pre-eminent figures of the 19th century. The observations which provided the foundation for one of the most revolutionary theories ever put forward had been carried out by the author more than twenty years before and are recorded in this Journal.

The fact that Darwin took more than twenty years to publish his theories on evolution indicates his awareness of the appalling controversy that he knew they would inspire, but in the end he realized that his duty lay in revealing the truth as shown by his scientific observations. In having the courage to publish his revolutionary concept of the origin of species Darwin joined a long line of distinguished scientists, mathematicians, philosophers and thinkers, whose radical theories transformed the course of human history.

How despairing it must be for those great men or women whose observations lead them to make certain bold propositions about the nature of our existence, to find that they are mocked and often rejected by various sections of Society. You only have to observe the case of the eminent gentleman who discovered, in the latter part of the 19th century, that Mount Kenya had snow on its summit (on the equator) and was then ridiculed by many intelligent people in this country, to realize how determined you must be to overcome such criticism and such shortsightedness. On the other hand, there is definitely a great advantage in hindsight and I frequently wonder how we ourselves might have reacted to Darwin's theories at the time. I suspect there are a considerable number of people even now who are unlikely to accept the concept of evolution.

If there are such people I am sure that even they could not fail to be fascinated by the way in which Darwin's Journal is written — by the way in which the Journal enables us to eavesdrop on conversations between him and Fitzroy or the way in which we are given a vivid picture of the Galapagos Islands. But above all, the Journal helps to show us something of Darwin's innate humanity and kindness — the hall mark, in so many cases, of a true naturalist.

I sincerely hope that this new edition of Darwin's Journal will give the greatest possible pleasure to all those admirers of Darwin who are fortunate enough to acquire one of these rare copies.

Thomas.

This edition is limited to five hundred signed copies of which this is copy number ١٦

G. P. Lawrie

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Introduction

'The voyage of the *Beagle* has been by far the most important event in my life and has determined my whole career; yet it depended on so small a circumstance as my uncle offering to drive me 30 miles to Shrewsbury, which few uncles would have done, and on such a trifle as the shape of my nose. I have always felt that I owe to the voyage the first real training or education of my mind. I was led to attend closely to several branches of natural history, and thus my powers of observation were improved, though they were already fairly developed.'

So wrote Charles Darwin towards the end of his life, looking back after nearly half a century of intensive work in the quiet of his study at Down House to the adventurous and glorious days when, at the age of 22, he had embarked on H.M.S. *Beagle*, under the command of Captain Robert FitzRoy R.N., on a voyage to survey the southern coast-line of South America and afterwards to circumnavigate the globe. He did not exaggerate, for it was during the voyage that the seeds of *The Origin of Species* were sown.

On 24th October 1831, Darwin arrived in Plymouth to take up his post as the *Beagle's* naturalist, fortunately after 'a pleasant drive from London' rather than the 'most stormy passage' by sea experienced by the *Beagle*'s first official draughtsman, Augustus Earle, which might have dissuaded him at the outset from becoming a seafarer. A few days later he made the first entry in the journal reproduced here, which he kept up assiduously until the *Beagle* docked in Falmouth after five years' absence from home. For the next month, while the *Beagle* completed her preparations for the voyage, he remained on shore. Judging from changes in ink and nib, further entries in the journal were made every few days. On 4th December he noted 'I am writing this for the first time on board,' and 'In the morning the ship rolled a good deal,

but I did not feel uncomfortable; this gives me great hopes of escaping sea-sickness.' Unhappily his hopes were to be confounded, and he suffered miseries each time he re-embarked on the ship after a period on shore. There followed three unhappy weeks which were presumably responsible for subsequent references to 'that horrid Plymouth', when two abortive attempts to sail were frustrated by south-westerly gales, until on 27th December 1831 the wind shifted into the east, and 'We joined the Beagle about 2 o'clock outside the Breakwater, and immediately with every sail filled by a light breeze, we scudded away at the rate of 7 or 8 knots an hour.' The voyage of the *Beagle* had begun.

