

VII.

WILLIAM JOHN BURCHELL.

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William John Burchell, by far the most scientific and greatest of the early African explorers, and 'one of the most learned and accomplished travellers of any age or country,' stands apart from the other eminent men of his time, a mysterious, unapproachable, isolated figure. His features at about thirty-four years of age are fortunately preserved for us in an etching by Mrs. Dawson Turner, from a drawing by J. S. Cotman in 1816. It forms one of a hundred portraits of great men drawn by this artist for Mr. Dawson Turner and etched by his wife, the grandmother of Sir Joseph Hooker, to whom I am deeply indebted for the kindest help in the attempt to recover details of Burchell's career. Only forty-nine copies were printed for private distribution, so that the etchings are extremely rare. The fine copy at Oxford (reproduced in Plate IV.) is in the collection of engraved portraits presented to the University by the Rev. F. W. Hope. The etching, made in the year after his return from the great African journey, brings back to us Burchell's features in the full vigour of manhood. The face is highly intellectual and indicative of strong purpose and resolution, yet singularly attractive, even winning. We see in it evidence of the ample fund of humour which led Burchell to appreciate and to describe many a quaint incongruity in his great 'Travels in the Interior of Southern Africa.'¹ In the drooping eyelids we probably see the result of four years' exposure to an African sun. Burchell himself records that this effect is produced in Bushmen.² His stature

¹ Several examples are quoted in the later pages of this paper. We sometimes recognize a touch like that of Charles Dickens, as in the following passage: 'A colonist . . . paid us a visit, and was invited to dinner; but as he preserved a most extraordinary taciturnity all the time, we learnt nothing from his company, except that he was a tall man in a great *jas* (watch coat), and ate mutton with a crooked knife.'—*Travels in the Interior of Southern Africa*, vol. i. p. 233.

² Vol. i. p. 459, footnote; vol. ii. p. 25.

was short and figure slight, as in many men who have done great deeds.¹

W. J. Burchell, the eldest son of Matthew Burchell, a well-to-do nurseryman at Fulham, was born about the year 1782.² The variety of his accurate observations in many

¹ A letter written by Burchell to his sister Caroline contains the following statement: 'My height is 5 feet 4, measuring very fairly: a string round my waist *under* my waistcoat measures 27 inches, so you may see I am not corpulent.' This letter, kindly lent to me by Mr. Francis A. Burchell, is dated July 14, 1809, from St. Helena, a year before Burchell sailed for South Africa, and when he was about twenty-seven years old.

² We now know that Burchell was born on July 23, although the year still remains uncertain. [Since these words were written the following evidence has come into my hands. Among the papers sent to me by Mr. Francis A. Burchell is a copy of some verses by W. J. Burchell, dated June 31 (*sic*), 1794. The writer, probably Miss Anna Burchell, has added '(age 12*)' to the initials 'W. J. B.' at the foot. If Burchell had been born in 1781 he would have been over twelve years and eleven months old on the quoted date. On the other hand, he would not have been actually twelve years old if born in 1782.] The discovery of his birthday was a direct result of the lecture in Cape Town, as will be seen in the following quotation from the *Proceedings of the Entomological Society of London* for March 7, 1906: 'Professor E. B. Poulton exhibited the original African journal written by W. J. Burchell between May 24 and September 2, 1812, both days inclusive. The account of this part of his journey occupied the whole of a small note-book bound in sheep-skin, and still in the most beautiful condition. In a lecture before the British Association at Cape Town, on August 17 of last year, Professor Poulton had mentioned the unfortunate loss of the journals in which Burchell recorded a general account of his doings during the five years (1810-15) in South Africa, and the five (1825-30) in Brazil. His classical work, *Travels in the Interior of Southern Africa*, does indeed give a complete record between November 26, 1810, and August 3, 1812, the day on which he brought to a conclusion his first visit to Litakun, the capital of the Bachapins, in what is now British Bechuanaland. Mr. S. Mason, headmaster of the Boys' High School at Rondebosch, near Cape Town, who was present at the lecture, told Professor Poulton that a former pupil of his, named Burchell, had brought to school [in Somerset East, Cape Colony] a diary written by an ancestor in St. Helena. Through Mr. Mason's kind help Professor Poulton was put into communication with Mr. Francis A. Burchell, a grand-nephew of the great explorer, who has most kindly lent the deeply interesting note-book now exhibited to the Society. At the place where Burchell's second volume comes to an end the words "end of the 2nd volume" are written in pencil in the margin. Beyond this point, one month of the lost records is here restored to us—from August 3 to September 2, 1812. Furthermore, even in the period covered by the published work there are many statements of the deepest interest to us which Burchell withheld. For the first time we are made acquainted with the day and month of his birth. It is believed—but there is no certainty—that he was born in the year 1782. July 23, 1812, was a day of great anxiety and trouble. Among his attendants was a man named Cornelis, of Hottentot and Dutch parentage. Cornelis had been unsatisfactory and useless from the day of his engagement, when he presented himself "in a state of complete intoxication," and now in the midst of the Bachapin capital, Litakun, then visited for the first time by a European, he broke out into open rebellion, and Burchell was compelled, buckling on his pistols and cutlars, personally to enforce obedience. The published account ends with the words: "Thus ended one of the most turbulent days which I had experienced since the commencement of my journey" (*Travels*, vol. ii, p. 462, London 1824). The manuscript journal, however, concludes the day with the following personal details,

branches of science, the facility with which he wrote Latin and French, as well as the admirable style of his English prose, prove that he received a splendid education; but of the details only a single one has been preserved.¹ His manuscript catalogue of South African insects is written on the blank sides of the pages of his French exercise book—the translation of a history of Greece, made in 1794, when he was about twelve years old. The upper right-hand corner of the first blank page bears the name ‘Burchell’ in a round hand and the date ‘7ber 15th, 1794,’ surrounded by a well-made flourish. On the right side of the heading, ‘Histoire de Grèce,’ which begins with ‘Chapitre cinquième,’ Burchell had written in the hand of his maturity ‘traduite de l’Anglois par W^m. J. Burchell en 1794.’ This inscription is of great interest, being one of many such indications of Burchell’s confidence that a historic interest would at some future time be attached to the details of his career.²

Some of his manuscript botanical notes, made in the opening years of the nineteenth century, are to be seen at Kew, where indeed the work itself had in part been done. These careful descriptions were an excellent preparation for the travels which were soon to begin.

In 1805, when he was about twenty-three, Burchell was appointed ‘Schoolmaster and acting Botanist’ at St. Helena by the East India Company. He remained in the island for five years, until his departure for Cape Town, in order to begin the

omitted from the second volume: “I continued in the waggon all the evening, and to divert my mind from the past I spent the remaining time with my flute.” “It thus has unfortunately happened that I have been prevented joining my family in their remembrances of me on this day, and that my birthday should be marked as one of the most turbulent days I have passed since landing on Africa. From the little dependence I can place on my own people my situation now begins to grow critical, and calls for the most resolute but prudent measures.”¹

¹ There is now abundant evidence in papers kindly lent to me by Mr. Francis A. Burchell that the great naturalist was educated at the Raleigh House Academy, Mitcham, Surrey. His exercise-book in calligraphy bears, on the first page, amid wonderful and beautifully executed flourishes, the name of the school and the date ‘Christmas, 1794.’ The names of the proprietors appear in Burchell’s St. Helena diary, where he speaks of meeting an old schoolfellow who was with him at ‘Day’s and Rowley’s.’

² See also p. 64. The same well-founded confidence in the value of his accurate and abundant observations breathes in the following words. Before starting from Klaarwater for the dangerous journey into the interior he states: ‘I put in order all my notes and memoranda, my lists and catalogues, my sketches and *journals*’: and at last reduced into an intelligible form, the mass of observations which had up to this date been accumulating. So that, in case of my death during the journey, they would, for the greater part, be found sufficiently clear to explain themselves. Thus, if my labors should prove of any value, I had now the satisfaction of knowing that they would not be entirely lost; though I might never live to explain them myself.’—January 26, 1812. *Travels*, vol. i. p. 523.

South African journey.¹ The romance of Burchell's life came to pass in St. Helena, and probably exerted immense indirect influence upon his whole life, explaining much that is difficult to understand, and especially the sad, hard-working, secretive years which followed the return from Brazil in 1830—years which left so much to the world but brought so little honour to the worker. His father had disapproved of Burchell's engagement to a lady in Fulham, and had, perhaps, obtained the appointment in St. Helena, hoping that everything might be forgotten. But the two still corresponded, and Burchell persuaded the lady to come out and join him in the island.² During the voyage someone on the ship—it is said the captain³—paid attention to her, and she gave up the man for whom the voyage had been undertaken. That Burchell was already a keen naturalist and collector the botanical notes at Kew and the collection of British insects at Oxford afford tangible proofs. It is probable that as the first terrible shock passed into a haunting sorrow he was driven into his favourite study and away from the companionship of his fellow-men by a new impulse—the hope of consolation or at least oblivion. It is probable that he became one of those of whom Matthew Arnold has written :—

Fly hence, poor wretch, whoe'er thou art,
 Condemned to cast about,
 All shipwreck in thy own weak heart,
 For comfort from without!

Natural history pursued in this spirit, especially when habits become fixed and deepened with advancing age, and when other sorrows and disappointments are endured, is only too likely to lead to the life of the recluse, labouring for long solitary years at his collections and jealously guarding them from the sight of others. Such effects were wrought in Burchell, and the primary cause is probably to be found in the bitter disappointment of his youth acting upon an intensely

¹ Among the papers lent to me is Burchell's St. Helena Journal. It is much mutilated, evidently by his own hand. Under the date December 13, 1807, he wrote: 'On this day *two*! years I landed at St. Helena.'

² This statement is inaccurate; the true account is given in the following note.

³ I find, from letters kindly lent me by Mr. Francis A. Burchell, and information courteously supplied to me by the India Office, that this statement is correct. It was Captain Luke Dodds, of the 'Walmer Castle,' reaching St. Helena on April 17, 1808, who supplanted Burchell. The lady was Miss Lucia Green, of Fulham. Burchell's father and mother had both disapproved of the engagement, but ultimately relented, and Matthew Burchell with another became bound to the East India Company for Miss Green in the sum of £200. The bond, which is dated November 18, 1807, exists in the India Office.

sensitive sympathetic personality. The man had been deeply wounded in his most vulnerable part.

It seems likely that Burchell was thinking of his own sad experience when he speaks (in vol. ii. p. 565) of the marriage customs of the Bachapin nation. So far as he could ascertain 'there were scarcely a dozen men among the whole tribe, who were not married,' and this, he maintained, only appears extraordinary to the native of a civilized country, 'where the artificial state of society renders that union an affair of the head rather than of the heart, and where calculating prudence often steps forward to forbid it altogether. . . . On this point the savage stands superior, and here he seems, according to the law of Nature, wiser than the polished inhabitant of a more civilized land.'

During the five years in St. Helena, Burchell collected both plants and insects. His Herbarium, with its manuscript notes and drawings, is at Kew; a few fragments of the insects came to Oxford in 1865; but it is probable that this collection was never large. The type of that wonderful island form, the large Carabid beetle, *Haplothorax burchelli*, is fortunately in very good condition, inasmuch as the Rev. F. W. Hope had, probably accidentally, retained the specimen in his well cared for collection.

Burchell was the only passenger in a ship which sailed from St. Helena and landed at Cape Town on November 26, 1810. From this date up to August 3, 1812, his laborious life, crowded with observation and discovery, and the cares of leadership under extraordinary difficulties, is admirably described in that great classic 'Travels in the Interior of Southern Africa,' of which the first volume appeared in 1822, the second in 1824.¹ The publishers, Messrs. Longmans, have kindly furnished me with some information concerning the production of this remarkable and invaluable work. The firm paid Burchell £1,500 for writing it, and he contributed the cost of ten woodcuts in the second volume. The plates and woodcuts cost nearly £500 in the first and over £250 in the second volume. The published price was 4½ guineas for each of the (quarto) volumes. It is not known whether the book was a financial success; but the sale was not so large as had been anticipated: for 750 copies of the first volume were followed, four years later, by only 500 of the second. The sums paid to the

¹ 'His narrative may be ranked among the classics of English travels, from its simple, vigorous, and truthful style, and its numerous illustrations, made with scrupulous fidelity on wood and stone by his own hands.'—Sir Roderick J. Murchison, *Anniv. Addr. to the Roy. Geol. Soc.*, May 25, 1863, p. cxxiv.

author and for the illustration of the work appear astonishing to us at the present day : yet they were expended as a fair business risk in the lean years following the Titanic struggle with Napoleon. This was before the dominion of the circulating library, at a time when the possession of books was a pride and pleasure to those who could afford to buy them. No second edition has appeared ; and inasmuch as the original issue has long been out of print and both difficult and costly to obtain, Burchell's splendid achievements and priceless records are very insufficiently known and appreciated.

A most interesting question arises as to why the work treats of less than half the time spent and the space traversed, ending abruptly with the close of Burchell's first visit to Litakun, the capital of the Bachapin nation, omitting all account of his ' furthest north ' at the Maadji Mountain and the Chué Spring, his first encounter with the giraffe and the elephant, and his discovery of the so-called ' white ' rhinoceros (*R. simus* of Burchell). A copy of his ' Travels,' generously presented to the Hope Department of the Oxford University Museum by Mr. J. W. Mansel Weale, throws interesting light upon this problem. It was Burchell's private copy, carefully corrected and annotated by his own hand—in all probability for a second edition which never appeared. In the first volume there are several references to parts of his journal beyond the point at which the second volume comes to an end—references worded so as to raise the expectation that a full account of the incident would appear in due course in a later part of the work. Such references have generally been struck out by the author himself in the Hope Department copy. It is evident that Burchell's first intention was to cover much more of the ground, perhaps the whole of it, but that his materials occupied more space than he anticipated and probably more than his publishers were willing to grant.

Up to the present time the manuscript journal of Burchell's African travels after August 3, 1812, has not been recovered,¹ and the same is unfortunately true of that dealing with the whole of his Brazilian journey (1825 to 1830). After his tragic death by his own hand in 1863, at the age of about eighty, his zoological collections and manuscripts were presented in 1865 by his sister to Oxford, his herbaria and botanical notes and drawings to Kew ; but of the remaining manuscript, drawings and notes almost nothing is known. We may still hope that they have not been destroyed. The missing journals and other

¹ The record of the first month after the departure from Litakun has now been discovered by Mr. Francis A. Burchell. See footnote 2, on p. 58.

manuscripts—together a very large amount—may still be lying unrecognized in the house of some member of the Burchell family or that of a descendant. Wherever it may be its recovery would be of inestimable value to science.¹

Burchell remained in Cape Town from November 26, 1810, to June 19, 1811, when he started on his great journey of 4,500 miles. During these seven months he was occupied in studying the South African and the Hottentot dialects of Dutch, in making collections, especially of plants, in engaging Hottentots and making other preparations for the journey. His home in Cape Town was under the hospitable roof of the Rev. C. H. F. Hesse, the Lutheran minister. He made short excursions to the summit of Table Mountain, to Constantia and Wynberg; and took one long ride (April 10 to 21, 1811) through Hottentot Holland, Zwarteborg, Genadendal, the Brandt Valley, Tulbagh, the Paarl and Stellenbosch. Some of the illustrations of Cape Town were drawn by Burchell during these months, others in 1815, after the return from his great journey. The eighth chapter is chiefly occupied with an excellent and detailed account of the construction and contents of Burchell's Cape wagon, and a description of the Hottentots he was able to engage for the journey. In spite of many inquiries and every effort he only secured the services of four, two of whom refused to travel beyond their homes at Klaarwater (the Hottentot Karrikamma, the modern Griquatown). By far the most interesting member of the group was Stoffel Speelman, a great hunter and naturalist, very efficient in collecting specimens of all kinds. His name occurs frequently not only in the published work but in the manuscript records. His wife, Hannah, was also a member of the party. Although a European 'very earnestly volunteered his services as . . . companion and assistant' Burchell considered it wiser to confine his party to the paid native attendants, of whom the number never at any time exceeded ten. He adhered to the same principle in his Brazilian travels. As Burchell watched his wagon start, he tells us, he little supposed 'that it would ever pass that castle again; or that, out of the whole party who were now to accompany it, I should be the only person to return with it.' From this we learn that the well-made wagon, which he had hoped and expected to take to the West Coast, successfully accomplished the four years' journey of 4,500 miles and returned

¹ These words were written before I knew of the great mass of valuable material traced by Mr. Francis A. Burchell, and the large number of deeply interesting drawings in the possession of the Rev. Evan Davies, of Springs, Transvaal. Up to the present time (October 1906), however, no African or Brazilian journal has been recovered other than that described in footnote 2, on p. 58.

safely to Cape Town. The oxen, the wagon and its contents had cost Burchell up to the day of his departure from Cape Town £600.

