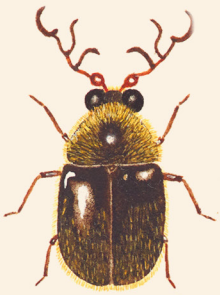
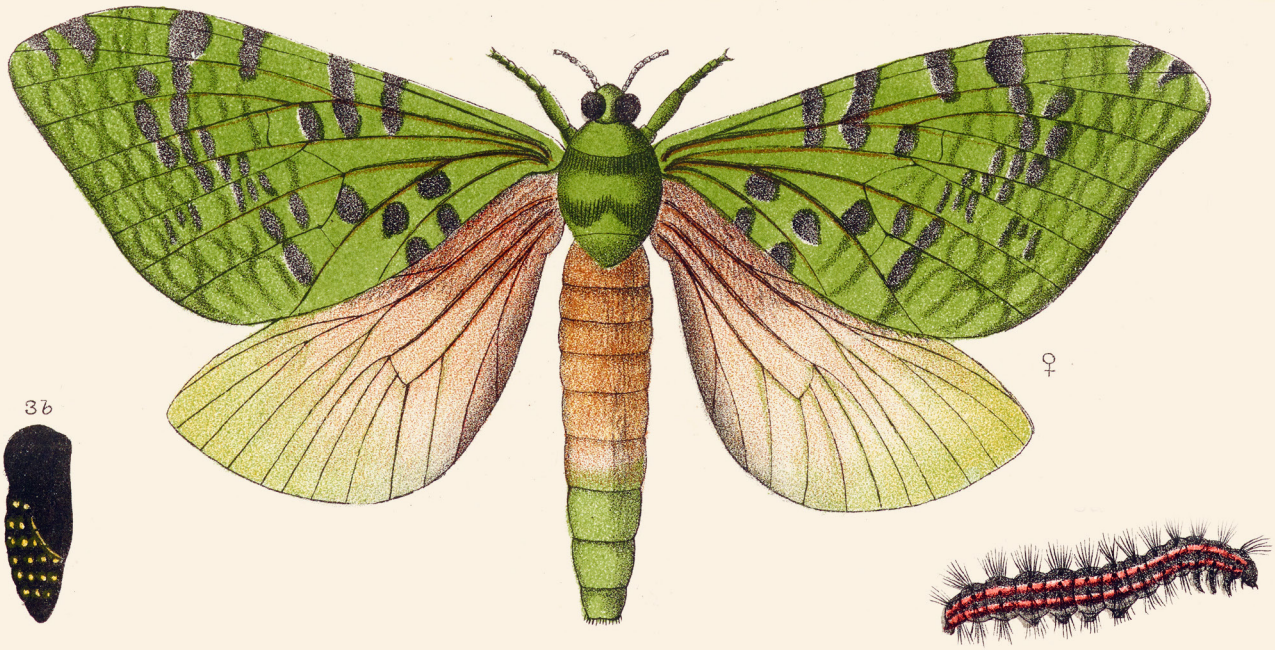
GEORGE GIBBS

AN EXQUISITE LEGACY





The life and art of New Zealand naturalist G. V. Hudson

8. *The books*

From a grandson's point of view, deciding which of Hudson's life works he would have chosen as his main achievements is not as straightforward as it may sound. He left a meticulous record of his daily activities and an overview of the important events; there is no doubt he had a vision, but, like most of us, he could hardly be expected to commit it to paper. What was not high on his list of goals was financial gain from a successful career. If he had an overall goal it would have been to win people over to the way he saw the world: putting an appreciation of natural history ahead of financial reward.

This chapter examines the seven books that he wrote over the 65 years of his life in New Zealand – the achievements that would rank in most people's minds as his most important contribution. In her resumé of Hudson's life and works, his daughter Stella reviewed the time and effort that went into each of his books, essentially subdividing his life into sections depending on which book was being prepared. This also makes great sense to me, because it is clear from all his writings, and in particular those in the 'Summary of Diaries', that the book he was engaged on at any given time set the pattern for his life. There are no gaps in his book-writing. They were the 'life work that [he] had set out to do'. He followed his guiding principles, but it would be fanciful to think that he was following any fixed plan.