Darwin's journal was intended as a coherent account of his daily activities, kept for the benefit of his family, and he often had no opportunity to write it until some weeks or even months after the events that he described. His first impressions and rough notes were therefore recorded in pencil in a series of little pocket-books that he took with him on his inland journeys, of which 18 have survived. In them he jotted down, almost in short-hand and not always very legibly, enough to jog his memory afterwards. Mixed with his accounts, they contain reminders to his servant, and lists of necessaries for the next journey: 'Tow, Paper, Essential Oil, Jars. Buy knife, Prometheans, medicine, Calomel. Pistol — balls — powder. Letter to Commandante: map and note-books. Soft paper, spare pencil, small hammer, Compass. Stockings, gloves, handkerchiefs — wine flask? comb, 2 handkerchiefs, nightcap. Passport, Poncho, saltpetre.' Sometimes he records the books to be taken along with the invariable volume of Milton: 'Azara's book — Fleming Philosophy of Zoology and Pennant's Quadrupeds. Paul Scrope on Volcanoes, Scoresby Arctic Regions. *Humboldt (of course)*. Burchell's Travels.' Then there are descriptions of scenery: 'Ap. 8 [1832]. Hills generally rounded, often bare; flat alluvial valley between them. Village of Itho-caia 12 miles from Rio. Temp. in white sand 104° in shade. View at first leaving Rio sublime, picturesque, intense colours, blue prevailing tint — large plantations of sugar rustling, and coffee — Mimosa forest — natural veil, like, but more glorious than those in the engraving; gleams of sunshine, parasitical plants: bananas, large leaves — sultry — all still but large and brilliant butterflies; Much water: surprised to see Guinea fowls: our cavalcade very Qixotic: the banks most teaming with wood and beautiful flowers: village of Ith[acaia] regular like the Hottentots: the poor blacks thus perhaps try to persuade themselves that they are in the land of their Fathers. The rock from which the old woman threw herself. Temp. of room 80 — Our dinner eggs and rice our host saying we could have anything: about 4 o'clock, and arrived at our sleeping place about 9 — Sand and swampy plains and thickets alternating — passed through by a dim moonlight — the cries of snipes: fire flies and a few noisy frogs and goat suckers.'

In the journal, the gaps in such passages would be filled in to provide a continuous but no less vivid narrative.

Sometimes there are field notes on the wild life that he encountered: 'Paucity of trees common to all formations. Examine some limestone pebbles at M. Video. Female of white shrike with little grey on the back. General scarcity of Coprophagous [beetles] exceptions. Is not abundance of beetles in Horse dung an argument for original habitation of these animals? Flycatcher with red wings, iris yellow; eyelid blackish do; base of lower mandible especially yellow. Long billed Certhia, tongue shouldered slightly and bristles projecting but not recurved: moderately long; tail used. Furnarius walks, Aperia trots. Black Tileus bubbling noise. Connection between note of B B bird and Furnarius.' But his observations on natural history were more often confined to another series of 6 pocket-books in which the specimens that he preserved were meticulously listed, and to separate notes on zoology and ornithology which were written up on larger sheets of paper towards the end of the voyage. The geology was less easily hived off, and especially in the later note-books there are frequent records of the dip and composition of geological strata, and rather crude diagrams — for Darwin was no draughtsman — interspersed among his general descriptions of the country through which he passed.

From the eighteen pocket-books containing general notes grew the eight hundred pages of his journal, written in ink on larger paper of a uniform size. In his *Autobiography* he recorded later that 'During some part of the day I wrote my Journal, and took much pains in describing carefully and vividly all that I had seen; and this was good practice. My Journal served, also, in part as letters to my home, and portions were sent to England, whenever there was an opportunity.' The writing did not come easily at first, for as he told his sister Caroline on 2nd April 1832, 'I am looking forward with great interest for letters, but with very little pleasure to answering them. It is very odd what a difficult job I find this same writing letters to be. I suppose it is partly owing to my writing everything in my journal: but chiefly to the number of subjects, which is so bewildering that I am generally at a loss either how to begin or end a sentence, and this all hands must allow to be an objection.' A few weeks later he was able to say: 'I send in a packet my commonplace Journal. I have taken a fit of disgust with it and want to get it out of my sight. Any of you that like, may read it. A great deal is absolutely childish: Remember however this, that it is written solely to make me remember this voyage, and that it is not a record of facts but of my thoughts — and in excuse recollect how tired I generally am when writing it . . . Be sure you mention the receiving of my journal, as anyhow to me it will be of considerable future interest as it is an exact record of all my first impressions, and such a set of vivid ones they have been must make this

period of my life always one of interest to myself. If you will speak quite sincerely, I should be glad to have your criticisms, only recollect the above mentioned apologies.'

In July 1832 he wrote to Catherine Darwin that 'My journal is going on better; but I find it inconvenient having sent the first part home on account of the dates,' and in November he reported: 'Although my letters do not tell much of my proceedings I continue steadily writing the journal; in proof of which the number on the page now is 250.' By this time the first instalment had reached home, and he asked his sisters not to risk sending it by coach to Maer, the home of his uncle Josiah Wedgwood and of his future wife Emma, for 'it may appear *ridiculous* to you, but I would as soon loose a piece of my memory as it. I feel it is of such consequence to my preserving a just recollection of the different places we visit.' However, he was still diffident about its value, and if they found it as 'abominably childish' as he suspected, they were not to send it to Maer at all. Even in July 1834 some doubts remained, for he wrote: 'I am much pleased to hear my Father likes my journal: as is easy to be seen, I have taken too little pains with it. My geological notes and descriptions of animals I treat with far more attention: from knowing so little of Natural History when I left England, I am constantly in doubt whether these will have any value.'