Among the articles packed in the wagon were more than fifty volumes, including Jussieu, 'Genera Plantarum,' ed. Usteri. This very copy was found on a bookstall by Mr. Edward M. Langley, of Bedford, who generously presented it to the Hope Department Library. It bears the following inscription :—

Hunc librum in itineribus suis
in Africa australi annis 1810 ad 1815
et in Brasilia annis 1825 ad 1830 semper
secum habuit Gulielm. Johan. Burchell.

The handwriting is that of Burchell's old age, with the ink still black and fresh, showing that it was written during the last years of his life. It affords further evidence of his conviction that he had done historic work. There can be little doubt that similar inscriptions were written in the other volumes mentioned in his eighth chapter (p. 165), and perhaps in all that he took.

In the list of articles given by Burchell are included 'the English Colors.' He tells us that outside the Colonial boundary the flag was hoisted every Sunday, and he speaks of the feelings with which he saw it waving above his head in the middle of an African town.¹ That such a symbol was not without its effect far beyond the Colony even 100 years ago is shown by the fact that Mollemmi, the brother of the Bachapin paramount chief, noticed that Burchell's flag in 1812 was the same as that brought in 1801, but different from that of 1805, during the retrocession to the Dutch.²

Not only this custom but many a statement in his writings proves that Burchell was an Englishman inspired with a patriotism all the more real because it had a place in a mind of peculiar sanity and breadth. 'An *Englishman*,' he says, 'who is dissatisfied with his own country, needs only to witness a lawless state of society and the mis-rule of many other nations, to make him turn with affection to his own, and forgive those errors to which all humanity and the wisest of men, are liable.'³

By constitution Burchell was eminently fitted to be an explorer. With but few exceptions he kept in vigorous health during both his great journeys, a result which in Africa he 'attributed in a great degree to the general dryness of the

¹ Vol. ii. p. 426.

² Vol. ii. p. 429.

³ Vol. ii. p. 281.

air.¹ Burchell possessed furthermore a rare qualification, but one that is essential to a great traveller, viz. well-nigh unlimited resource in unexpected difficulties. Thus when in taking an observation he accidentally spilt half the mercury on a surface of loose sand, he instantly made a hollow near the spot, placed a sheepskin in it and quickly scooped into the basin thus formed all the sand where the mercury had fallen. 'Then, by taking in a cup small quantities of this sand, and giving it a circular motion, at the same time blowing away the dust and lighter particles, the quicksilver was found clean at the bottom; and in this manner, persevering at every leisure moment for three whole days, I had the satisfaction, at last, to recover very nearly all that had been spilled.'²

We may safely infer from a sentence in his great work that, in spite of his numerous and changing body of attendants, no life was lost throughout the whole of his African travels.³

During these seven months in Cape Town there were three shocks of earthquake—a slight one on January 7, 1811, more severe ones on June 2 and on the morning of June 19, the day of Burchell's departure. Mr. Anderson, a Klaarwater missionary, arranged to accompany Burchell as far as this settlement, the two parties affording each other mutual support during the journey through the country of the Bushmen beyond the Zak River, the northern boundary of the Colony. The first woodcut (on p. 172) illustrating the journey, represents one of their night encampments, and shows Burchell sitting by the fire playing his flute, an instrument which was the solace of his travels in Brazil as well as in Africa. In Burchell's third Plate, representing the crossing of the Berg River on June 23, the author himself is seen standing on the shore, his drawing board (see vol. i. p. 336) in his hand, and his dog sitting by his side. He has similarly inserted a back view of the artist seated under an umbrella in the picture of Cape Town in his first Plate.

A little way beyond the Berg River on June 25 Burchell experienced the attitude of a Boer farmer towards the new (British) Government. It is best given in his own words: 'I walked to the house of *Piet Van der Merwe*, a neighbouring farmer, to inquire for a new pole for the waggon, and fortunately obtained one. He told my fellow-traveller [Mr. Anderson], that he had heard there was an Englishman on the road, who had general orders from government, authorizing him to demand such assistance as he might stand in need of, but he candidly confessed that had I made use of it on this

¹ Vol. i. p. 275.

² Vol. i. p. 230.

³ Vol. i., the last sentence on p. 477.

occasion, I should not have been able to persuade him to do anything, as he would in that case have pleaded a hurt in his hand, as an excuse for not lending us any help at the forge; but that, as I had asked it as a favor, he willingly sold me the pole, and would freely give his assistance.¹ This, however, is the only example of such an attitude recorded by Burchell. From time to time he met with churlishness, such as might have led a narrower man to make sweeping reflections upon a whole people. A good example of the fairness of his mind is to be seen in a passage referring to grossly inhospitable treatment received near Graaff Reinet: 'As the events of these travels are, without partiality or prejudice, related as they occurred, and the observations recorded faithfully in that light in which they appeared, I cannot allow the unfavorable qualities of an individual, to be adopted as the *general character* of the Dutch colonists, any more than I would admit selected examples of individual worthiness, to be taken as specimens of the whole colony. Of the latter, I know many: of the former, I wish that I knew none.'²

At Tulbagh, on June 27, he was joined by another Hottentot, Gert Roodezand, sent by the Moravian missionaries at Groene-Kloof; and on the 29th, at Winterhoek, he purchased a second much smaller wagon.

On July 24 Burchell wanted to buy a horse from Veldcornet Gerrit Snyman, in the Roggeveld, but declined when he found that three-fifths more than the usual price was required. However for eighteen sheep 'he was so conscientious as to lay on no more than an eighth, as the charge for my being an Englishman: this I thought very moderate for such a privilege.'³

Burchell first saw the ostrich in a wild state four hours' journey south-west of the Karroo Poort (July 9). On the 19th at Juk River, just beyond the Ongeluks River and near the Koedoes Mountains, he was overtaken by two 'tame Bushmen,' a chief and his companion, riding oxen. The chief carried as an ensign of authority a staff with an inscribed brass top. They belonged to a kraal just within the Colonial boundary, and had been the bearers of a letter to the landdrost of Tulbagh, requesting protection for themselves and the neighbouring farmers against an invading party of Kaffirs. Such recognition and successful co-operation was common in those days, and deepens the regret at the entire disappearance, from all but the most remote areas, of this primitive and intensely interesting people. This was Burchell's first acquaintance with

¹ Vol. i. p. 180.

² Vol. ii. p. 96.

³ Vol. i. pp. 239, 240.

a race which had been pictured to him 'in the most wretched colours.' So far, however, from finding them as he had been led to expect, 'without reason or intellect,' they seemed to him 'men of lively manners and understandings.' They did not wear the primitive dress unmodified; but on September 8, not far beyond the Colonial boundary, the wagons were visited by a party of eleven wild Bushmen and three women. Burchell's drawing of one of the women with her child at her back is represented in the woodcut on p. 322, vol. i., and this shows the primitive leathern clothing, consisting of a kaross, or cloak, and the fore-kaross in the form of an apron cut into thin strips. The hind-kaross, used as a cushion when sitting on the ground, is invisible in the front view depicted in the woodcut. Burchell observed that all the men were under 5 feet in height and the women still shorter. He was much struck with 'the proportional smallness and neatness of their hands and feet'—also recorded on other occasions as true of the Hottentots as well as the Bushmen.

On September 4, 1811, four days before meeting this last party of Bushmen, the footmarks of a lion were seen for the first time. Burchell was then a few miles beyond the borders of the Colony.

Burchell's chief wagon, the flock of sheep, the dogs and Hottentot attendants, backed by the remarkable series of flat-topped mountains of the Karreebergen, are well shown in the woodcut on p. 285 of vol. i. The drawing was made on September 11 as they were traversing a plain a few miles north of Carnarvon. The mountains shown in the figure were those on the left hand, but similar forms bounded the plain on their right.

Just beyond these mountains an incident occurred which Burchell treats with characteristic humour. On the night of September 12 they were in much need of water and were hurrying over an immense plain between the Karreebergen and the Orange River. Suddenly Burchell and his companions 'heard the cry of *Whoo-ah! Whoo-ah!* from several drivers in the rear.' Thinking of an attack by Bushmen or some wild beast, 'we,' to use Burchell's own words, 'ran back to their assistance with loaded guns in our hand; but our fears were soon relieved, on being told, as we approached, that it was nothing of this kind: and yet, the *accouchement* of one of the Hottentot ladies, was certainly an occurrence that happened very awkwardly just at this time, and in such a spot.'¹

At Zand Valley (Vlei), or Sand Pool, a few miles south-west

¹ Vol. i. p. 305.

of Prieska, Burchell made, on September 14, some observations which show how he appreciated the importance of the struggle for existence. He found a *Mesembryanthemum* (*M. turbini-forme*, now *M. truncatum*) and also a *Gryllus* (Acridian), closely resembling the pebbles with which their locality was strewn. He says of both of these, 'The intention of Nature, in these instances, seems to have been the same as when she gave to the Chameleon the power of accommodating its color, in a certain degree, to that of the object nearest to it; in order to compensate for the deficiency of its locomotive powers. By their form and color this insect may pass unobserved by those birds, which otherwise would soon extirpate a species so little able to elude its pursuers, and this juicy little *Mesembryanthemum* may generally escape the notice of cattle and wild animals.'¹ He here seems to miss; at least in part, the meaning of the relationship between the quiescence of the Acridian and its cryptic colouring. Quiescence is an essential element in the protective resemblance to a stone—probably even more indispensable than the details of the form and colouring. Although Burchell appears to overlook this point he fully recognized the community between protection by concealment and more aggressive modes of defence; for, in the passage quoted above, he specially refers to some earlier remarks on p. 226 of vol. i. We here find that when the oxen were resting by the Juk River, on July 19, Burchell observed '*Geranium spinosum*, with a fleshy stem and large white flowers . . . ; and a succulent species of *Pelargonium* . . . so well defended by the old panicles, grown to hard woody thorns, that no cattle could browse upon it.' He goes on to say, 'In this arid country, where every juicy vegetable would soon be eaten up by the wild animals, the Great Creating Power, with all-provident wisdom, has given to such plants either an acrid or poisonous juice, or sharp thorns, to preserve the species from annihilation . . .' All these modes of defence, especially adapted to a desert environment, have since been generally recognized and illustrated by many fresh examples, but Burchell was by a long way the first to observe the facts and establish the principle. Many instances are to be seen in the fine collection of Karroo plants at Kew, and Sir William Thiselton-Dyer has very kindly given me photographs of the most beautiful examples, taken expressly for this lecture.² It is fortunately possible to determine the species of

¹ Vol. i. pp. 310, 311.

² The lecture delivered in Cape Town on Thursday evening, August 17, 1905. These photographs have been since reproduced as Plates VII., VIII., and IX. accompanying Sir W. T. Thiselton-Dyer's *Morphological Notes*, xi.; *Protective Adaptations*, i.; *Annals of Botany*, vol. xx. pp. 123 *et seq.* The author well

'Gryllus' mentioned by Burchell. The Orthoptera of his African collection at Oxford are in very bad condition, and a large proportion have been entirely destroyed by moth or beetle. Among them No. 752 is, however, easily recognizable as the Acridian, *Methone anderssoni* of Stål, a species since known to be protected by its resemblance to stones. Referring to Burchell's manuscript catalogue of African insects we find that No. 752 was captured on September 14, 1811, at 'Zand Valley, near the Gariép,' so that there can be no doubt that we have here the actual specimen referred to by Burchell on pp. 310, 311 of the first volume of his work.

Burchell reached the Gariép (Orange River) on September 16, his 'Gariép Station' occupying the site of Prieska. On the following day he crossed the stream 9 miles higher up, at 'Shallow Ford,' where the water was at that time nowhere deeper than 2 feet 8 inches. After travelling northward throughout the night of the 18th he reached about sunrise

says of Burchell's remarks on *Meseembryanthemum turbiniforme (truncatum)*. 'Burchell was clearly on the track on which Darwin reached the goal. But the time had not come for emancipation from the old teleology. This, however, in no respect detracts from the merit or value of his work. For, as Huxley has pointed out (*Life and Letters*, vol. i. p. 457), the facts of the old teleology are immediately transferable to Darwinism, which simply supplies them with a natural in place of a supernatural explanation' (*l.c.* p. 124). In Plate ix. the author represents *Anacampseros papyracea*, and speaking of its protective resemblance says, 'At the risk of suggesting one perhaps somewhat far-fetched, I must confess that the aspect of the plant always calls to my mind the dejecta of some bird, and the more so owing to the whitening of the branches towards the tips' (*l.c.* p. 126). The student of insects, who is so familiar with this very form of protective resemblance in larvæ, pupæ, and even perfect insects, will not be inclined offhand to consider the suggestion far-fetched; and it is deeply interesting to learn that it was made, although never published, by Burchell himself.

In the journal kindly lent me by Mr. Francis A. Burchell the following account is found, under the date July 5, 1812, when Burchell was at the Makkwárin River, about half-way between the Kuruman River and Litakun:—

'I found a curious little *Crassula* (not in flower), so snow white, that I should never has [have] distinguished it from the white limestones, (amongst which I observe small pieces of black flint or feldspar imbedded). It was an inch high and a little branched, teres foliis squamoso-imbricatis and was at first mistaken for the dung of birds of the passerine order. I have often had occasion to remark that in stony plac[s] there grow many small succulent plants and abound insects (chiefly Grylli) which have exactly the same color as the ground and must for ever escape observation unless a person sit on the ground and observe very attentively.'

Burchell carefully marked with pencil those parts of his journal which he employed in writing his *Travels*. The words I have put in italics are thus shown to have been excluded, the others included. In the former we note the recognition of cryptic resemblance to birds' dung. The words before the two italicized sentences, and included in the second, were made use of in writing p. 333 of vol. ii., but the observation is recorded for July 8, 1812, and not the 5th, and an *Anacampseros* is spoken of as well as a *Crassula*. Reference to Burchell's African Herbarium at Kew will probably show which of these dates is the correct one. The last sentence above quoted is also utilized on p. 333, but the reference to 'stony places' and to 'Grylli' will be found in vol. i. p. 310, in part quoted on p. 68.

the Hottentot village of The Kloof, in the Asbestos Mountains. Although under the influence of the missionaries at Klaarwater, most of the Hottentots lived in the primitive hemispherical mat-huts, of which a group is well shown in the wood engraving on p. 323 of vol. i. Burchell states that these huts, in the form of an inverted basket, are quite peculiar to the Hottentots and Bushmen, and are well suited for their roving, pastoral life, inasmuch as one can be taken to pieces in an hour, and, with all utensils and the young children of a family, carried by a couple of oxen.