In one sense, each book's subject matter evolved from the time in his life when he was compiling it. Thus, the first was a simple guide-book to our insects – *An Elementary Manual of New Zealand Entomology, being an introduction to the Study of our Native Insects,* to give it the full title. It came as he was settling into an unfamiliar environment and getting to know its fauna. Following on, in the vigorous years of his early life, as he undertook marriage and the breaking in of a Karori hillside, he embarked on what looks to me like an excessive goal, throwing his efforts into the larger moths and butterflies – not just as an introduction but to provide a comprehensive account of every species known at that time. This book, which he referred to as the *Moths and Butterflies*, became a physically very large volume and was started as soon as the *Manual* was published. It took him just six years to complete at the age of 32. Once finished he looked around for a book project that he could attend to close to home. The perfect topic was our freshwater

The lithographed Plate IX from *An Elementary Manual of New Zealand Entomology* (1892). Completed in 1886 when he was 19 years old, this was Hudson's first published book. He was unable to raise the capital to have it printed until six years later, when it was printed in London, using chromolithography for the colour plates – a good example of what could be achieved by this process at that time. The upper figures are all of puriri moths, male above, female below, separated by the larva and pupa. Lower left is a porina moth and, right, the magpie moth with its larva and pupa.

The layout of Hudson's original painted plate (not shown here) was more standardised – specimens in straight rows: the two large green moths above and the larva/pupa below; the two lower moths in a linear row across the bottom. The publishers made these changes, presumably to achieve a more 'balanced' or what we would now call 'Victorian' presentation. Another example of this treatment of Hudson's original artwork by the lithographers is seen in Fig. 54, showing his 1898 book on moths and butterflies (by the same colour lithographers).

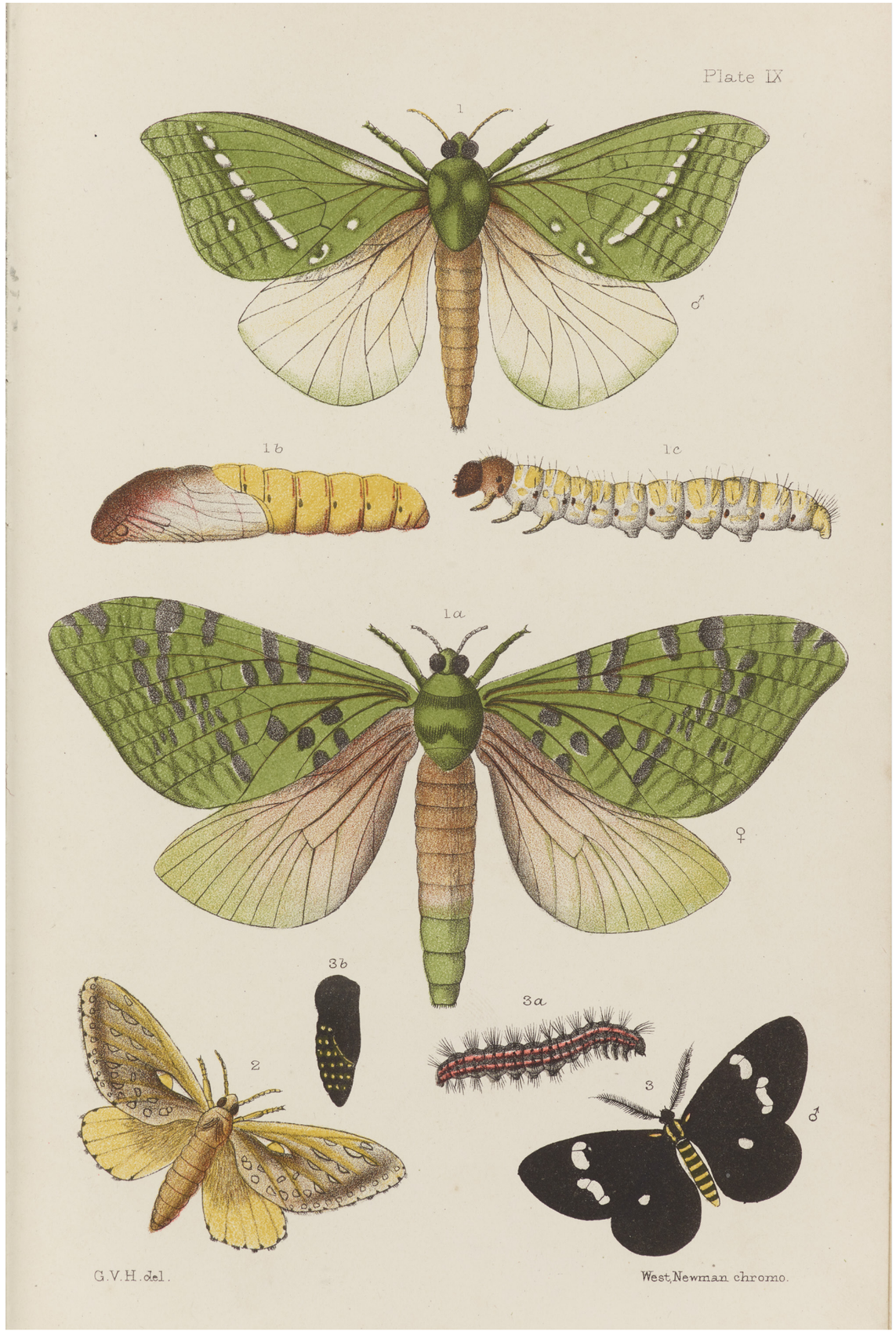
insects, then referred to as *Neuroptera,* the collection of which could take place within a few hours' travel from 'Hillview'. This little book, his smallest, together with Stella's pre-school nurturing, occupied him for four years, until 1904.