But he persevered, and the number on the page advanced steadily. On 29th April 1836, when it had reached 725, he wrote to Caroline from Mauritius: 'Whilst we are at sea, and the weather is fine, my time passes smoothly because I am very busy. My occupation consists in rearranging old geological notes: the rearranging generally consists in totally rewriting them. I am just now beginning to discover the difficulty of expressing one's ideas on paper. As long as it consists only of description it is pretty easy, but where reasoning comes into play to make a proper connection, a clearness and a moderate fluency is to me, as I have said, a difficulty of which I had no idea. I am in high spirits about my geology, and even aspire to the hope that my observations will be considered of some utility by real geologists . . . The Captain is daily becoming a happier man, he now looks forward to the work which is before him. He, like myself, is busy all day in writing, but instead of geology it is the account of the voyage. I sometimes fear his "Book" will be rather diffuse, but in most respects it certainly will be good: his style is very simple and excellent. He has proposed to me to join him in publishing the account, that is for him to have the disposal and arranging of my journal and to mingle it with his own. Of course I have said I am perfectly willing, if he wants materials, or thinks the chit-chat details of my journal are in any ways worth publishing. He has read over the part I have on board, and likes it. I shall be anxious to hear your opinions, for it is a most dangerous task, in these days, to publish accounts of parts of the world which have so frequently been visited. It is a rare piece of good

fortune for me, that of the many errant (in ships) Naturalists, there have been few, or rather no, geologists. I shall enter the field unopposed. I assure you I look forward with no little anxiety to the time when Henslow, putting on a grave face, shall decide on the merits of my notes. If he shakes his head in a disapproving manner, I shall then know that I had better at once give up science, for science will have given me up. For I have worked with every grain of energy I possess.'

FitzRoy's suggestion of joint authorship was evidently still under discussion when on 17th December 1836 Emma Wedgwood, Darwin's future wife, wrote to Fanny Wedgwood, her sister-in-law: 'Catherine tells me they are very anxious to have your and Hensleigh's real opinion of Charles's journal. I am convinced Dr Holland is mistaken if he thinks it not worth publishing. I don't believe he is any judge as to what is amusing or interesting. Cath. does not approve of its being mixed up with Capt. FitzRoy's, and wants it to be put altogether by itself in an Appendix.' However, on 30th December FitzRoy wrote to Darwin: 'While in London a few days since I consulted Mr Brodings about Capt King's Journal. He recommended a joint publication such as is sketched in the accompanying paper. One volume might be for King — another for you — and a third for me. The *profits*, if *any*, to be divided into three equal portions.' Agreement was quickly reached on this plan, and Darwin set to work to reshape his journal for publication. He completed the task within twelve months, but there was then a delay while the companion volumes by Captains FitzRoy and P. P. King (Commander of the first voyage to survey South America in 1826-30) were being written. In November 1837 there was somewhat of a flurry when FitzRoy took sudden and quite unjustified offence at what he regarded as Darwin's failure to make proper acknowledgement of the help of his shipmates. But this blew over, and in April 1839 Darwin wrote to his sister Susan: 'The Captain is going on very well, that is for a man who has the most consummate skill in looking at everything and everybody in a perverted manner. He is working very hard at his book, which I suppose will really be out in June. I looked over a few pages of Captain King's Journal: I was absolutely forced against all love of truth to tell the Captain that I supposed it was very good, but in honest reality no pudding for little school-boys ever was so heavy. It abounds with Natural History of a very trashy nature. I trust the Captain's own volume will be better.' August 1839 duly saw the publication under the imprint of Henry Colburn of *Narrative of the Surveying Voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the Southern Shores of South America, and the Beagle's Circumnavigation of the Globe*. Volume I was by Captain King, Volume II and an Appendix by Captain FitzRoy, and Volume III by Charles Darwin Esq., M.A., Sec. Geol. Soc.

The demand for Darwin's volume immediately exceeded that for the other two, and before the end of the year Colburn brought out a second issue of Volume III alone under the title *Journal of Researches into the Geology and Natural History of the various countries visited by H.M.S. Beagle under the command of Captain FitzRoy, R.N. From 1832–1836*. A third issue appeared in 1840. The book continued to sell, and in 1845 a second edition was published by John Murray as Vol. XII of his Colonial and Home Library, incorporating a dozen illustrations and quite extensive revisions. This is the familiar edition of Darwin's *Journal of Researches*, which has since been reprinted many times without further alteration, and translated into many languages. Of it he wrote 'The success of this my first literary child always tickles my vanity more than that of any of my other works.'