This was well illustrated a few months later, when, on February 18, 1812, Burchell met a party of Hottentots moving their habitations and all their goods from Klaarwater to the Asbestos Mountains. 'The whole family, with mats, sticks, utensils, and skins, packed all together on the backs of the oxen, and moving along with a steady pace, presented a curious group, which might have been fancied to bear some resemblance to the journeyings of the people of patriarchal days, notwithstanding the dignity, and splendid robes, with which modern painters have thought proper to invest them.'¹

After spending several days at The Kloof, Burchell travelled north-east, on September 29 and 30, reaching Klaarwater at night. A beautiful and detailed view of the settlement, looking north-east from a low rocky ridge which bounds it on the west, is given by Burchell in his Plate VIII. Mr. Anderson, the missionary already spoken of, had also asked Burchell to make him a drawing of the place. 'With this,' says Burchell, 'I readily complied, as he engaged expressly that it should not be sent to Europe before I arrived there myself, and that it should not, at all events be engraved from.' So far from this promise being kept, Burchell states in a footnote to p. 243, vol. ii., that on his return to Cape Town in 1815 the drawing had been sent to England, and 'had even made its way back again; and was recognised in the form of a print engraved to be the principal ornament of a book of Missionary Travels by a person who visited Klaarwater five months after I finally left it, and who so much admired this drawing, that he thought it worthy of being published as his own.' At the end of this footnote Burchell wrote in pencil in his corrected copy, 'Vide Frontispiece to *Campbell's Travels in South Africa*' (London 1815). The reference to the frontispiece is a mistake, for this is occupied by a gigantic representation of the worthy missionary under his umbrella against a background of Orange River scenery, strewn with diminutive oxen, wagons, Hottentots, huts and a giraffe. The plate engraved from Bur-

¹ Vol. i. p. 549.

chell's drawing (opposite p. 221) is, however, certainly the 'principal ornament' of the work. Comparing it carefully with Burchell's plate it is seen to be a view looking south-east, taken from a more northerly part of the same ridge, and one much nearer to the old church and foundations of the new building, which become far more prominent and central features. It bears the date of publication, January 16, 1814, and the name 'Griquatown Missionary Settlement beyond the Great River.' This unfortunate adoption of a modern uninteresting name is explained by Mr. Campbell, and was indeed, as his own account shows, promoted by him. The inhabitants of the village and surrounding districts, not being a pure race, were called 'Bastard Hottentots,' although Burchell speaks of them by the more euphonious and more accurate term 'Mixed Hottentots.' The offensive implication of the former word, Campbell tells us, was explained to those who bore it. In consequence of this information they determined to be called Griquas, because the majority of them were descended from a person of the name of Griqua.¹ This decision was confirmed at a meeting held at Klaarwater on August 7, 1813, when the unfortunate and unnecessary change was made in the name of the place.² It was not, however, by any means fully accepted for a long time; for Livingstone's map, dated 1857, gives the name Klaarwater. This illustrious man must of course have known of the change, but preferred to preserve the translation of the primitive name. Is it too much to hope that a return may be yet possible not indeed to Klaarwater, but to the original Hottentot Karrikamma? Other names invented by Campbell, and they are very numerous, have fortunately passed into oblivion. The most gross example was his attempt to give the name Alexander River to the Modder (now the Riet) and Cradock River to the Orange above the confluence of the Vaal. The spirit in which he approached the investigation of native names is sufficiently obvious in the following naïve remark: 'Of course they had no names for them, except that they spoke of this as the mud and the other as the black river.'³ Campbell's plates, when dependent on his own skill as an artist, are well exemplified in the one representing the two rivers.⁴ It may advantageously be compared with the plate copied without acknowledgment from Burchell. As to these and other unfortunately more successful attempts to impose modern names unnecessarily, it is much to be hoped, and, I believe, it is to be confidently expected, that the scientific spirit

¹ Campbell. *Travels in South Africa*, p. 349, London 1815.

² *L.c.* p. 351.

³ *L.c.* p. 342.

⁴ *L.c.* opposite p. 342.

which animated Burchell may have greater and more widespread influence in the future than it has had in the past. Upon this subject he says, 'The aboriginal Hottentot names ought, on no account, to be altered; they should, on the contrary, rather be sought for, and adopted, as being far more appropriate to Southern Africa, than a multitude of foolish names of modern imposition.'¹ And again, 'It is certainly bad taste to substitute, in any country, a modern or a foreign name, for one by which a place has been for ages known to its native inhabitants. I cannot consider myself as falling under this remark when, not having been able to learn the true name, I have been under the necessity of giving a *temporary* one to some of my stations, in order to note afterwards, more precisely, the spot where particular objects of natural history were found.'²

After remaining in Klaarwater till October 24, and finding that his oxen would require much more rest before they could resume the northward journey, Burchell hired another team and started to explore the junctions of the Modder (Riet) with the Vaal, and the Vaal with the Gariep (Orange). He was accompanied by three dogs, one of which, named 'Wantrouw,' he employed for the purpose of controversial attack. After a humorous history of the dog up to the point at which 'he offered himself . . . as comparative anatomist to the expedition,' Burchell continues, 'Wantrouw had prepared and cleaned a large collection of bones of rare quadrupeds, which would have been to any museum a valuable present. Or, to the great extension and benefit of science in England, they might have been deposited in the cellars of the British Museum, to receive the same honors with his master's skins. But as they would require no stuffing, and consequently would not put that establishment to any expense, it is very probable that the public would soon be gratified with the sight of them.'³ Then in a note he adds the facts concerning the neglect of the specimens he had presented. In the second volume (pp. 336, 337, footnote) he shows that neglect had produced its inevitable result—injury. A manuscript note of his visit to the British Museum on July 27, 1822, is fixed into his catalogue of African insects, and it includes a few unpublished details. *Antilope* (now *Dama-liscus*) *lunatus*, of which the skin was irretrievably damaged, was the type of the species and the only specimen obtained in the whole of the travels. It was shot by 'Juli' on July 9, 1812.⁴ Mr. Oldfield Thomas, F.R.S., informs me that the frontlet and horns are fortunately still in existence.

¹ Vol. i. p. 100.

² Vol. i. p. 286.

³ Vol. i. pp. 383, 384.

⁴ Vol. ii. p. 334.

These attacks were certainly just, and the British Museum authorities would now be the first to lament the neglect of their predecessors. But at the time much resentment was felt, and the name of the well known 'Burchell's zebra,' *Asinus burchellii*, was given in 1825 by J. E. Gray, Keeper of the Zoological Collections, in the successful effort to cause annoyance. The history of the name itself is of some interest and affords a good example of the difficulties which beset the path of the systematic naturalist. Burchell recognized three species of zebra—the quagga, the zebra of the plains, and the zebra of the mountains. Believing that Linnaeus had described as *Equus zebra* the zebra of the plains, Burchell pointed out the differences between it and the mountain species, which he named *Equus montanus*.¹ It ultimately appeared, however, that Linnæus had described this latter form; consequently *Equus montanus* became a synonym of *Equus zebra*, while the species of the plains was left without a name until described as *Asinus* (later *Equus*) *burchellii* by J. E. Gray. The 'irony of fate' has willed it that a name given in insult should have become the popular title to fame of this great but insufficiently appreciated naturalist.

Wantrouw was also employed in another and entirely different attack arising out of a subject of high importance in the history of South Africa. Just before the close of the session of Parliament in 1819 Burchell was asked to give evidence before a committee of the House of Commons on 'the question of emigration as a relief to the distressing increase of pauperism from want of employment.'² In his evidence, which occupied three hours, Burchell maintained that there was abundant room for the establishment of an English settlement in the Grahamstown district, and that further extension could be gained, if necessary, by purchasing land to the east from the Kaffirs, and beyond the northern boundary of Cape Colony. The Committee reported in a few days, and the House granted £50,000 to convey the new settlers. Thus Burchell's advice played an important part in the development of a dominant English element in this part of the Colony. In August of the same year he published his views on the subject in a pamphlet entitled 'Hints on Emigration to the Cape of Good Hope.' This memoir was grossly misrepresented and savagely attacked by Barrow—afterwards Sir John Barrow—in the 'Quarterly Review' for the following November. Burchell replied in a sheet of four pages bound into the first volume of his 'Southern Africa.' He also takes the opportunity of attack-

¹ Vol. i. p. 139.

² P. 1 of the four-page sheet bound at the end of vol. i.

ing Barrow's 'Travels in South Africa' at several places in the body of the work; and here in this mock account of his dog he suggests that Wantrouw's adventures would make a good thick quarto, 'if dished up in good language, by some writer acquainted with the art of book-making . . . ; at the same time taking care to have it properly recommended in the "Quarterly Review."' It is to be noted here that the 'Quarterly' Reviewer who attacked Burchell's pamphlet always spoke very highly of Barrow's 'Travels.' 'Although *Wantrouw* had not the least notion of drawing, yet a few aquatinta plates, or lithographic prints, should, by all means, be inserted; these, his publisher could easily get designed by some artist, who must be told to take especial care that the words *Wantrouw delineavit*, or, *From a sketch, by Wantrouw, Esq.*, appear conspicuous at the bottom corner. Such a work, if rightly and humbly dedicated, and well advertised, would be sure to sell.'¹ I think there is little doubt that Burchell was struck with the humorous inappropriateness of the name Barrow, or Bar-row, for one who made so unprovoked an attack. Wantrouw, or Want-row, seemed much more suitable. In justice to Barrow it must be pointed out that his plates, although not his own, are certainly not passed off as his own. In following such mutual recriminations we must remember that it was an age of embittered and not too scrupulous controversy.

Starting on October 24 Burchell returned to Klaarwater on November 19. The woodcut on p. 381 of vol. i. shows his wagon flying the British flag on the north bank of the Ky-Gariiep (Vaal), just above its junction with the Nu-Gariiep (Orange River). Burchell himself is seen distributing presents to a party of Bushmen who visited him. After staying here a couple of days (October 26 and 27) he moved up the north bank of the Vaal until opposite to the Maap or Modder River, now unfortunately known on the Government maps by the name of its southern tributary, the Riet. Burchell's account is confirmed by the quotation already made from Campbell and by Moffat's map, dated 1842. It is greatly to be hoped that the original name may be restored; and the Riet restricted to the branch from the south which unites at Modder River Station. Three hippopotami were shot in the Vaal above the junction of the Modder, and Burchell made a drawing of the head, and secured a quantity of dried meat. He never crossed to the southern shore on this excursion. He then returned and remained several days at his old camp opposite the mouth of the Modder, and on November 13 started on the return journey by a more

¹ Vol. i. p. 384.

northerly route, passing through Groote Fontein (now Campbell), where he stayed a few days, and then travelled to Klaarwater. On this expedition he greatly increased his knowledge of the wild Bushmen and Bushwomen, and had an opportunity of hearing the gorah and of making a drawing of the performer.

On the return journey Burchell mistook the termitaria, shown in the woodcut on p. 446, vol. i., for anthills, and drew a fragment of one of them with a true ant upon it (p. 449), as if it had been the builder instead of an intruder. Such a mistake was probably common at the time, and even at the present day termites are called 'white ants.'

On the morning of November 21 Gert's right hand was blown to pieces by the bursting of a gun he had fired to drive the crows from the stock of dried meat. In treating it, Burchell paid strict attention to cleanliness, and undesignedly adopted antiseptic methods so far as they could be carried out under the circumstances. In the end he was able to say, 'I saw reason for rejoicing that I possessed neither the instruments nor the skill of a surgeon; for, otherwise my poor Hottentot would have been all the remainder of his life with a useless stump, instead of half a hand.'¹ The whole story, which he gives in detail for the benefit of other travellers, is an admirable instance of resource under unfavourable conditions. Gert's watching and injury were all to no purpose, for the large stock of dried meat was begged and stolen by the Klaarwater Hottentots within four days of Burchell's return.

The excessive dryness of the air at Klaarwater was forcibly brought to Burchell's attention on December 7, when the upper joint of his flute split with a sudden crack.

Burchell had confided to the missionaries his intention of travelling far north of Litakun; and he began to be aware at the end of the year 1811 that the Hottentots of the settlement were being influenced, so as to prevent them from accepting any positive engagement to accompany him. They had been told that Burchell intended to take the same route as the disastrous expedition under Dr. Cowan and Captain Donovan, which started for Mozambique from Cape Town in September 1808, reached the river Molappo on December 24, but had not since been heard of. Burchell therefore caused it to be widely known that he should not run into any obvious danger and would turn back in the face of evident risk; furthermore, that he had no intention of following the track of these unfortunate travellers. It has been already pointed out that he desired to go north-west and not north-east. Burchell also appealed to

¹ Vol. i. p. 481.

the missionaries, without success. They were not unnaturally influenced by the fact that they had permitted two of the Klaarwater Hottentots to accompany Dr. Cowan's expedition. By the end of January 1812 Gert had entirely recovered and the oxen were in a very satisfactory condition. Furthermore, five Klaarwater men had agreed to go with him, including Muchunka, a Bachapin who would act as interpreter. With his own three Hottentots this would make eight, an insufficient number, but one which he hoped to increase as he proceeded. At the beginning of February, however, an unfounded rumour that 'Africaaner' (or 'Africaander'), a noted Hottentot brigand, was lying in wait for Burchell, caused the missionaries to use every effort to prevent his journey to the north. They told him that not one of the Klaarwater men would proceed beyond Litakun, and this Burchell found to be only too true. He then thought of sending Gert to Cape Town to hire men. Several times the idea of travelling there himself for the same purpose presented itself; but finally, on February 5, he fixed on the village of Graaff Reinet¹ as being much nearer to Klaarwater, although separated from it by an unknown tract of country inhabited by Bushmen. Here, however, he again encountered the strong opposition of the missionaries, who did not want a road to be opened in that direction, and, evidently under their influence, a number of men who had consented to accompany him withdrew from their agreements. Burchell now perceived that he would never succeed in getting men at Klaarwater, and he therefore paid a secret visit (February 15) to the outlying village of The Kloof, and obtained the services of two men—Cobus Berends, an old Hottentot, apparently about seventy, and Ruiter, who, being a half-Bushman, was valuable as an interpreter. Two more Hottentots had been obtained from Grootedoorn, where the oxen were recruited, and these brought with them a Bushman and a half-Hottentot named Daniel Kaffer, who were added to the party. Thus Burchell started on February 24, 1812, to open up the new road with six men, in addition to his two former attendants, Speelman and Philip. Gert and Hannah were left to take care of the wagons, as the party were travelling with pack-oxen, riding-oxen, and, for Burchell himself, a horse, kindly lent by the missionary Mr. Jansz, when he saw that nothing would prevent the journey. Burchell took his wagon as far as the Gariep, and on the eve of their crossing Gert begged in the name of the rest that they might hear a last performance on the flute. Burchell, who was not taking the instrument beyond the river, readily consented, and he tells us

¹ Spelt Graaffreynét by Burchell.

that he never before felt so satisfied and proud of his own performance. The following morning, February 27, they constructed rafts and crossed at the spot ¹ forded by Dr. Cowan's ill-fated expedition. They required the help of a kraal of mixed Hottentots living near the river, and three passages were necessary. After the first was completed, and the party and goods divided, these men demanded payment in gunpowder, which Burchell could ill spare, but was compelled to give. On the next day the party moved west to the kraal of a Bushman named Riizo, where they stayed the night. Riizo himself was absent, but Burchell, having left a message to urge him to join them, started south for the Brak River (February 29, 1812). The next day Riizo overtook them, accompanied by Kaabi, the chief of a large Bushmen's Kraal lying in the direction Burchell proposed to take. Kaabi also brought three Bushmen and three Bushwomen, including his wife. The latter and one of the other women each carried an infant at her back. By March 2 the party had passed the furthest point known to the Klaarwater Hottentots. The journey was undertaken with a minimum of baggage—viz. watch coats, guns and ammunition, a hatchet, a small tin pot, a tea-kettle, a bag of biscuits, five sheep, and tobacco to give the Bushmen. For Burchell's own use were added three small ² blankets, an umbrella, one tin box holding papers, journal, sketches, compass, &c., and another with a change of linen and medicines. Their stock of food was increased by finding an ostrich's nest with twenty-five eggs, and nine more in the trench outside. The course lay S.S.E., following the direction of the Brak River, which was crossed several times and finally quitted on March 14. Three days later they recognized by the remains of an old cattle station that they had entered the northern boundary of the Colony. At three different points near the Brak River Burchell visited the kraals of Bushmen, whom he made happy with presents of tobacco and meat. At all he was received in the most friendly spirit, and admitted freely and intimately into the life of the kraal.³ Hence his records of this wild and timid people are of the utmost value. At two kraals he witnessed dancing to a vocal accompaniment and the beating of the water drum. Burchell owed these unrivalled opportunities not only to his

¹ Near Lauyon Vale, many miles above and north-east of Shallow Ford.