Darwin's primary objective in writing his contribution to the *Narrative* was to produce a coherent story covering not only his own daily activities but also the scientific observations that he made at the different places that he visited, both in the *Beagle* and on his long inland journeys. During the 3½ years spent by the *Beagle* in South America, the ship returned to many places more than once, often after long intervals of time. In order to achieve greater scientific unity, Darwin deserted the strict chronology of his journal, and collected together all he had to say of each district in one part of his book. In the process, one third of his manuscript account was omitted altogether, part was condensed, and about half of the original was printed verbatim or with minor alterations. Much scientific detail and discussion was then added from the two thousand pages of geological, zoological and ornithological notes that he had built up from the scientific material in the twenty-four little pocket-books. The final length of the first (1839) edition of the *Journal of Researches* was 224,000 words, as compared with the 189,000 words of the manuscript journal. The revisions made in 1845 reduced the length of the second edition of the book to 213,000 words.

In 1876, Darwin had the manuscript bound in red morocco, and so it remained for the next hundred years. As a safeguard against its possible loss, Sir Horace Darwin had three copies typed in 1891, nine years after his father's death, each headed: 'The following is a copy of the original diary written by Charles Darwin during the voyage of H.M.S. 'Beagle'. It contains the account of his daily life, and much of it has appeared in the 'Journal of Researches'. The records of his scientific observations were kept in separate note-books. The numbers at the top of the pages are consecutive, and the numbers at the bottom correspond to the pages in the original manuscript. Three copies were made in one operation by J. Wallington with the Caligraph Typewriter, under my direction. When in 1933 Sir Horace's daughter, Nora Barlow, made the first of her invaluable contributions to the study of her grandfather's writings by

publishing the journal in full under the title *Charles Darwin's Diary of the Voyage of H.M.S. Beagle*, she noted that the task of collating the manuscript with the first and second editions of the *Journal of Researches* was greatly facilitated by the existence of these typed copies.

In order to prepare this new facsimile edition of the journal, it was necessary to take down the manuscript so that the pages could be photographed. This provided an opportunity for de-acidification of the paper at the Cambridge University Library, special attention being paid to places where it had been eroded by the ink, after which the manuscript was comprehensively repaired, and rebound in white pigskin with the gatherings individually sewn on to folded guards. The restored document was then returned to the Down House Museum for exhibition alongside Darwin's pocket-books and other articles that he had with him on board the *Beagle*.

As the primary record of Darwin's daily doings during the 4¾ years of the voyage, and of his immediate reactions to all that he saw, this journal can be left to speak for itself. Despite his diffidence about his literary ability, his writing possessed from the start the essential virtues of directness and economy, which combined with a graphic power of description make the story superbly readable from the first page to the last. First we see him in Plymouth, soberly planning his programme of work, for on 13th December 1831: 'If I have not energy enough to make myself steadily industrious during the voyage, how great and uncommon an opportunity of improving myself shall I throw away.' Soon (28th February 1832) he is overcome with wonder at his first view of a tropical forest: 'The delight one experiences in such times bewilders the mind; if the eye attempts to follow the flight of a gaudy butter-fly, it is arrested by some strange tree or fruit; if watching an insect one forgets it in the stranger flower it is crawling over; if turning to admire the splendour of the scenery, the individual character of the foreground fixes the attention.' His later description of the very different scenery in Patagonia (28th December 1833) is no less vivid: 'There is not a tree, and excepting the Guanaco, who stands on some hill top a watchful sentinel over his herd, scarcely an animal or bird. All is stillness and desolation.' Whether he is negotiating for a passport in Brazil (6th April 1832), when 'the prospect of wild forests tenanted by beautiful birds, Monkeys and Sloths, and lakes by Cavies and Alligators, will make any Naturalist lick the dust even from the foot of a Brazilian,' or visiting a despotic Argentinian general (15th August 1833) who 'is worth seeing, as being decidedly the most prominent character in S. America', his delightful sense of humour never deserts him.

Darwin's journal is, however, more than an outstandingly attractive account of an exciting journey of exploration, for in it can be discerned the beginnings of one of the

most important revolutions in scientific thought to emerge from the nineteenth century. Because most of the scientific material was recorded separately, and because Darwin kept his most far-reaching conclusions strictly to himself until many years had passed, it is necessary to refer to his note-books as well as the journal for the earliest evidence of the growth of his scientific beliefs. It is then possible to trace the development of some of his ideas through successive versions in the note-books, the journal, and the published editions of the *Journal of Researches*.

Perhaps the first of his discoveries to set him thinking about the mutability of species was made on 22nd September 1832, when he recorded in his note-book: 'Entrance of creek, dark blue sandy clay much stratified dipping to NNW or N by W at about 6°. On the beach a succession of thin strata dipping at 15° to W by S — conglomerate quartz and jasper pebbles — with shells — vide specimens. Proceeding to NW there is a horizontal bed of *earth* containing much fewer shells — but armadillo — this is horizontal but widens gradually, hence I think conglomerate with broken shells was deposited by the action of tides — *earth* quietly. Megatherium like Armadillo case, teeth.' In the journal entry for the same day he wrote: 'We staid some time on Punta Alta about ten miles from the ship; here I found some rocks. These are the first I have seen, and are very interesting from containing numerous shells and the bones of large animals.' His identification of the large armadillo-like animal as *Megatherium*, both in his notes and in letters to his sister Caroline and to Professor Henslow, was incorrect; it was actually a glyptodont called *Hoplophorus*. But he may be forgiven, for as he wrote in his journal on 8th October, 'I obtained a jaw bone, which contained a tooth: by this I found out that it belongs to the great ante-diluvial animal the Megatherium. This is particularly interesting as the only specimens in Europe are in the King's collection at Madrid, where for all purposes of science they are nearly as much hidden as if in their primaeval rock.' By the time the first edition of the *Journal of Researches* was written, Professor Owen had examined the specimens, and the mistake had been corrected. But although Darwin then pointed out the contrast in size between the fossil mammals that he had found and the similar species now living in South America, and speculated on the reason for the extinction of the former, he did not at this stage mention the possible implications of the close resemblance in everything but size between the extinct and living species.

One of the crucial issues to which it is clear from his note-books that his attention constantly returned was the significance of the distribution of similar species of plants and animals as between isolated oceanic islands and the nearest mainland, and on either side of a physical barrier like the Cordillera of the Andes. As early as 2nd March 1833, he noted in his pocket-book on reaching the Falkland Islands for the first time: 'Is

not the closer connection of insects and plants [with the mainland equivalents] as well as this fact point out closer connection than migration? To what animals did the dung beetles in S. America belong? Scarcity of Aphidians? Vide Annales des Sciences for Rio Plata. The peat not forming at present, and but little of the Bog Plants of Tierra del F; no moss; perhaps decaying vegetables may slowly increase it. Beds ranging from 10 to one foot thick. Great scarcity in Tierra del of Corallines, supplanted by Fuci: Clytra prevailing genus.' And three weeks later: 'It will be interesting to observe difference of species and proportionate numbers; what also appear characters of different habitations. Migrations of Geese in Falkland Islands, as connected with Rio Negro?' When the *Beagle* returned to the Falklands the following year, the differentiation of species from geographical isolation was again much in his mind, and the sentence in his notes 'Rats and mice and Foxes on small islands of Georgia?' was heavily underlined. But although in the later pocket-book entries, and in the zoological notes written up towards the end of the voyage, he returned to the problem again and again, there is little overt hint of this interest in the *Journal of Researches*. In his journal for 5th August 1834, when the *Beagle* had just arrived at Valparaiso, he wrote: 'I have taken several long walks in the country. The vegetation here has a peculiar aspect; this is owing to the number and variety of bushes which seem to supply the place of plants; many of them bear very pretty flowers and very commonly the whole shrub has a strong resinous or aromatic smell. In climbing amongst the hills one's hands, and even clothes, become strongly scented. With this sort of vegetation I am surprised to find that insects are far from common; indeed this scarcity holds good to some of the higher orders of animals — there are very few quadrupeds, and birds are not very plentiful. I have already found beds of recent shells yet retaining their colors, at an elevation of 1300 feet; and beneath this level the country is strewed with them. It seems not a very improbable conjecture that the want of animals may be owing to none having been created since this country was raised from the sea.' This passage was duly transferred to the *Journal of Researches*, but with the significant omission of the final sentence.

Two days after landing in the Galapagos Islands, 700 miles off the coast of Ecuador, Darwin noted in his pocket-book: 'The Thenca very tame and curious in these Islands. I certainly recognise S. America in Ornithology — would a botanist? ¾ of plants in flower.' Then in his journal for 26th and 27th September 1835 he recorded: 'I industriously collected all the animals, plants, insects and reptiles from this Island. It will be very interesting to find from future comparison to what district or "centre of creation" the organized beings of this archipelago must be attached.' But the penny did not really drop until he was completing his ornithological notes some while later, when he wrote: 'These birds are closely allied in appearance to the Thenca of Chile or

Callandra of la Plata. In their habits I cannot point out a single difference; they are lively, inquisitive, active, *run fast*, frequent houses to pick up the meat of the Tortoise which is hung up, sing tolerably well; are said to build a simple open nest; are *very* tame, a character in common with the other birds. I *imagined* however its note or cry was rather different from the Thenca of Chile? Are very abundant over the whole Island; are chiefly tempted up into the high and damp parts by the houses and cleared ground. I have specimens from four of the larger Islands: the two above enumerated, a female from Albermarle Isd, and a male from James Isd. The specimens from Chatham and Albermarle Isd appear to be the same; but the other two are different. In each Isld each kind is *exclusively* found; habits of all are indistinguishable. When I recollect the fact that from the form of the body, shape of scales, and general size, the Spaniards can at once pronounce from which Island any Tortoise may have been brought. When I see these Islands in sight of each other, and possessed of but a scanty stock of animals, tenanted by these birds but slightly differing in structure and filling the same place in Nature, I must suspect they are only varieties. The only fact of a similar kind of which I am aware is the constant asserted difference between the wolf-like Fox of East and West Falkland Islds. If there is the slightest foundation for these remarks, the zoology of Archipelagoes will be well worth examining, for such facts would undermine the stability of Species.'