² 'Small' added in pencil by Burchell to the amended copy.

³ 'It was to them . . . gratifying to behold a white-man in the midst of their dwellings, unarmed and unprotected, trusting with unbounded confidence to their good faith, showing respect to their prejudices and customs, and, pleased with his new friends, entering, as one of their own tribe, familiarly into their society' (vol. ii. p. 62).

own unique personality and the power of presents, but also to the wise idea of taking with him Bushmen who were known over the track he proposed to pass. These men explained to others of the race that Burchell came with friendly intentions and that he was not one of the dreaded Dutch colonists. At Kaabi's, the largest kraal, Burchell consented to hunt some rhinoceroses which had been seen in the neighbourhood, and Speelman succeeded in shooting two. His excellent account of their habits and the dangers of hunting them is recorded by Burchell.¹ After drawings were made (pp. 46 and 79 of vol. ii.) nearly the whole of the meat was given to the Bushmen. Riizo, although in charge of an outlying kraal by the Gariep, in reality belonged to Kaabi's kraal, and was told by his chief to go on with Burchell until he had seen him safe in the country of the white men—clear evidence of their care for his safety in travelling through their country. The chief of the kraal nearest to Graaff Reinet also ordered an old man and his son to accompany Burchell, but in this case he was promised that they might carry back a share of any animals shot on the journey. The latter chief and Kaabi each presented a goat prepared for cooking. With these exceptions and the food already mentioned the party depended entirely on their guns and a haartebeest partially devoured by Carnivora. At the halting-place beyond the last kraal it was considered that the journey was half over and the name 'Halfway Spring' was given. It lies on the Brak River, a few miles west of De Aar Junction. Just within the boundary of the Colony the party passed the Table Mountain to the north of Richmond, shown in the woodcut on p. 104, vol. ii. At the foot was a Boer's farm, where they met with a very churlish reception, and as they resumed their journey saw the farmer drive off to report them to the veld-cornet. Here Riizo and the old Bushman left them; but the latter feared to take his son, lest he should be seized as a slave by the Boer, and begged Burchell to take care of him and bring him back. They were very kindly and hospitably received at the two following farms, beyond which an upper reach of the Sea Cow River was crossed and recrossed, and the ascent of the Sneeuwberg begun. On their left lay the lofty Spitskop, 'very unnecessarily,' as Burchell says, 'renamed Compasberg.' A striking little view of the peak as they saw it towering over the intervening mountains is seen in the woodcut on p. 185 (vol. ii.). They crossed the watershed on March 21, 1812, passing a rivulet which Burchell 'considered as the highest source of the *Sunday River*.'² After being again kindly received at a

¹ Vol. ii. pp. 72, 73.

² *Ibid.* p. 125.

farm they travelled on into a mist which grew colder and colder until they could go no further. The Bushboy appeared to be dying of cold, but was revived by a dose of liquor ammonia and a fire which they managed to make in spite of the rain. If he had died on their hands it would have been too dangerous for them to return by the same route. Similarly every time Burchell drew a portrait he was incurring great risk; for if anything had afterwards happened to the sitter it would have been thought that he had been the victim of magic. After a miserable night—the coldest experienced by Burchell throughout his African travels—they descended and reached a warmer level. At the foot of the steep descent they found a ruined hut, where Burchell succumbed (March 23) to an attack of influenza, a malady which, as he afterwards learnt, had just raged in Cape Colony. Dr. F. A. Dixey, who has made a special study of the early epidemics of this illness, has kindly studied Burchell's account of the symptoms, and is satisfied that the illness was the influenza with which we have had a too familiar experience since 1889. While he lay ill in the hut Burchell was visited by three armed burghers, with orders to bring him to the landdrost at Graaff Reinet, 10 miles distant. He of course refused to move; and before the burghers left, there arrived the surgeon of the 21st Light Dragoons with the son of the late landdrost. They had come thinking that the unknown Englishman might be a survivor from Dr. Cowan's expedition. They told Burchell that the rumours of his approach had for many days thrown the village into alarm, that the guard and night watch had been doubled, and numbers remained under arms in hourly expectation of an attack. 'The current report was, that three hundred of the Klaarwater Hottentots, under the command of a white-man, were marching to attack the colony, taking advantage of the favorable moment when so many boors were absent from their homes¹ . . . fighting the Kaffirs. After other kind visits Burchell felt well enough on the morning of March 25 to drive from 'a spot which,' as he says, 'for some moments during my illness, I thought it possible I might never quit again.'² Mr. Kicherer, the clergyman of the village, for whom Burchell carried letters from the Klaarwater missionaries, took a very different view from that of his correspondents, and wondered at their objections to Burchell opening a road to Graaff Reinet, 'which he considered as an important discovery and highly advantageous for the missionaries themselves.'³

The Bushboy was terrified at the number of strangers and fled, causing further anxiety; but the eight members of the

¹ Vol. ii. p. 126.

² *L.c.* p. 137.

³ *L.c.* p. 138.

original party arrived in the evening. In a few days the whole of them were seized with influenza, which, however, was only severe in the case of the old man.

The story of this expedition has been treated at some length, because it is probable that the dangers of the unknown country of the Bushmen were much greater than those of any other part of the published journey. Although Burchell's Hottentots were in abject fear at Litakun, the capital of the Bachapins, it is not probable that they were in any danger.

As soon as they recovered from the influenza, Burchell's Hottentots proceeded to turn their shamboks into money and the money into brandy; but even when intoxicated 'they generally exhibited a goodness of disposition which,' Burchell says, he should 'always think, belongs naturally to the Hottentot character.'¹ This, however, was not sufficient protection for the money of old Cobus, which, 'being usually kept in his hat, had been stolen away, while he lay in a state of insensibility, or, as he more delicately called it, sleep.'²

Old Hans and Speelman, who were most eager to help their master in the difficult task of getting men, came into Burchell's room one day to tell him of a Hottentot whom they expected to persuade to join the party. In Burchell's words 'their solicitude for the interest of my journey, and their repeated declaration that they were ready to do anything to serve me, left nothing further for me to wish, but that they were sober.'³

In Burchell's account of his experiences in Graaff Reinet we meet with one of those tantalizing references—and in this case an exciting one—to a later and now missing journal. Old Daniel, or Daniel Kaffir, kept himself as far as possible out of sight during their stay in the village, and it is evident, from the following quotation, that he was an atrocious murderer, who was afraid of being recognized: 'I reserve the horrid story for that part of my journal to which it properly belongs; but I cannot without shuddering, reflect how often my life has been in his hands. . . .'⁴

Burchell soon found that the attainment of the object of his journey was attended with much difficulty at Graaff Reinet, owing to the recent murder of the landdrost by Kaffirs and the extraordinary demand for Hottentot labour created by the war, together with the ordinary great necessities of the farms. Much time was lost in communications between authorities, of whom the commandant on the frontier was chief, and Burchell was compelled to remain over a month, viz. from March 25

¹ Vol. ii. p. 152.

² *L.c.* p. 152.

³ *L.c.* p. 152.

⁴ *L.c.* p. 153.

to April 28. Following Mr. Kicherer's advice, he engaged two Christian half-Hottentots, Cornelis and Jan Van Roye, the latter of whom had been taken to Europe about 1803 as a specimen of missionary conversion. Both had now given way to drink, but it was thought that in the absence of opportunity they would be valuable servants. The landdrost also told Burchell that he had found five Hottentots for him, but others in the village stated that they were all, 'excepting one, known for incorrigible scoundrels, and the refuse of the *tronk* [or jail] *Hottentots*.'¹ Someone in the village is said to have 'remarked that such men were good enough for the Englishman, as neither he, nor they, would ever return alive.'² Burchell's people were also often called 'the Englishman's *dood volk* (dead men).'³ Burchell therefore took advice and selected five other trustworthy 'tronk Hottentots'; for the jail was used as a convenient receptacle for the deserving as well as the worthless. The landdrost replied that all his selections were trustworthy, while the later list contained 'some of the greatest scoundrels in the district.'⁴ However in the end only one of the latter consented to go, a mixed Hottentot named Jüli, who became the most faithful and valuable of all Burchell's men. Another Hottentot, named Platje, joined the party. He was in the service of a butcher, who made an unsuccessful attempt to detain him. The landdrost similarly made an effort to retain Juli, because he was a good wagon-driver. The numbers were made up by taking three of the first set of 'tronk Hottentots,' Keyser, Stuurman, and Andries.

On the return journey, begun April 28, Burchell left his former track at the ruined hut, and occupied a few days in making a wide détour to the left or west, thus taking the opportunity of observing another part of the Sneeuwberg. At first he was driven by a kindly and generous Boer in a paardewagen with six horses, the pace being far too rapid to suit his powers of observation, and later in an ox-wagon. He regained his old track on May 2, at the nearest point to Spitskop, and a little further on found the whole of his party awaiting him. Here too he was delighted to find his little runaway, the Bushboy, who had been recognized as one of the party by a Boer and kindly cared for until Burchell's return. The party had been increased by several others, but none were permitted to remain except Truij, Juli's wife, with her baby. She was a genuine Hottentot, who ultimately rendered the utmost assistance, although the record of her faithful service is unfortunately contained in the missing journal. What Burchell thought of her

¹ *L.c.* p. 158.² *L.c.* p. 159.³ *Ibid.*⁴ *L.c.* p. 160.

is sufficiently shown in the following sentence: 'I should do this good creature injustice, if I did not declare that it is not in my power to point out a fault in her character.'¹

Fifteen sheep which had been generously given to Burchell for the return journey had already been reduced to thirteen. Before proceeding onwards he purchased three horses and a musket of Herholdt, the hospitable Boer at whose house he met his men and stayed the night. His party 'consisted of fifteen men, one woman and her child, four horses, eight oxen, thirteen sheep, nineteen dogs, besides two puppies of an excellent breed.'² They travelled rapidly, and on May 8 the Bushboy was restored to his father and the whole kraal made happy with tobacco. The next day they encountered a lion, which killed two of their dogs, but moved quietly away when he had received a shot in the side. On May 13 they revisited Kaabi, who had in the meantime moved his kraal several miles northward, and had suddenly come into possession of large herds of cattle—undoubtedly stolen, in Burchell's opinion. They were compelled to camp for the night when travelling towards and within a few miles of Kaabi's kraal, and the Bushmen 'made, upon the heights, three fires at the distance of about sixty yards apart, and forming an equilateral triangle,'³ a private signal that the party was approaching or that it was friendly and must not be attacked. Nearly the whole of Kaabi's people, including Riizo, came out next morning and conducted them to the kraal, where there was the usual distribution of tobacco, and at night more dancing. Kaabi promised to lend four pack-oxen to take the place of some with backs galled by their loads, but difficulties were now raised by some of the principal people of the kraal. Certain members of Burchell's party were recognized and regarded as spies; and now that their new position was known the whole kraal had determined to move again on the day following Burchell's departure, and therefore required the oxen for their own use. A vehement dispute between Kaabi and a grey-headed elder finally ended with the loan of only two oxen to Burchell. In the journey north-westward they were visited by the Bushmen of 'Poverty Kraal,' who were made happy with tobacco. On May 19 the party reached the Gariep, at 'Oxford,' just above Riizo's kraal. They were making rafts to cross next day, when information arrived that a much shallower ford, named 'Engelsche Drift,' existed rather higher up. Here a dangerous crossing was effected on the 21st and 22nd.

Important intelligence awaited Burchell on the northern side of the river; for he now heard of the death of Mulihában,

¹ Vol. ii. p. 181.

² Vol. ii. p. 183.

³ Vol. ii. p. 196.

the chief of the Bachapins, the nation he intended next to visit. At sunset, on May 22, they entered The Kloof village, where old Cobus and Ruiters remained, and the two Groote-doorn Hottentots, with Daniel Kaffir and the Bushman, Nieuwveld, left for their homes. Burchell reached Klaarwater at 4 P.M. on May 24, and Mr. Anderson coldly received the man for whom he had predicted almost certain death, with 'So you're come back again,'¹ and neither he nor the other missionaries ever asked a question about the journey.

It had been unfortunate for Burchell that Klaarwater was at that time under the control—and, being far outside the Colony, entirely under the control—of narrow-minded men, with no sympathy for the great objects of the scientific explorer. The sort of teaching they imparted is well shown by Juli's question, asked in all seriousness and concern, 'whether it was really sinful to dance, or to play on the fiddle; for, said he, the missionaries tell us that such things are an abomination to God, and that a *fiddle* is Satan's own instrument!' Burchell had himself heard similar opinions from the pulpit at Klaarwater, and he truly remarks, 'If such fanaticism and folly is to be called preaching the Gospel, I much fear that the savages will have reason for thinking, in compassion to our ignorance, that it will be *their* duty to send missionaries among *us*, to lead us out of *our* darkness.'²

Such men as Campbell and the Klaarwater missionaries stand in strong contrast with their successors; for Klaarwater and the Bachapin (Bechuana) nation were destined to receive at no distant date two of the greatest men ever sent out from Great Britain—Moffat and his still more illustrious son-in-law Livingstone.

The oxen now appeared to be in excellent condition, and Burchell hoped to spend no more than a week in Klaarwater; but it was June 6 before he was able to start. Among other annoyances, which seemed inseparable from Klaarwater, a Hottentot, Cupido Kok, to whom Burchell had lent his great 'rifle-gun' for the period of his absence, had taken it on to Litakun. Furthermore gunpowder was valuable at this distance from Cape Town, and Burchell's men 'never reported having missed aim, so often as when we were in the neighbourhood of the Klaarwater Hottentots.'³ The two women were left at Groote-doorn, and the collections and drawings with Mr. Kramer.

Burchell's party collected at Ongeluks Fontein, the second station beyond Klaarwater, consisted of ten Hottentots and one

¹ Vol. ii. p. 223.

² Vol. ii. p. 288..

³ Vol. ii. p. 224.

Bachapin interpreter, named Muchunka, the only man engaged at Klaarwater. Fortunately for Burchell 'he was a man not much wanted, and of no particular importance to the settlement.'¹ They also took about twenty-five dogs of various kinds. On June 16, travelling towards Bloem's Fountain (on the Groen-Water River), Burchell, with intense interest, saw for the first time the footprints of the giraffe. He did not, however, meet the animal itself until October 3, 1812, two months after the date at which his published travels come to an end. A few miles beyond Bloem's Fountain he arrived at Blink-Klip (in Bachapin Sensaván), and examined the workings of an iron ore used by many tribes under the name of sibilo to adorn the body. On June 21, at Kosi Fountain, a little south of the Kuruman Hills, Speelman shot a new species of antelope, described by Burchell as *Antilope taurina*, the Brindled Gnu, or Bluc Hartebeest. Four others were obtained in the course of the travels and a skin presented to the British Museum. On June 28 the party entered the pass through the Kamhánni Mountains (Kuruman Hills), forming the neutral ground between the Bushmen on the south and the Bachapins on the north.