These words were probably written some time in 1836. The following year Darwin confided to his private diary: 'In July opened first note book on "Transmutation of Species" — had been greatly struck from about month of previous March on character of S. American fossils, and species on Galapagos Archipelago. These facts origin (especially latter) of all my views.' Fifteen months later, according to his *Autobiography*, he 'happened to read for amusement Malthus on *Population*, and being well prepared to appreciate the struggle for existence which everywhere goes on from long-continued observation of the habits of animals and plants, it at once struck me that under these circumstances favourable variations would tend to be preserved, and unfavourable ones to be destroyed. The result of this would be the formation of new species.' It is actually a little puzzling why a reading of Malthus should have been needed to trigger this line of thought, for the concept of the "struggle for existence" had been clearly propounded in the volumes of Lyell's *Principles of Geology* that Darwin had with him in the *Beagle*, and to which he always stressed his indebtedness; and writing of the Fuegians in his journal for 24th February 1834 he had remarked: 'They are surrounded by hostile tribes speaking different dialects, and the cause of their warfare would appear to be the means of subsistence.' Be that as it may, when writing the first edition of the *Journal of Researches* in 1837 he was determined to keep his

revolutionary ideas entirely to himself, and on the subject of the finches that came to bear his name, he was cautious in the extreme: 'I have stated that in the thirteen species of ground-finches, a nearly perfect graduation may be traced, from a beak extraordinarily thick, to one so fine, that it may be compared to that of a warbler. I very much suspect, that certain members of the series are confined to different islands; therefore, if the collection had been made on any *one* island, it would not have presented so perfect a graduation. It is clear, that if several islands have each their peculiar species of the same genera, when these are placed together, they will have a wide range of character. But there is not space in this work, to enter on this curious subject.'

In the second edition of the *Journal of Researches* the chapter on the Galapagos was considerably expanded, and after describing the beaks of the ground-finches, Darwin continued 'Seeing this gradation and diversity of structure in one small, intimately related group of birds, one might really fancy that from an original paucity of birds in this archipelago, one species had been taken and modified for different ends.' Dealing with the same topic in Volume II of the *Narrative*, FitzRoy, who had become an ardent fundamentalist soon after returning to England, had no doubts over his own interpretation of their observations, for 'This appears to be one of those admirable provisions of Infinite Wisdom by which each created thing is adapted to the place for which it was intended.' But the young scientist whom FitzRoy had engaged in 1831, had deplored on the penultimate page of his journal 'a constant tendency to fill up the wide gaps of knowledge by inaccurate and superficial hypotheses.' Only in 1859, sure at last of his ground, would he write in the opening paragraph of his great work: 'When on board H.M.S. *Beagle* as naturalist, I was much struck with certain facts in the distribution of the inhabitants of South America, and in the geological relations of the present to the past inhabitants of that continent. These facts, as will be seen in the latter chapters of this volume, seemed to throw some light on the origin of species — that mystery of mysteries, as it has been called by one of our greatest philosophers.'

Richard Darwin Keynes

Cambridge 1979

Plates

The *Beagle* in Ponsonby Sound, 5th March 1834. Watercolour by Conrad Martens sold to Charles Darwin on 17th January 1836. Reproduced by courtesy of Mr George Darwin.

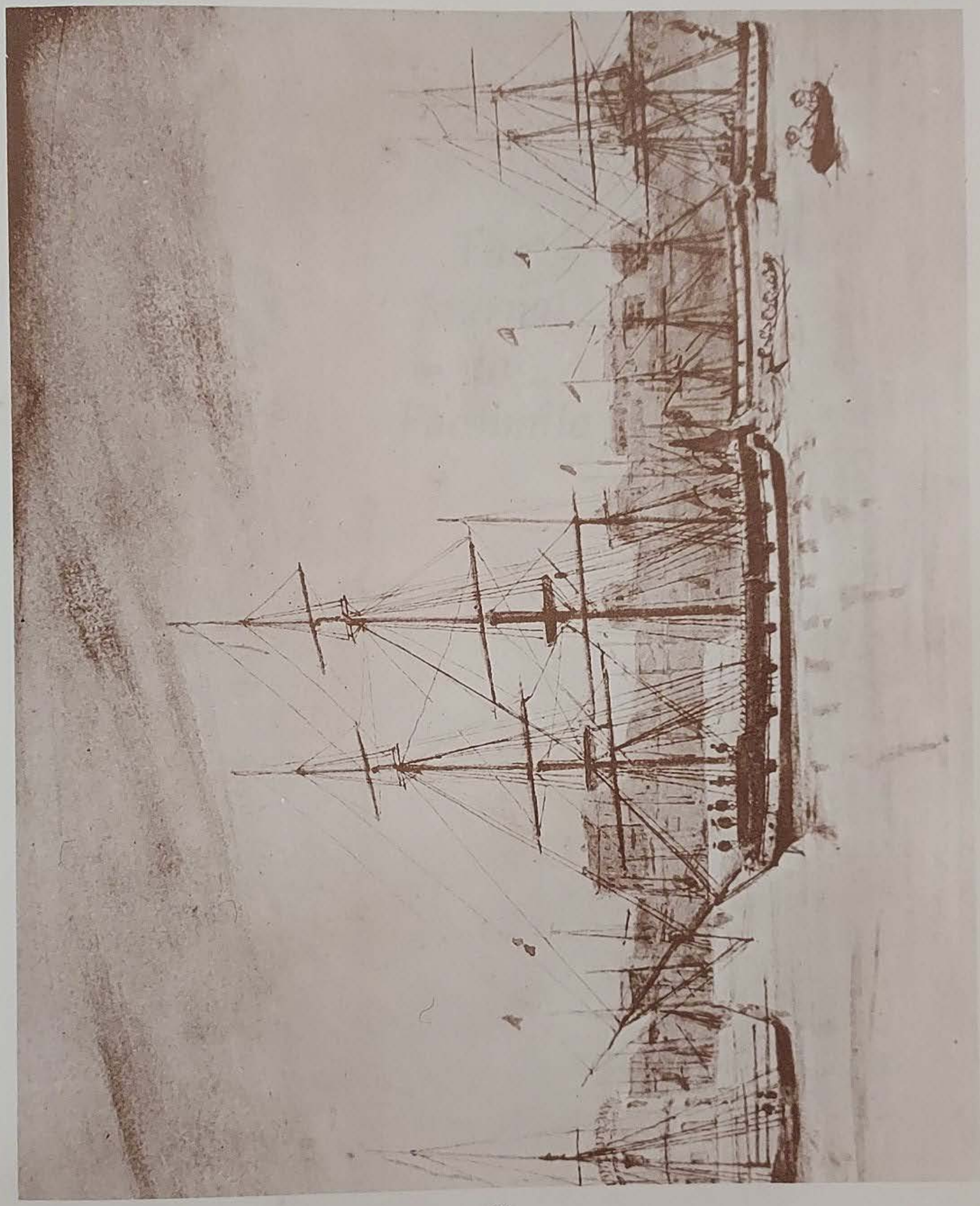
Hauling the boats up the Rio Santa Cruz, 3rd May 1834. Watercolour by Conrad Martens sold to Charles Darwin on 21st January 1836. Reproduced by courtesy of Mrs R. G. Barnet.

The *Beagle* passing Mount Sarmiento in the Magdalen Channel, 9th June 1834. Watercolour by Conrad Martens. Reproduced by courtesy of Mr Mark Smyth.

Plate III

The *Beagle* in harbour at Sydney. Watercolour painted in 1841 by Owen Stanley. Reproduced by courtesy of the National Maritime Museum, Greenwich.

Plate IV



The Journal in Facsimile

The Crew List

Ships Company of H.M.S. Beagle

Octr 1836

No on Ships Book	Mens Names	Present Ratings	In what capa-city at Present doing duty	Remark
2	James Bennett	Gunr Mate	Quarter Master + Capt to Coxswain	
3	Thos Henderson	Capt to Coxn	Quarter Master	
5	Willm Wills	Armourer		
12	Thos Ash	Gunroom Steward		
13	Jame Shay	Carpr Mate		
14	James Rogers	Caulker		
16	Jn° Bosworthick	Ropes Maker		
21	Jn° Peterson	2n Master.		
22	Elias Davis	A.B.		
23	George Phillips	Ships Cook		
28	Willm Robertson	A.B.		
29	John Remfry	Boats Mate		
35	James Lester	Cooper		
36	John Willm Johns	Capt F Top	Capt M Top	
54	David Rowe	Carps Crew		

Ships Nos this book	Ships Names	Present Ratings	In what Capacity at pres.t doing duty	Remarks
49	John Blight	Captain of Top	Cox.n 1st Whaler	
59	James Tanner	Sailmaker		
61	Thos Billett	Ordinary	Mids Stewards	
64	Richd White	2nd Master	Cox.n 2nd Whaler & Boats Mate	
70	Willm Hughes	A.B.	Capt.s & Gunners Cook	
72	Willm Clarke	A.B.	Captn of Top	
74	John Johns	A.B.		
87	Willm Thomas (1)	A.B.		
92	John Flood	A.B.		
93	Richd Wilcox	A.B.		
94	Willm Thomas (2)	A.B.		
96	John Legg	Capt.n Forr Castle		
97	Richd Wallis	A.B.		
98	Willm Tallientire	A.B.		
99	George Hazzett	A.B.		
100	Thos Carter	A.B.	Captn Fore Top	
101	Willm Williams	A.B.		
104	Andw Hunter	A.B.		
105	Robt Duncan	A.B.		