On entering the territory of this new nation Burchell, with the aid of his interpreter, began to study the language systematically, and some of his main conclusions are given in vol. ii. pp. 296 and 581-585, as also of the language of the Koras on pp. 252-255. It is expressly stated that the whole of Burchell's notes on the language, including a dictionary, could not be included for want of space.² These, therefore, are among the contents of the missing manuscript.

On the great plains south-west of Litakun, at the Makkwarin River, Burchell, on July 6, shot a single specimen out of a crowd of vultures devouring one of his dogs which had died. The contemplation of the bird and its place in the economy of Nature suggested to him very interesting and advanced reflections on the cycle through which organic matter passes. 'Organized matter . . . has been destined to be common property, and to circulate through the whole system of living objects. By this circulation, it passes from one to the other, in increasing support of vitality; proceeding and returning, sometimes in a wider and sometimes in a smaller circle, through an endless succession of periods.' 'Vegetables . . . are the first producers of organization; animals, the destroyers of it. It is evidently the law of Nature, that matter once made capable of life, shall never cease from the same duty; and it is equally so, that animal bodies shall receive no nutriment but from organized substances. From

¹ Vol. ii. pp. 242, 243.

² Vol. ii. pp. 293, 295.

this it follows, that in one body life must cease or be destroyed, before another can obtain that species of food which its conformation renders necessary. . . . Thus we see, throughout the whole system of Nature, all things connected together, and necessary to each other's existence ; useful in life, and usful in death.' ¹

We here see the full recognition of the great antithetical and complementary positions of the plant and animal kingdoms, and can only criticize in the light of modern knowledge the too sweeping statement that 'matter once made capable of life shall *never* cease from the same duty.' Burchell saw plainly the passage of organic substance from plant to animal, and from animal to animal, but he does not seem to be equally clear about the conditions on the other side of the mighty circumference, where matter once made capable of animal life must cease from this duty before it can pass back into the vegetable world.²

On July 9 the only specimen of the *Sassaby* (*Antelope lunata* of Burchell) obtained on the travels was shot by Juli. It was found on the Great Plains of Litakun at the station on the Makkwarin River (Matlowing River), where they remained several days.

Burchell entered the town of Litakun on July 13. He justly remarks that this people had not yet arrived at that degree of civilization which is marked by permanently fixed abodes, but that they approached it very nearly.³ The want of permanence is particularly well illustrated by the history of the Bachapin capital during the lifetime of a single chief—Mattivi. Mattivi (Mothibi, according to Moffat) was born about 1770 at Nokannin, his father's (Mulihában's) chief town, several days' journey south-west of the site of Kuruman. In 1801 the capital, when visited by a large party from Cape Town, was found at Old Litakun, at a little distance in a north-west direction from the town entered by Burchell. He passed its ruins on September 27, 1812, and they are shown in his map. Owing to a quarrel in consequence of Mulihában taking one of the wives of Makkráki, an important Bachapin chief, another movement of the capital took place in 1802. Makkráki, followed by more than half the inhabitants, went several days' journey to the north-east, while Mulihában established his chief town three days' journey to the south-south-west on the Kuruman River. Before this division Old Litakun was twice the size of the town

¹ Vol. ii. pp. 327, 328.

² Burchell certainly recognized these conditions in part, for he states that most vegetables 'are observed to grow more luxuriantly in earth impregnated with animal juices, or with disorganized animal particles. . . .'—Vol. ii. p. 327.

³ Vol. ii. p. 305.

visited by Burchell. The latter was estimated by him to contain about 5,000 inhabitants,¹ with as many more at outlying cattle-stations. Kuruman Town was visited by Dr. Lichtenstein's party in 1805. Its ruins lay two miles north of Burchell's 'Kuruman Station,' and were passed by him during his later travels on November 16, 1812. The capital only remained on the Kuruman River four years; for in 1806 Mulihában, in consequence of the devastation wrought by a Kaffir raid and from fear of the Hottentot freebooter 'Africaaner,' again moved north to Litakun, which Burchell, in 1812, was the first European to enter. It is not wonderful that, with these successive changes, the plains between Kuruman and Litakun were scored by numbers of footpaths. The move of 1806 was not the last. Mattivi, when trying to induce Burchell to sell him a musket, gave as the reason that he needed it to enable him in the following year to move south to Kuruman with the view of ultimately returning to his father's old capital, where he was born. It was not, however, until June 1817 that the capital was again shifted, and then only to the Kuruman River. The change was due to Mattivi's defeat by the Bakuenas, whom he had raided for cattle. The losses were very large, and he was himself wounded in the foot. Hence in a period of about forty-seven years the site of the Bachapin chief town had been altered at least five times; and in most cases, perhaps in all, the reason seems to have been to escape attack. Burchell says of the nation, 'They are a *timid race* of men. . . . True courage, one may be inclined to believe, is but thinly sprinkled over the land.'²

When Mattivi moved to the Kuruman River, in 1817, the late capital appears to have been utterly abandoned. Campbell³ speaks of the new town on the Kuruman, which he visited in March 1820, as 'Lattakoo,' or 'New Lattakoo.' In the following month he travelled to 'Old Lattakoo'; by this name he did not mean the late capital, but the earlier settlement of Mulihában, the 'ruins of Old Lita(a)kun' of Burchell's map. This Campbell stated to be apparently 'equal in size and population' to Mattivi's town on the Kuruman. Campbell, in April 1820, went to see 'the spot where Lattakoo stood when I first visited it [in 1813], and where the inhabitants of both the present towns were united.' It lay 6 miles to the eastward of Old Lattakoo, and he found that of the crowded capital visited by

¹ Campbell, in the following year, estimated the number of houses in Litakun to be 1500, and the inhabitants 7,500, exclusive of the outposts. *Travels in South Africa*, p. 276, London 1815.

² Vol. ii. p. 558.

³ *Second Journey in South Africa*, vol. i., London 1822.

Burchell in 1812 'not a vestige remained, not one human being was to be seen, nor scarcely any other creature except a few solitary birds and lizards. It was covered with tall mimosa bushes, which in a few years will become trees, and render the place an impenetrable forest.'¹

It is impossible to speak in any detail of Burchell's residence, from July 13 to August 3, 1812, in the chief town of the Bachapins, or of his admirable and precise account of this primitive semi-civilization, as yet unmodified by contact with European nations. These subjects occupy no fewer than 242 pages of the 'Travels,'² or nearly a quarter of the whole work. He gained his experience not only in the period above defined, but also in a second visit of probably nearly a month's duration, as well as during his travels in the surrounding country. We know from the map that this later visit, which is beyond the limits of his published work, was at an end on September 27, 1812.

The enjoyment of Burchell's first visit to Litakun was greatly marred by a prolonged and finally successful attempt made by Mattivi to obtain one of his guns, by the behaviour of some of his Hottentots, at one time rebellious,³ at another cowardly, and by the shameless begging and worrying of the Bachapins. In the great controversy about the gun Burchell, urged to yield by his terrified attendants, was pitted single-handed against Mattivi with his chiefs and people. He resisted with extraordinary courage, resource and ingenuity, but was met with arguments, it must be admitted, equally ingenious, and ultimately had to give way. Among the beggars Mattivi himself was perhaps the most greedy and persistent. Burchell, thinking doubtless of Campbell's exalted language, protests against the use of the word king for such a man, and, for the members of his family, the words queens, princes and princesses. Such language 'would betray a childish vanity which, instead of adding importance to my journal, would only serve to give extremely false notions of the persons whom it means to describe.'⁴ But in spite of the memory of incessant annoyance Burchell kept his sense of humour in speaking of Mattivi. On one occasion, when he had been feasted on dried peaches, softened in water, 'as if prompted by a rising sense of gratitude, Mattivi said he should never come and tease me for tobacco as other people did; but would always wait till I gave him some, of my own accord. This was so handsome a speech, and so becoming the dignity of a monarch, that, with princely liberality, I immediately presented him with a pipe of tobacco.'⁵

¹ *L.c.* pp. 126, 127.

² Vol. ii. pp. 358-599.

³ See footnote 2, or p. 58.

⁴ Vol. ii. p. 368.

⁵ Vol. ii. p. 488.

It is interesting to find that Burchell from time to time spoke to the most serious and intelligent of the chiefs on religious subjects, so that when missionaries settled at Litakun a few years later they came—although probably without knowing it—to a people whose principal men, at any rate, were familiar with the foundations of their teaching.¹

On August 3, 1812, Burchell left Litakun on a hunting expedition, and at this point the great work comes to an abrupt conclusion. The rest of his route, together with the dates of arrival at his stations, up to his return to Cape Town about the middle of April 1815, is clearly shown on the map in the first volume of the 'Travels.' We thus know that from August 3 to 10 he travelled S.W. from Litakun by a route S.E. of and nearly parallel with the track by which he approached the town. On August 10 he reached 'The Garden,' where he remained probably 16 days, and then retraced his steps, reaching the station within a day's journey of Litakun on August 29.² He appears to have left Litakun for the second and last time on September 27, for this date appears at 'the source of the Moshówa,' a little to the south of the town. During the next three days he travelled in a north-westerly direction, following

¹ The manuscript journal described in footnote 2 on p. 58 shows that Burchell's teaching was far more extensive than a reader would infer from the published *Travels*. Burchell's reticent, sensitive nature led him to make as little as possible of his missionary efforts. He was probably also influenced by dislike and contempt for the missionary teaching of which he had had experience. See p. 83.

² The above statements are confirmed by the recently discovered journal. Burchell remained at 'The Garden' from August 10 to 27. Before starting N. on the last date he sowed in the valley, close by the water, in fine mould, seeds of tamarind, Nankin cotton, cabbages, lettuces, endive, scorzonera, burnet, basil, radish, water melon, scarlet flesh melon, &c., and planted onions and potatoes. He reached the station 'Jabiru Fountain' within a day's journey of Litakun, on August 29, and this was still his resting-place on September 2, when the journal closes, so that we have no means of knowing the precise date of his re-entry into the capital.

The record of this month—August 3 to September 2, 1812—is deeply interesting, but contains no specially exciting event. Burchell was much harassed by the cowardice of his men, and on August 8, at 'Acacia Fountain,' gave way to despondency. 'I begin to despair of accomplishing scarcely any part of my original plan. . . . Ever since Monday evening a great revolution seems to have taken place in my mind. Till then the thought of returning home never once came seriously into my consideration; but now, worn out by the continual fears of my men, I begin to think I must not return to Litaakun. . . . With dejected spirits and a disappointed mind I seem to view the country as for the last time.' A welcome change in the weather soon restored his spirits, and even for a time put some courage into his men. The record is of especial value in enabling us to understand why Burchell was compelled ultimately to abandon his intention of penetrating much further into the interior than about lat. 26° 2' S. A dangerous accident, which fortunately did not lead to serious results, happened at 'The Garden' on August 12, when Stuurman, one of the Hottentots, was run over by the wagon, fortunately empty, and one of the oxen trod upon him. He recovered very rapidly, after careful treatment and nursing by Burchell.

the course of the Moshówa River. The third day's journey is marked 'very rocky' on the map, and on September 30 he left the river and journeyed nearly north for three days. The names along this route suggest hardship and difficulty from want of water. 'Last Water Station, 1 Oct.,' 'Halt,' 'Desert Station 2 Oct.,' 'An Optical Lake.' Finally, on October 3, he reached 'Giraffe Station,' where he evidently saw this mammal for the first time. 'First Camelopardalis' and '8 Elephants' being marked on the map a little to the north-east of the station. The next day, after a long march due west, he reached 'Chué Lake,' and here remained for over three weeks and achieved his 'furthest north' before turning southward again. It was during this part of his journey, when he was travelling north of Litakun to the Chué Lake, and on his return southward by a route much to the eastward, that Burchell made the greatest zoological discovery of his life. It was, indeed, the greatest in more senses than one, for it was here that he found the largest land animal next to the elephant, the so-called 'White Rhinoceros,' or, as it should be called, 'Burchell's Rhinoceros,' *R. simus*. He described and figured the head and horns of this species in a communication to a French Society.¹ Burchell states, in his communication which was sent to De Blainville, and by him presented to the Society, that for the first time, in the 26th degree of latitude, he met with *R. simus*, inhabiting immense plains, which are arid during most of the year, but every day frequenting the springs, not only to drink but to roll in the mud, which, adhering to the hairless skin, forms a protection against the scorching heat of the sun. Its size he described as nearly double that of *R. bicornis*. The two species, he said, were recognized as very distinct by the negroes and Hottentots, who gave them different names.² The natives told him that *simus* ate only grass, while *bicornis* feeds on branches of trees and bushes, a statement supported by the forms of their respective mouths. He shot ten examples of *R. simus*, and from these obtained the careful measurements published in his memoir.

His wanderings north of Litakun were probably by far the most exciting and interesting part of Burchell's African travels, and it is greatly to be hoped that the missing record of them will be recovered. In the meantime I have come across a brief but charming description of these plains and of a flower that adorns them. It is contained in Burchell's botanical manuscript at

¹ *Bulletin des Sciences par la Société Philomathique de Paris*, June 1817, pp. 96, 97.

² *R. simus* = Mokóhu. *R. bicornis* = Killany.in = Rhenoster.

Kew.¹ Speaking of *Mahernia grandiflora* he says, 'This very elegant and beautiful plant was found in the month of October 1812 in great profusion decorating one particular part of the great sandy plains northward of the town of Litaakun, a country till then untrodden by any European foot. These plains uninhabitable to man from want of water, extend for many days' journies. Their monotonous scenery is occasionally varied with groves of *Acacia giraffæ* whose thin foliage unable to protect these burning sands from the rays of the sun serves only as food for the Giraffe and Elephant. Various plants however in their seasons adorn the ground, amongst which this elegant little Mahernia by its profusion and continued succession of scented flowers of the finest scarlet will not fail to arrest the attention of any traveller let him be ever so insensible to the pleasures that may be derived from the study and contemplation of the productions of Nature.'²

Immediately to the north of the Chué Spring and Lake, Burchell represents the 'Máadji Mountain,' which he ascended on October 9, 1812, and thus reached his northernmost point, very nearly on the same latitude as Maretsani Siding on the railway and as Johannesburg, viz. about 26° 2' S. The track represented on the map shows that he crossed a broad mountain ridge until he nearly reached the top of the northern slope, and thus gained an uninterrupted view of the country he had hoped to traverse. From this point on the mountain a dotted line, stretching north-westward, shows 'the intended track,' passing at first through 'the Karrikarri Country, consisting of immense Plains covered with extensive Forests,' and meant to terminate, as we know from Burchell's published writings, on the west coast. It is probable that Moffat gives the correct reason for Burchell's failure to advance—'he found it impossible to persuade any of his attendants to accompany him. and was therefore obliged to desist.'³ Munaneets, an uncle of Mattivi, was probably referring to Burchell when he told Campbell, in 1813, '“ that all white persons who had gone beyond

¹ Burchell, *Memoranda Botanica*, MSS. I. p. 75.

² The herbarium record of a specimen of this plant gives the date October 30, 1812, when Burchell was at 'Sand Station. No water' on his return.

³ *Scenes and Labours in South Africa*, London 1842, chap. xiv. See also note 2 on p. 88. It is now certain that Moffat's statement is entirely correct. Among the papers sent to me is Burchell's copy of his letter to 'His Excellency Lord Henry Somerset,' giving a formal account of the journey. It is dated 'Capctown 15 August 1815.' The cause of his return southward on October 27, 1812, is recorded in the following sentence: 'From Litaakun his course was northward and having thence advanced abt. half way to the town of the Kharrikharri was, by the fears and unwillingness of his men to venture farther, constrained to turn towards the Colony.'