No on Ships Book	Mens Names	Present Rating	In what capacity at present doing duty	Remarks
112	Rich^d Poole ———	A B		
107	Jos^h Childs	Ord^y		
109	Henry Wells	Ord^y		
110	Edw^d Clarke	A B		
111	Hen^y Fitzgerald	A.B.		
	Boys			
	Rob^t Davis	Boy 1^st Class	Captains Servant	
	Tho^s Cavanah	ditto		
	Will^m Johnson	ditto	Carpenters Serv^t	
	Will^m Green	ditto	Groom Serv^t	
	Dav^d Kinnah	ditto	Boats Servant	
	Marines			
	John Baisley	Serg^t	Pursers Steward	
	James A Bute	Corp^l	Captains Clerk	
	James Doyle	Private	Cobler	
	Jn^o Middleton	— " —		
	R^d Martin	— " —		
	Tho^s Burgess	— " —		
	John Gibbons	— " —		
	R^d Robbins	— " —		

	Names	Ranks	
	Sup's Victuals Only		
	Charles Darwin		
	Geo. I Stebbing		
	Harry Fuller		
	Simms Covington		
	Officers		
	Robt Fitz Roy Esqr	Captain	
	John C Wickham	1st Lieut	
	Bat "Jas Sullivan	2nd —"—	
	Edwd Jh. Chaffers	Master	
	Benjamin Bynoe	Surgeon	
	John Edwd Dring	Purser	
	William Kent	Asst Surgeon	
	Peter. B. Stewart.	Mate	
	Jno Lort Stokes	Mate	
	Arthur Mellersh	Mate	
	Chas Jno Johnson	Mate	
	Jonathan Shaw	Carpenter	
	Jho Sorrell	Boats	

In Schooner Constitution

Roon Ships Books	Names	Rank and present Rating	In what capacity at present doing duty	Remarks
	Alex^{r} B Usborne	Masters Asst	In charge	
	Chas Forsyth	Midshipm		
51	Jn^{o} Evens	Boats Mate		
75	Jas Blight	A.B.		
86	Thos Carr	A/B		
89	John Parks	A/B		
102	Jacob Dowse	A.B		
103	Danl Jones	Ords		
106	Jas Thompson	A.B.		
	James Harris	Boy 1st Class		

A Note on the Manuscript

The manuscript of Charles Darwin's *Beagle* Journal was received at the Cambridge University Library in November 1978. The binding, executed in 1876 by Sayer and Wilson of Cambridge, was of dark red, hard grained morocco, with blind tooling. On arrival, the back board was found to be broken. The paper was in reasonable condition, but giving low pH readings of between 4.3 and 5.7.

There are a few irregularities in the page numbering, for example: after page 553 Darwin reverts to page number 534 and continues to page 553 again. There are also instances where the recto page only has been used, for example: with the exception of pages 18 and 68, pages 15 to 109 inclusive are recto only. All such peculiarities have been repeated in the facsimile.

Having been taken down, collated and temporary repairs made to the backs of the leaves damaged by the earlier binding, the manuscript was returned later the same month to Down House, from where it was transported to the printer of the facsimile.

In December after it had been photographed page by page the manuscript was again deposited in the University Library, during which time the earlier temporary repairs were removed and the whole of the manuscript de-acidified, with particular attention being paid to the ink, which in certain places had eroded the paper. Comprehensive repairs were then completed with hand made paper and Japanese tissue. The gatherings were individually sewn onto folded guards also of hand made paper, which in turn were sewn onto 5 double raised cords. Silk headbands were worked on and the manuscript block laced onto quarter cut oak boards with white allum tawed pigskin spine and joints. The spine was then lettered and silver clasps affixed to the boards.

Finally, a hand made, velvet lined box was constructed to accept the completely restored manuscript, which, in due course was returned to and is now exhibited at Down House, Kent.

List of Illustrations

Publisher's Note

The publisher wishes to thank the following companies for their help in publishing this book:

The typesetter
The Bishopsgate Press Ltd London

The printer
Kingprint Ltd Richmond Surrey

The bookbinders
Kemp Hall Bindery Green Street Oxford
Zaehnsdorf Ltd London
The Dorset Bookbinding Co Ltd Wimborne Dorset

Brian Roylance
Guildford 1979

Charles Darwin