Lattakoo had been murdered, except one, who had gone to a place a little beyond them, but had he staid two days longer, he would have been murdered likewise. When we told them their danger,' added Munanects, 'they would not believe us, they thought it was our covetousness, that we wished to have all their beads.'''

Specimens in the Hope Department, Oxford University Museum, also show that Burchell collected butterflies on the Máadji Mountain on October 22, while on the same day he captured two specimens of *Teracolus subfasciatus*² at the Chué Spring. From these and one or two other examples of the same species Swainson not only described the species, but founded the important genus *Teracolus*.

Burchell turned back in a south-westward direction, evidently on October 27, inasmuch as this is the date of arrival at 'Terminalia Station,' and no halting-place is indicated between it and the Chué Spring. The names of stations suggest difficulty on the return no less than on the outward journey. Thus a long day's journey brought him to the Moshówa river on October 28, but the name of his resting-place is 'Hot Station.' He started again on the 30th, and after a very long day, with one halt indicated, he reached 'Sand Station. *No water.*' The next day, however, he reached 'Kuru, or the Wells,' only a little north, but far west of Litakun. From this point, keeping south-eastward, he only stopped at stations on the Kuruman River or its tributaries, until on November 17, he rejoined his track of June 28 at one of the sources of this stream. His observations of the Bechuana peoples on this journey, especially at Patáni, where he stayed a week, would be of the deepest interest could they be recovered. Burchell remained over a month at the sources of the Kuruman River, and vigorously hunted insects of many orders, as may be conspicuously seen in his collection. On November 25 he paid a visit to 'The Garden' from the south, as I find from the data on a butterfly. The same kind of information proves that he retraversed the defile in the Kámhanni mountains, and finally quitted the Bachapin country on December 20. Burchell leisurely retraced his former steps, collecting as he went, to Klaarwater, which he reached on January 4, 1813. Here he remained a fortnight, and on January 18 left it for the last time. It is unnecessary to recount the details of the remainder of his journey. Burchell

¹ Campbell's *Travels*, 1815, p. 263.

² The specimens were a male and female. The latter certainly exists in the Burchell collection at Oxford, while a fragmentary male of this species in the same collection is probably the second specimen captured on October 22, 1812.

reached Graaff Reinet on March 31, 1813, travelling south-east from Klaarwater by a route north-east of his former track, and lying for a considerable distance along the south bank of the Orange River. He crossed the northern boundary of the Colony at Plettenberg's Baaken, to the north of Naauw Poort.

At this point, where Burchell re-entered the Colony, never to leave it again until the day when he sailed from Africa, it is of interest to compare the relative dangers of the routes which he had pursued outside its boundaries. For many years before Burchell's journey we find that the main practicable route for the explorer from the south lay well to the west of the Orange River Colony and the Transvaal, and even of the line of the present railway. The track to Klaarwater and on to Litakun represented a line of least resistance through the untamed and untamable Bushmen tribes, and once within these spheres of influence the dangers were comparatively small. Burchell undoubtedly ran by far the greatest risks of any in his long African journey when, in 1812, he travelled to Graaff Reinet and back to Klaarwater, and when, early in the following year, he pursued his more easterly route to the former place. But the causes which led Lichtenstein and Burchell to penetrate Africa by way of the Bechuana races also operated to make any further progress difficult, or even impossible. The nation at the northern head of the trade route, fearful of losing its lucrative monopoly, always strove to prevent the traveller from advancing any further into the interior and trading with the tribes beyond. Even thirty years later Livingstone, pressing northward by the same track, encountered well-nigh insuperable difficulty from this very cause on the way to Lake N'Gami and the Zambesi.

Burchell remained in Graaff Reinet from March 31 to May 12, 1813. Here on April 31 he met the missionary Campbell, who was journeying to Klaarwater, and advised him to travel by way of the Brak River (Burchell's earlier route), and to guard his cattle from the Bushmen with the utmost care.¹

From Graaff Reinet Burchell travelled south-eastward towards the mouth of the Great Fish River, which he visited on September 22, 1813. In the course of this part of his journey he passed along the line of military posts established on the west side of the Great Fish River, in order to repel Kaffir raids; and he remained over a month (August 4 to September 9, 1813) at Grahamstown. At this time and during the eastern section of the return journey to Cape Town along the south coast Burchell made the observations which were the basis of his advice to the Parliamentary Committee in 1819, and of his

¹ *Travels in South Africa*. by John Campbell. pp. 170, 171, London 1815.

pamphlet 'Hints on Emigration to the Cape of Good Hope' (see p. 73).

The mouth of the Great Fish River is the south-eastern angle of the great triangle formed by Burchell's route, Cape Town being the south-western angle, Kklarwater the northern, and the journey into British Bechuanaland an extension directly northward from the last-named angle or apex.

Here at the easternmost point of his travels Burchell's wanderings were complicated and rather difficult to follow on his map; but it is clear that he started, from 'Lombards', on October 25, 1813, to begin the southern side or base of the triangle. Proceeding in his leisurely fashion, observing, recording, collecting, drawing, and there is no doubt writing a journal which would be of priceless scientific value could it be happily recovered, Burchell reached Cape Town about the middle of April 1815, occupying almost exactly eighteen months over this part of his journey. At intervals he touched the shore, travelling round Cape Recife, visiting the 'landing places' at the western sides of Plettenberg's Bay and of Mossel Bay. He made long pauses at places which appealed most to his interest as a naturalist, such as Uitenhage, which he visited more than once, 'Melkhout [Milk-wood] Kraal,' near Knysna, 'Sylvan Station,' on the southern slopes of the Postberg, north-east of George, and 'Mountain Station,' to the north of St. Sebastian Bay.¹

Burchell probably remained in Cape Town for over four months. The exact date of his departure is unknown, but the data on insects in his collection show that on September 16, 1815, he was in St. Helena, on the homeward voyage.

Burchell lived for nearly fifty years after his return from South Africa, but it is obvious that any full description of his work would be inappropriate on this occasion. Some slight account is, however, necessary in order to complete the sketch of this great man.

The ten years between the return from Africa and the start for Brazil must have been chiefly occupied with the arrangement of his collections, and writing and illustrating his great work.² He sowed large numbers of the seeds and planted

¹ With the kind help of my friend Mr. Guy A. K. Marshall all the data given in Burchell's African Catalogue of Insects have been copied and sorted in order of date, so that the whole of the captures on each day at each locality can now be seen. It is hoped that this will be published at no distant date, together with all the information that can be gained from Burchell's map, the whole making a naturalist's itinerary for the entire journey, with records of the insect captures.

² The original journal, already described (see footnote 2 on p. 58), contains abundant pencil marks in its margins and pencil parentheses in the written

numbers of bulbs brought with him from Africa. The results, with the fullest data, he recorded in special note-books now preserved in the Herbarium Library at Kew. One result serves as a model of patient observation. He obtained bulbs of *Amaryllis riparia* at 'Amaryllis Station,' by the south bank of the Orange River, on February 17, 1813. These he planted at Fulham after his return, and they flowered in 1817, 1818, 1820 and 1821. On August 3, 1818, he notes that they 'ripened very fine bulbous seed,' which was sown with the following results: 'The seed of *Amaryllis riparia* sown in 1818 did not flower (at Fulham) till June 1854.'¹ Watch had to be kept for thirty-six years before a flower from the English-grown seed could be recorded!

Not only did Burchell write his classical work, but nearly everything that he gave to the world in his whole life was written and published in those ten years—his 'Hints on Emigration to the Cape of Good Hope,'² his description of *Rhinoceros simus*,³ his List of the Skins of 143 Quadrupeds presented to the British Museum, September 30, 1817.⁴ It was the

page. These indicate the material worked up by the author into the smooth, continuous narrative of the *Travels*. But the same markings are continued beyond the date at which the published work closes, to the very end of the journal. This strongly suggests that Burchell prepared the manuscript for a much longer work, perhaps indeed for the whole of his African journey.

o Much of his time was also probably occupied with drawing independently of the illustrations required for his volumes. Thus a wonderfully detailed painting, 'Inside of my African Waggon,' was exhibited as No. 868 at the Royal Academy in 1820. The picture, which has been kindly lent to me by Mr. Francis A. Burchell, is a remarkable piece of still life. It measures only 1 foot 7 inches by 1 foot 1½ inch, yet into that space the painter has introduced everything characteristic of his life so far as it was spent within the wagon, and typical of the collections he made. Among the papers kindly shown me by the Rev. Evan Davies was a long slip which gave full details of the time occupied in the work:—

'The Drawing of the Inside of the Waggon was finished in the following order:—

'Tortoise	}	12/2/20.
Elephant's grinder		
Hippopotamus tusk		
Press Screws	}	14/2/20.'
Memorandum Book		
Flute		
Shell		

Then follows a long list of further details, ending with these words:—

'Finished the retouching	3 and 1/4/20.
Put a few finishing touches. Worked at this drawing—In sketching	4 days.
In colouring	27 "
	<hr/> 31 "

or about 120 hours' work on the whole.'

¹ Burchell, *Memoranda Botanica*, MSS. I, Part III.; Catalogue of Bulbous Roots brought from South Africa: No. 36.

² London, August 1819.

³ Paris, 1817.

⁴ London, Spottiswoode, n.d.

neglect of some of these skins which occasioned the quarrel with that institution, already referred to.¹

Burchell's Catalogue of South African Insects, now at Oxford, is a model of careful work, and must have consumed a great deal of his time. It involved the transport of many hundreds of specimens, a few at a time, to the Linnean Society for comparison with the Banksian collection. Although insufficiently dated, it is certain that the whole of this work was accomplished between 1815 and 1825. Finally there was the preparation for his Brazilian journey, itself a very considerable undertaking, requiring much time and thought.

Burchell started for his five years' journey and work in the New World on March 10, 1825. He sailed from Portsmouth, spent two months collecting near Lisbon, a day in Madeira, two days in Tenerife, and landed at Rio de Janeiro on July 18, 1825.

We learn from a letter² written by Burchell to his friend Sir William Hooker the main lines of his work at Rio: 'I continued making collections in botany, entomology and geology, &c., till September 1826, during which period I visited a part of Minas Geraës. While at Rio I made some drawings of landscape, among which was a panorama taken from a hill in the middle of the city; many astronomical, philosophical and geodetical observations.' The excursion into Minas Geraës occupied more than a month, while another of just under a month was made into the Organ Mountains.

Among the records of Burchell's residence at Rio are one or two which give us a glimpse into the nature of the man himself. Although he came to work—and indeed worked probably harder than any other traveller—we find that he spared time to make a drawing³ of his friend Mrs. Esther Fry and her two children on the shore. Mrs. Fry also painted Burchell as one of a party at her house. He is seen from behind, holding his flute in his hand. But we are admitted into closer intimacy with this mysterious personality in the following charming passage written by Mrs. Fry in her husband's diary:—

'September 8 [1826]. Edward being gone to Mr. March's estate in the mountains, I [Mrs. Esther Fry] am become the

¹ See p. 72; also *Travels*, vol. i. p. 383, &c.; vol. ii. p. 336, &c.

² This letter, now preserved at Kew, is dated November 1, 1830, from Churchfield House, Fulham. Much of it is published in Hooker's *Botanical Miscellany*, vol. ii. 1831, pp. 128-133.

³ Now in the possession of Mrs. Miers, one of the children represented in the picture. I owe the opportunity of reproducing the passage to her son, my friend, Professor H. A. Miers, F.R.S. I recognized the sketch for this painting in the fine collection of Burchell drawings in the possession of the Rev. Evan Davies, of Springs. Mr. Davies very kindly allowed me to examine the whole collection during the visit of the British Association to Johannesburg.

journalist. Astonished at the sound of a horse's feet chiming into the hall while at dinner, which sent little and big to the top of the stairs, screaming out "Papa," "Papa," but were all hurried back by the appearance of a gentleman ascending the stairs muffled in an enormous cloak, which on unwrapping produced, to my amazement, the vision of Mr. Burchell, whom I supposed many miles outside the harbour! He had a day's furlough, and determined on dining with us. Fortunately my meal had been delayed by Mr. and Mrs. Kielchen [?] calling just as it came on table, or poor Mr. B. would have run the risk of dining with Duke Humphrey; as it was he sat down at Alleck's side and made a hearty dinner; then left to pay some more adieux at Botafogo, and returned to tea with me. Pleasant conversation, as usual, with him, and at eight o'clock he went, having to be on board the 'Aurora' by sunrise tomorrow. Fine and cloudy. Therm. 69°.

Burchell's manuscript in the Hope Department at Oxford shows that he was not able to sail until Sept. 10, and that on Sept. 12 he landed at Santos to begin, on Dec. 3, his great three-years' journey northward through the heart of Eastern Brazil to Pará. The main incidents and lines of work pursued in these travels are best made known in the picturesque language of the letter to his friend, from which I have already quoted (p. 95). 'At Santos,' he wrote, 'I remained three months, and then proceeded and took up my station in a solitary hut in the midst of forests at the foot of the great range of mountains [Sierra da Cubatão], for the purpose of exploring them at leisure. My next station or headquarters was at the city of S. Paulo,'¹ nearly under the tropic of Capricorn, where I remained about seven months, extending my excursions in various directions. Having there purchased a troop of mules and engaged the requisite muleteers, I travelled northward, and finally took up my station at the city of Goyaz, being the first and only Englishman who has entered that province. There I passed the rainy season of 1827, and made large collections, being detained there nine months owing chiefly to the difficulty of finding the means of conveyance for my baggage. At length resuming the road, and still continuing northward, I reached, in November 1828, Porto-Real, on the great river Tucantins. Here I remained till the proper season for embarking, and, descending the

¹ Here Burchell discovered that η Argus was a grand example of a variable star. 'In 1827 the traveller Burchell, being then at St. Paul, near Rio Janeiro, remarked that it [η Argus] had unexpectedly assumed the first rank—a circumstance the more surprising to him because he had frequently, when in Africa during the years 1811 to 1815, noted it as of only fourth magnitude.'—*History of Astronomy during the Nineteenth Century*, by Agnes M. Clerke, pp. 58-59.

stream, at all times rendered dangerous by numerous rocky falls, rapids and whirlpools, I made considerable collections on ground over which no scientific traveller had ever passed. I completed a survey of the whole length of this voyage, fixed by numerous astronomical observations. Finally, I arrived at the city of Para in June 1829, and, while waiting till February for a convenient opportunity of embarking for England, added largely to my collections both in zoology and botany. Of this city I made a panorama, which, with that of Rio, I hope perhaps to succeed in getting engraved,¹ together with my landscapes, &c. Of insects I found from sixteen to twenty thousand specimens (at a guess). Of birds I shot and preserved 362 species. In the other classes a proportionately smaller number. I am not aware of any part of my collections being lost, though I daily lament my inability to unpack them, for want of room in the house.

This was a fine journey, undertaken with Burchell's splendid deliberation, enabling him to observe, collect and record over a most interesting route then unknown to science, and now very imperfectly known. He had, however, a far more ambitious scheme in his mind, which he confided to his friend Sir William Hooker, in a letter written from Rio.² Two years later, writing to the same friend from Goyaz, he explained that the state of his father's health made it necessary for him to return to Europe by a much shorter and more direct road.³ Both letters are preserved at Kew.

Burchell left Pará on February 10, 1830, arriving at Dover on March 24, and reaching his home in Fulham on the following day. It is deeply to be regretted that his Brazilian journal has

¹ It is stated by H. Manners Chichester in *Diet. Nat. Biog.*, vol. vii., London, 1866, pp. 290-291, that Robert Burford, of Leicester Square, executed a panorama of Rio from Burchell's paintings.

² It is at least my wish to visit the city of St. Paulo; and thence by land through the provinces of Goyaz, Cuyaba, and Matto Grosso into Peru, having the city of Luzco as my principal object; and after doing in Peru as much as my time (for my family prefer my being in England) and slender means will allow me to do, I should wish to proceed by land to Arequipa, Potosí, Salta, &c. &c., to Buenos Ayres, and thence to my home at Fulham. . . .—Rio, July 8, 1826.

³ . . . I have kept my original plan always in view, and had advanced thus far on my way to Peru, &c., when letters from Fulham overtook me, stating that my dear father's health, from the infirmities natural to his age, was gradually declining, and that it was his wish and that of the rest of the family that I should return directly to England. Whatever regret I may feel at thus relinquishing my American travels, and whatever disappointment I may experience from a premature return, I have no hesitation whatever in preferring filial duty to science and the gratification of my own inclinations. I have therefore greatly altered my plans, and instead of ending this journey at Buenos Ayres shall, *Deo volente*, end it at Pará, where I shall embark for England.—Goyaz, April 25, 1828.

never been discovered. We know that it existed, not only from his letters to Sir William Hooker, but from numerous incidental statements in Burchell's note-books on Brazilian natural history. From this source I find that he had a native attendant named 'Congo,' who seems to have been as good a naturalist in Brazil as 'Speelman' was in South Africa.¹ His exact route in Brazil is fortunately preserved in connexion with the plants at Kew and the insects at Oxford.

Burchell's collections in the New World were many times as large as those which he made in the Old, and their arrangement, manipulation and careful re-labelling occupied the remaining years of his life.

A few years after his return from Brazil Burchell received the degree of D.C.L. *Honoris Causa* from the University of Oxford. Daubeny, the Professor of Botany, had delivered his inaugural lecture on May 1, 1834, and gave the first of his course of lectures on Vegetable Physiology on May 8, the very day when Burchell received the degree.² It seems probable

¹ Numerous letters written to members of his family by Burchell from Brazil have just reached me, kindly lent by Mr. Francis A. Burchell. Although there has not been time to examine them carefully, I see at once that they will be of the utmost service in reconstructing the story of the Brazilian journey. Others in like manner will enable us to recover some of the missing African narrative. In one letter, written from Pará shortly before he sailed, Burchell expresses the intention of bringing his native 'boy' home with him. It would be very interesting to know if this intention was carried out, and to learn the history of 'Congo' in this country.

² The words of the University Notice run:—

'A Convocation will be holden on Thursday next, the 8th instant, at two o'clock, in which it will be proposed to confer the Honorary Degree of D.C.L. on William John Burchell, Esq., of Fulham, in the County of Middlesex.

'G. ROWLEY,

'Delegates' Room,

'Vice-Chancellor.

'May 5, 1834.'

Since the above sentences were written I have had the opportunity of reading Burchell's correspondence, kindly lent to me by Mr. Francis A. Burchell, and I find that the great naturalist was received as an honoured guest at Oxford, and had many friends there. He wrote to his sister Mary from Oxford on June 19, 1832, 'I dined with the Duncans in New College and attended some scientific meetings in the evening. Have met many persons I know, and am likely to pass a pleasant time here. . . . To-day I dine with the scientific men, a very large party. I met Hansell, who was pleased at seeing me. I breakfasted this morning in Lincoln College, and to-morrow with a large party at the Vice-Chancellor's, and dine at Dr. Kidd's.' It was evidently Commemoration time, and Burchell says 'there is scarcely a bed to be got.' Again, on February 14, 1835, the year after his degree, he wrote to his mother and two sisters, 'On my arrival I found, through Mr. Duncan, that the Warden of New College (Dr. Shuttleworth) expected I should accept a bed at his house, and here I have therefore taken up my quarters. I have met everywhere with the same kind and flattering reception as on former occasions. . . . I am engaged for all the rest of my stay here. To-morrow dine with Dr. Kidd, Monday breakfast with Dr. Buckland and dine with Duncan. Tuesday breakfast with Hansell and dine with Dr. Macbride.'

that Burchell came to Oxford to be present at the lecture, and that the occasion was chosen for the conferment of the honour.

Burchell greatly appreciated this distinction. Miss Anna Burchell,¹ in presenting her brother's zoological collections to the University of Oxford, wrote in 1865 that she was acting 'in accordance with what I believe to have been his wish'; while Professor Westwood² definitely stated that the collections were presented 'in recognition of the honour conferred on her brother by the degree of D.C.L. . . .'

Apart from this one well-deserved distinction Burchell received but little credit for his great work. The munificence of the wealthy patron of learning had been replaced in Burchell's day by a system of Government patronage, taking the practical form of pensions. The fact that Burchell did not receive the recognition accorded to far less distinguished men was a keen disappointment to him. Bitter resentment on behalf of his neglected friend breathes in William Swainson's dedication.³

TO

WILLIAM JOHN BURCHELL, Esq.,
The African Traveller,

Whose discoveries have benefited every branch of natural science; whose knowledge is equal to their full elucidation; and whose talents—unfostered by, and unknown to, his own Government,—are held in respect and estimation throughout the civilized world, this third volume of 'Zoological Illustrations' is dedicated by his attached and affectionate friend, the Author.

A few years later Swainson published, among the biographies of other naturalists, an account of Burchell's labours. Almost the whole of the article⁴ is occupied by a statement of the grievance against the Government.

¹ *Ann. and Mag. Nat. Hist.*, 1904, January, p. 56.

² *Ibid.* 1904, April, p. 307, where the original statement is reprinted. It is to be found in the rare publication, *Proceedings of the Ashmolean Society*, Oxford, new series, No. 1, November 26, 1866.

³ *Zoological Illustrations*, vol. iii., second series, 1832-33.

⁴ The biography of W. J. Burchell is brief, and it may be a convenience to quote the whole of it: 'One of the most learned and accomplished travellers of any age or country,—whether we regard the extent of his acquirements in every branch of physical science, or the range of the countries he has explored. Science will ever regret that one whose powers of mind are so varied, and so universally acknowledged throughout Europe, should have been so signally neglected by his Government—the most thankless and ungrateful one, to unpatronised talent, under Heaven. Having expended large sums in prosecuting his travels in Southern Africa, and bringing home immense collections, astronomical observations, &c., the Prussian Government offered him a handsome pension if he would carry all to Berlin, and settle in that city. This he refused, under the vain hope of publishing his discoveries in his own country. Disappointed in this, he again set off for Tropical America, where he travelled for

Swainson's statements are in some respects exaggerated—especially so with the period assigned to the Brazilian travels—and they have produced the erroneous impression that Burchell's Brazilian specimens were never unpacked. Burchell's own note-books at Kew and Oxford show the exact dates at which nearly everything was examined, the plants remounted and re-labelled and the insects set out. It is quite true, as Sir William Hooker more than once pointed out to his friend, that much of this mechanical work could have been greatly lightened by skilled assistance, which, however, Burchell could not afford to obtain.¹ But it is more than doubtful whether so individual and exact a worker could have endured to leave any of the details to another, and it is quite certain that the work would not have been done so well or so carefully by any other hand.

Although the Government did nothing for one of the greatest men of the time, the botanist Richard Anthony Salisbury, himself a very remarkable man insufficiently appreciated, made Burchell his executor and residuary legatee.² The will was

nearly seven years. The fruits of all these labours, however, lie hid in unopened packages, and may probably never see the light until the death of their possessor. A Government which bestows honours upon writers of novels, and pensions for licentious ballads, cannot be expected to regard modest worth or unobtrusive talent.—From the *Cabinet Cyclopædia of Dionysius Lardner*, vol. on 'Taxidermy, Bibliography and Biography,' by Wm. Swainson, London 1840, Appendix, p. 383.

¹ 'After the consumption of so much of my property by my travels and the disinterested pursuit of science all the rest of my life, the obtaining of assistance by payment is quite out of the question.'—Letter to Sir William Hooker, June 25, 1835.

² The character of Salisbury is partially revealed by his will, probate of which has been kindly lent to me by Mr. Francis A. Burchell: 'I desire to be buried in the plainest manner possible in the nearest Church Yard to where I die with nothing black about me in a plain Oak Coffin and instead of the usual expense of an undertaker £50 given to the poor of the Parish.' The words referring to Burchell are as follows: 'I leave all the rest of my property Books Plate Furniture linen Money on bond or in Russian Stocks to William John Burchell Esq. of Fulham now daily expected home from Brazil making him my Sole EXECUTOR & residuary Legatee of this my last Will hereby revoking all former Wills at any time heretofore made by me and if I should die before he returns I wish his oldest sister Miss Burchell to take possession of every thing belonging to me till he arrives.' The document was undated, but it was sworn 'that the Testator died on the 23rd or 24th of March 1829,' and it is probable, from the words referring to Burchell's expected return, that the will was made shortly before the testator's death. The expectation was curiously out of accord with the actual facts, for Burchell at the time of Salisbury's death was at Porto Réal (now Porto Nacional) on the Tocantins. He had neither begun his descent of this great river, nor covered much over half the distance in a straight line from Santos to Pará. The discrepancy is to be explained as follows: Burchell's father died on July 12, 1828, and the family, thinking that Burchell had received their communications, expected him home within a few months. They were unaware of the difficulties of travelling and of transmitting correspondence into the heart of Eastern Brazil. One of the letters so kindly lent me proves that Burchell was unaware of his father's death until October 15, 1829, four months after his arrival at Pará on June 10.

sworn for under £10,000, and, as sums amounting to £3,450 were bequeathed, it is probable that Burchell received over £6,000.

I now propose, by a few examples, to show the extraordinary powers of observation possessed by Burchell. They are selected from the data on the specimens in his African and Brazilian collections of insects at Oxford, and from the unpublished manuscripts referring to them.

One of the most interesting and arresting of biological problems during the last half-century has been the attempt to explain those remarkable superficial resemblances between organisms, chiefly insects, to which the misleading term 'mimicry' has been applied. The interpretations offered by H. W. Bates in 1862¹ and by Fritz Müller in 1879² have so stimulated the interest of observers that new examples have been continually discovered, and the material at the disposal of the naturalist has been multiplied a hundredfold. The contemplation of the luxuriant insect life of Brazil supplied the intellectual material out of which the two great naturalists named above built the hypotheses which will ever be associated with their names. Work in the tropics of the New World was followed by the splendid investigations of A. R. Wallace³ in the Oriental Region; while later research, led by the great monograph of Roland Trimen,⁴ has been chiefly concentrated in Africa, and especially South Africa. Only so recently as 1902 the subject was greatly enriched by the publication of five years' observations in Rhodesia and Natal by Guy A. K. Marshall.⁵ The most wonderful mimetic association described by him is composed of flower-haunting beetles belonging to the family *Lycidæ*, and the heterogeneous group of varied insects which mimic their conspicuous and simple scheme of colouring. The Lycid beetles, forming the centre or 'models' of the whole company, are orange-brown in front for about two-thirds of the exposed surface, black behind for the remaining third. They are undoubtedly protected by qualities which make them excessively unpalatable to the bulk of insect-eating animals. Experimental proofs of their distasteful qualities have been obtained by the author. What are the forms which surround them?

¹ *Trans. Linn. Soc. Lond.*, vol. xxiii. 1862, p. 495.

² *Kosmos*, May 1879; translated by R. Meldola, F.R.S., in *Proc. Ent. Soc. Lond.* 1879, p. xx.

³ *Trans. Linn. Soc. Lond.*, vol. xxv. 1866, p. 1; the memoir occupies the whole of Part I., published separately in 1865.

⁴ *Trans. Linn. Soc. Lond.*, vol. xxvi. 1870, p. 497; the memoir was the first in Part III., published separately in 1869.

⁵ *Trans. Ent. Soc. Lond.*, 1902, p. 287.

According to the hypothesis of Bates they would be, at any rate, mainly palatable hard-pressed insects which only hold their own in the struggle for life by a fraudulent imitation of the trade-mark of the successful and powerful *Lycidæ*. According to Fritz Müller's hypothesis we should expect that the mimickers would be highly protected successful and abundant species which (metaphorically speaking) have found it to their advantage to possess an advertisement, a danger-signal, in common with each other, and in common with the beetles in the centre of the group. According to the first view the mimic is a danger to its model, according to the second it is a benefit. If A, B, C, D, &c., are all unpalatable and all recognized by the same appearance, and if their enemies have to learn by experience what to eat and what to reject, it follows that when A is tasted and found unpleasant, B, C, D, &c., are benefited. They would be tasted more cautiously, or perhaps abandoned without tasting. On the next occasion B would be tasted by some other inexperienced foe, and the advantage would lie with A as well as C, D, &c. It is hardly necessary to explain that under either hypothesis volition has nothing to do with the growth of resemblance, but that it is believed to be brought about by the survival in successive generations of those individuals most like the model or most like one another. The death of individual A or B as a result of the tasting is no difficulty. Far more individuals of A, B, C, D, &c., would be killed by experimental tasting if they had different patterns than if they had the same, and this is advantage enough to cause a strong trend in the direction of resemblance.

How far does the constitution of this wonderful group—the largest and most complicated as yet known in all the world—convey to us the idea of mimicry working along the lines supposed by Bates or those suggested by Müller? Figures 1 to 52 of Mr. Marshall's coloured plate¹ represent a group of thirty-nine or forty species of insects captured in Mashonaland, and all except two in the neighbourhood of Salisbury. The group includes six species of *Lycidæ*, nine beetles of five groups all specially protected by nauseous qualities, *Telephoridæ*, *Melyridæ*, *Phytophaga*, *Lagridæ*, *Cantharidæ*, five Longicorn beetles, eight stinging Hymenoptera, three or four parasitic Hymenoptera (*Braconidæ*, a group much mimicked and shown by some experiments to be distasteful), five bugs (Hemiptera, another unpalatable group) two moths (*Arctidæ* and *Zygænidæ*, distasteful families), one fly. In fact the whole group of thirty-nine or forty species, except perhaps one Phytophagous and the Longicorn

¹ *Trans. Ent. Soc. Lond.*, 1902, Plate XVIII.; see also p. 517, where the group is analysed.

beetles and the fly, fall under the hypothesis of Müller and not under that of Bates. And it is very doubtful whether these exceptions will be sustained; indeed, the suspicion of unpalatability already besets the Longicorns, and is always on the heels—I should say the hind tarsi—of a Phytophagous beetle. This most remarkable group, which illustrates so well the problem of mimicry and the alternative hypotheses proposed for its solution, was, as I have said, first described in 1902. Among the most perfect of the mimetic resemblances in it is that between the Longicorn beetle, *Amphidesmus analis*, and the *Lycida*. It was with the utmost astonishment and pleasure that I found this very resemblance had almost certainly been observed by Burchell. A specimen of the *Amphidesmus* exists in his collection, and is numbered '651.' Turning to the same number in the African Catalogue we find that the beetle is correctly placed among the Longicorns, that it was captured at Uitenhage on November 18, 1813, and that it was found associated with Lycid beetles in flowers ('consocians cum Lycis 78-87 in floribus'). Looking up Nos. 78-87 in the collection and catalogue, three species of *Lycidae* are found, all captured on November 18, 1813, at Uitenhage. Burchell recognized the wide difference in affinity, shown by the distance between the respective numbers; for his catalogue is arranged to represent relationships. He observed, what students of mimicry are only just beginning to note and record, the coincidence between model and mimic in time and space and in habits. We are justified in concluding that he observed the close superficial likeness, although he does not in this case expressly allude to it. In many other instances, however, he does speak of it, as will be seen below.

Conspicuous among well-defended insects are the dark steely or iridescent greenish-blue Fossorial Wasps or sand-wasps, *Sphex* and its allied genera. Many Longicorn beetles mimic these in colour, slender shape of body and limbs, rapid movements and the readiness with which they take to flight. On December 21, 1812, Burchell captured one such beetle (*Promeces viridis*) at Kosi Fountain, on the journey from the source of the Kuruman River to Klaarwater. It is correctly placed among the Longicorns in his catalogue, but opposite to its number is the comment, '*Sphex* ! totus purpureus.'

In our own country the black and yellow colouring of many stinging insects, especially the ordinary wasps, affords perhaps the commonest model of mimicry. It is reproduced with more or less accuracy on moths, flies and beetles. Among the latter it is again a Longicorn which offers one of the best known,

although by no means one of the most perfect, examples. The appearance of the well-known 'wasp-beetle' (*Clytus arietis*) in the living state is sufficiently suggestive to prevent the great majority of people from touching it. The dead specimen is less convincing, and when I showed a painting of it to Dr. Alfred Russel Wallace in 1889 he doubted whether it was an example of mimicry at all. I replied that he would not question the interpretation if he had noticed the beetle in life; and he at once recalled the movements of allied forms in the Eastern Archipelago, and admitted the mimetic resemblance. In fact, the slender, wasp-like legs of the beetle are moved in a rapid, somewhat jerky manner, very different from the usual stolid coleopterous stride, but remarkably like the active movements of a wasp, which always seem to imply the perfection of training.¹ In Burchell's Brazilian collection there is a nearly allied species (*Neoclytus curvatus*) which appears to be somewhat less wasp-like than the British beetle. The specimen bears the number 1188, and the date March 27, 1827, when Burchell was collecting in the neighbourhood of S. Paulo. Turning to the corresponding number in the Brazilian note-book we find the following record: 'It runs rapidly like an ichneumon or wasp, of which it has the appearance.'

The formidable, well-defended ants are almost as much mimicked by other insects as the sand-wasps, ordinary wasps and bees. Thus on February 17, 1901, Guy A. K. Marshall captured, near Salisbury, Mashonaland, three similar species of ants (Hymenoptera) with a bug (Hemiptera) and a Locustid (Orthoptera), the two latter mimicking the former. All the insects, seven in number, were caught on a single plant, a small bushy vetch.²

This is an interesting recent example from South Africa, and large numbers of others might be added—the observations of many naturalists in many lands; but nearly all since the date of the two great hypotheses which directed general attention to the subject. We find, however, that Burchell has more than once recorded it. An extremely ant-like bug (the larva of a species of *Alydus*) in his Brazilian collection is labelled '1141,' with the date December 8, 1826, when Burchell was at the Rio das Pedras, Cubatão, near Santos. In the note-book the record is as follows: '1141 *Cimex*. I collected this for a *Formica*.'

Some of the chief mimics of ants are the active little hunting spiders belonging to the family *Attidæ*. Examples have been brought forward during many recent years, especially by

¹ Poulton, *Colours of Animals*, 1890, pp. 249, 250.

² *Trans. Ent. Soc. Lond.*, 1902, p. 535, Plate XIX, figs. 53-59.

my friends Dr. and Mrs. Peckham, of Milwaukee, the great authorities on this group of Arachnids. Here too we find an observation of the mimetic resemblance recorded by Burchell, and one which adds in the most interesting manner to our knowledge of the subject. A fragment, all that is now left, of an Attid spider, captured on June 30, 1828, at Goyaz, Brazil, bears the note, in this case on the specimen and not in the note-book, 'Black . . . runs and seems like an ant with large extended jaws.' My friend Mr. R. I. Pocock, to whom I have submitted the specimen, tells me that it is not one of the group of species hitherto regarded as ant-like, and he adds, 'It is most interesting that Burchell should have noticed the resemblance to an ant in its movements. This suggests that the perfect imitation in shape, as well as in movement, seen in many species was started in forms of an appropriate size and colour by the mimicry of movement alone.' Up to the present time Burchell is the only naturalist who has observed an example which still exhibits this ancestral stage in the evolution of mimetic likeness.

A scientific explanation of these resemblances was, of course, impossible for one to whom evolution was a sealed book. Burchell was driven to believe that it was part of the fixed and inexorable scheme of things that these strange superficial resemblances existed, and that was the end of the matter. Thus, when he found other examples of Hemipterous mimics, including one (*Luteva macrophthalma*) with 'exactly the manners of a Mantis,' he added the sentence, 'In the genus *Cimex*¹ (Linn.) are to be found the outward resemblances of insects of many other genera and orders,' February 15, 1829. Of another Brazilian bug, which is not to be found in his collection, and cannot therefore be precisely identified, he wrote: '*Cimex* . . . Nature seems to have intended it to imitate a *Sphex*, both in color and the rapid palpitating and movement of the antennæ,' November 15, 1826.

We must now leave this fascinating subject of mimicry, upon which even further observations made by this great naturalist might have been quoted had space permitted. I pass by the kindred subject of concealment or protective resemblance as a means of defence in the struggle for existence, although here too many examples of the deepest interest might have been chosen from his note-books. But a few admirable instances of this principle have been already discussed in the earlier pages,² and I therefore propose to consider a few out of Burchell's many unpublished contributions to a very different subject, which has received much attention and caused great

¹ Here used as equivalent to Hemiptera.

² See pp. 68-69.

interest to naturalists in recent years. I refer to the sounds made by insects and other organisms distantly related to them.

In 1900, C. J. Gahan, the distinguished student of the Longicorn beetles, published the description of a new sound-producing apparatus in the Prionid genus *Ctenoscelis*.¹ There was no known record of the production of sound by these beetles, nor has there been any since the appearance of Gahan's memoir. I find, however, that a specimen of the large Prionid beetle *Ctenoscelis acanthopus*, in the Brazilian collection, bears the date '3 p. [M.], 5.11.25,' when Burchell was on his excursion from Rio into Minas Garaës (October 6 to November 16, 1825). In the note-book under the same day and hour we read, 'A *Prionus* found alive in the rancho at João Alfonso's. It makes a singing noise, similar to that made by many *Lamiæ*.' Burchell had, in fact, heard and recorded the sound three-quarters of a century before the sound-producing apparatus had been discovered.

Again, the curious flattened beetles of the family *Passalidæ* have only recently been shown, by Mr. Babb, of Massachusetts, to possess a sound-producing apparatus and to produce sounds. In Burchell's Brazilian collection six beetles of this group bear the number '1142.' Turning to the manuscript note-book we find, '1142. *Passalus*. Found under large chips of wood in the forest. In the manner of *Carabi*, but it does not run a fourth so quickly. Judging from large holes in these chips its larvæ are bred there. On taking it in the hand it makes a faint [sound] between a hissing and a squeaking; like the *Lamiæ*.'² The observation is dated December 9, 1826, and the locality was Rio das Pedras, Cubatão, near Santos.

The following observation is even more interesting, inasmuch as it led, directly it became known, to the discovery of a sound-producing apparatus of an entirely new type in scorpions. In his Brazilian note-book Burchell recorded, on December 3, 1828, when at Porto Réal (now Porto Nacional), on the Tocantins River, that a scorpion denoted by the reference number '1247' 'makes a noise between a hiss and a whistle with its pectiniform appendages,' the well-known pair of curious comb-like structures on the ventral surface. R. I. Pocock, F.Z.S., the authority upon scorpions, who has made a special study of their sound-producing organs, was shown the note, and expressed the opinion that Burchell was mistaken; for (1) no American scorpion was known to produce a sound, (2) no scorpion of any kind was known to make use of its pectiniform

¹ *Trans. Ent. Soc. Lond.*, 1900, p. 448.

² *Proc. Ent. Soc. Lond.*, 1904, December 7, pp. lxxxiii, lxxxiv.

appendages for this purpose. The collection was searched, and the scorpion bearing the number '1274' soon found. It was submitted to Mr. Pocock, who identified it as *Rhopalurus borellii*, one of his own species, only described in 1902! Guided by Burchell's note, Mr. Pocock then examined the appendages and the area beneath them, and at once found a new sound-producing organ, which he described and figured.¹

These few brief examples, selected from the mine of wealth hidden in the unpublished records of this wonderful observer, will, I think, lead every naturalist to sympathize with the hope expressed by Dr. Adam White in 1848: 'It is to be wished that he [Dr. Burchell] would give to the world some of his "field notes" made during his travels in South America.'² This hope is, I trust, destined to be fulfilled at no distant date, at least as regards all the notes which can be recovered.

Burchell's views on collections, published in 1822, were broad and scientific, as will be seen at once in the following admirable paragraph: 'It must not be supposed that these charms [the pleasures of Nature] are produced by the mere discovery of new objects; it is the harmony with which they have been adapted by the Creator to each other, and to the situations in which they are found, which delights the observer in countries where Art has not yet introduced her discords. To him who is satisfied with amassing collections of curious objects, simply for the pleasure of possessing them, such objects can afford, at best, but a childish gratification, faint and fleeting; while he who extends his view beyond the narrow field of nomenclature beholds a boundless expanse, the exploring of which is worthy of the philosopher and of the best talents of a reasonable being.'³

It is a strange thing that the man who thought and wrote in this way should himself have brooded over the possession of specimens. That this was certainly the case with Burchell can be proved by many records, of which the following is the most striking. It is contained on a folded sheet lying loose between the pages of his African Catalogue of Insects. He had exchanged some specimens with the Australian naturalist W. S. Macleay, and the sheet bears the list of what Burchell received. It appears to be quite a generous return for the insects given by Burchell, which are also recorded on another sheet. In spite of this the genial Macleay had written at the end of his list.

¹ *Ann. and Mag. Nat. Hist.*, 1904, p. 56, Plate iv.

² Appendix to Methuen's *Life in the Wilderness*, London 1848, p. 355.

³ Vol. i. p. 505.

'I shall take an early opportunity of looking out more genera for Mr. Burchell.'

Beneath this Burchell had written in pencil '(which has never been done. 4.9.46. 14.6.60).' Furthermore, at some later time he had rewritten the words, figures and first parenthesis, in ink. Consider what all this means in this life. The insects were received in 1824, when he was about forty-two years old. Twenty-two years later, when he was about sixty-four, Burchell noted that Macleay had forgotten to carry out his promise. Fourteen years later, at about the age of seventy-eight, he redated the note. Still later, at some time between June 14, 1860, and March 23, 1863, he rewrote the statement in ink.

We have now to attempt to penetrate the mystery which surrounded Burchell after his return from Brazil, and, as far as possible, to ascertain what was the nature of his work. A careful study of the botanical manuscript at Kew will probably throw much light on this question. In the meantime such results as I have had the opportunity of gaining from this source are briefly summarized:—

'The Brazilian Herbarium (including those of Portugal, Madeira, and Teneriffe), collected between 25 March, 1825 (arrival at Lisbon), and the 10th February, 1830 (sailing from Pará), was begun to be unpacked at Fulham on 3rd February, 1847, and ended on 15th Feb., 1850.' After this general statement there follows the exact date at which each of the 132 parcels of plants were opened.¹ There is also a long and detailed account giving the condition of each parcel, from which we find that the earlier lots had suffered from water or damp. It is probable that the insects missing from the Brazilian collection are to be accounted for in the same manner, as the gaps among these are far more numerous among the first-made captures. As the parcels were unpacked the specimens were arranged in fresh botanical paper, the total quantity of which cost £38 (£35 11s. 6d. and £2 8s. 6d. 'loss by exchange'), and weighed, without the plants, 1,930 lb., or nearly a ton.²

¹ Other work was, of course, carried on simultaneously. Thus among the papers recently received from Mr. Francis A. Burchell is the following record:—

'Register of the Thermometer of the Wind, and of the Weather, at Churchfield-House; Fulham, (&c.) from the 29 August 1844, till the 16 of June 1852. Kept by Wm. J. Burchell.'

A paper in the Brazilian note-book shows that the work of relaxing and setting the insects occupied many years, and was finally finished on September 26, 1846. The dates at which the Lepidoptera were done are published in *Ann. Mag. Nat. Hist.*, April 1904, p. 308.

² All these data concerning the herbarium are extracted from *Memoranda Botanica*, MSS. J, Part II., at Kew.

Brazil was an interesting contrast to Africa as regards the vitality of the seeds brought home by Burchell. From forty-three parcels of Brazilian seed sown May 27-29, 1830, only about eleven plants grew, and all of these died within the first year.

After unpacking and arranging in fresh paper there followed an interval of six years before Burchell began, on January 28, 1856, to re-label his Brazilian Herbarium. The work was completed on May 5, 1860, over 49,000 specimens having been dealt with. Referring to this work there are many calculations—based upon the time occupied in cutting up a few bundles—of the period that would be required to cut up the whole. The frequency with which this calculation is repeated for the bundles still remaining seems to show a painful eagerness to get the data supplied in their final form during his life.

When the last label was fixed, on May 5, 1860, all detailed labour upon his collections was probably over. The following significant entry shows the kind of work which immediately succeeded: 'On June 11, 1860, I finished the rubbing out of the pencil writing which I had any where in all my African & Brazilian Catalogues replaced in China Ink of *this* tint, consisting of 24 8vo. vols. and 1 folio (vol. 9).'¹

Inscriptions similar to that quoted on p. 64 were also probably written at the close of his career after the collections were supplied with data.

As time went on, and he still laboured at the details of his herbarium and zoological collections, the man who had started as a traveller admirably equipped with a knowledge of every science of the time was left behind by the onward sweep of scientific work. Mighty discoveries shook the world, but left him unheeding in his study. 'I well remember,' Sir Joseph Hooker writes, 'one conversation with him at the Linnean (in the fifties?) when he told me he had never even heard of photography, and showed great interest in my account of it!'²

Burchell committed suicide on March 23, 1863.³ He would have reached the age of eighty-one or perhaps eighty-two (see note 2 to p. 58) on the 23rd of the following July. It is stated that 'he shot himself under the large cedar tree in front of Churchfield House. The wound not proving fatal, he terminated his existence by hanging himself in a small outhouse at

¹ All these data concerning the herbarium are extracted from *Memoranda Botanica*, MSS. I, Part II., at Kew.

² March 29, 1903.

³ The anniversary of the death of his friend R. A. Salsbury (March 23 or 24, 1827); but the coincidence was probably accidental.

the back.'¹ The finding of the jury was 'Suicide during temporary insanity.'²

Burchell's will is dated March 2, 1841, and no further alteration was made after this date. There is no reference to his collections or manuscripts. After leaving money or property to his sisters, Mrs. Jackson (and to her husband), Mrs. Butcher and Miss Anna Burchell, the rest of his estate was bequeathed to his sister Miss Mary Burchell, whom he made his sole executrix. Mary Burchell died before her brother, and the residuary estate passed to Miss Anna Burchell.

Sir Joseph Hooker, to whom I owe so much in the attempt to learn the details of Burchell's career, tells me that he never knew anything of the circumstances that led to his death. He makes the following deeply interesting suggestions as to the possible state of mind which led to the act: 'He could not make up his mind either to publish his own labours or to let others do so, or join him in the work. This and the reproaches of a sensitive mind and highly strung nervous system in a shy man of great mental power and resources, coupled with the memory of great deeds as a traveller, collector, artist, musician and scientific investigator, may well have led to despondency and suicide.' The study I have made of his manuscript³ has led to the belief that the close of the long labour upon his collection was indirectly the cause of the state of his mind; and that if the rearrangement of his plants and insects and the supply of data to his specimens had not been completed he would have persisted with unflagging determination to the end. But his life-work was over. It was manifestly impossible, when he was over eighty, to undertake an entirely new line of work, which, moreover, could not be even begun without the co-operation of other naturalists, the very men whose companionship he had shunned for the long years in which he was resolutely working upon his collections. This great man spent his life, after his return from Brazil, in building a mighty monument for posterity. That he might achieve more he built secretly. It is our duty and our responsibility to reveal the stately fabric to the world.

¹ C. J. Féret, *Fulham, Old and New*, London 1900.

² This information was kindly supplied to me (June 2, 1903) by the Registrar-General.

³ Especially *Memoranda Botanica*, MSS. I, Part II., at Kew