The most significant planning decision of his life kicked in as soon as *Neuroptera* was published. It was the year he began work on the 'Big Book', as Stella described it, his 'magnum opus'. This book confirmed his dedication to moths and began as a revised and enlarged edition of *New Zealand Moths and Butterflies*. With inclusion of the Micro-Lepidoptera the work assumed monumental proportions, ultimately taking him 24 years to complete.

By the time he was over 60, age was affecting the sort of field trips he could undertake, and he resolved to shift his attention to beetle-hunting. The beetle book was the last he achieved during his lifetime, although he left yet another volume as a completed manuscript at his death.

From this summary of his publishing life, we can return to the question of planning. Is there evidence of forward vision? I don't believe there is, apart from the commitment to focus on moths and butterflies to the exclusion of other insect groups. The size of the books and their subject matter very much followed his own life cycle, but there was no fixed plan.

As we have seen, his first published book was *An Elementary Manual of New Zealand Entomology, being an Introduction to the Study of our Native Insects*. His purpose for this introductory text follows the trajectory that he himself took in becoming familiar with New Zealand's common insect life. He discovered the insects and added them to his collection, before beginning to seriously paint illustrations in 1885. The book was completed at a feverish pace to be ready for review by his peers before the end of 1886. One of these was the Premier of New Zealand, Sir Robert Stout, who received a copy for appraisal and presumably a plea for financial support. Stout was also known for his ardent support of the women's suffrage



Manual of New Zealand Entomology, Plate XVII. This is the original artwork for Plate XVII as painted by Hudson to show a selection of common insects that he referred to as Orthoptera. Today we would call these the orthopteroid insects, here represented as four distinct insect Orders in modern terminology. On this plate he has painted: the New Zealand mantid, Mantodea (fig. 2); four grasshoppers – a katydid (fig. 1), a locust (fig. 3), a common grasshopper (fig. 4) and a female tree weta (fig 8), all Orthoptera; two native cockroaches (figs 5 & 6), Blattodea; and an earwig, Dermaptera (fig. 7).

For this, his first book, Hudson painted all the figures for each plate on a single sheet of paper. He had yet to develop the system of using a separate card for each figure, thereby giving the opportunity for further 'editing' if had second thoughts about his original layout. In this particular case, the layout of figures in the published book differs from this original layout, presumably modified by the lithographers to place the large weta in a more prominent, central position.

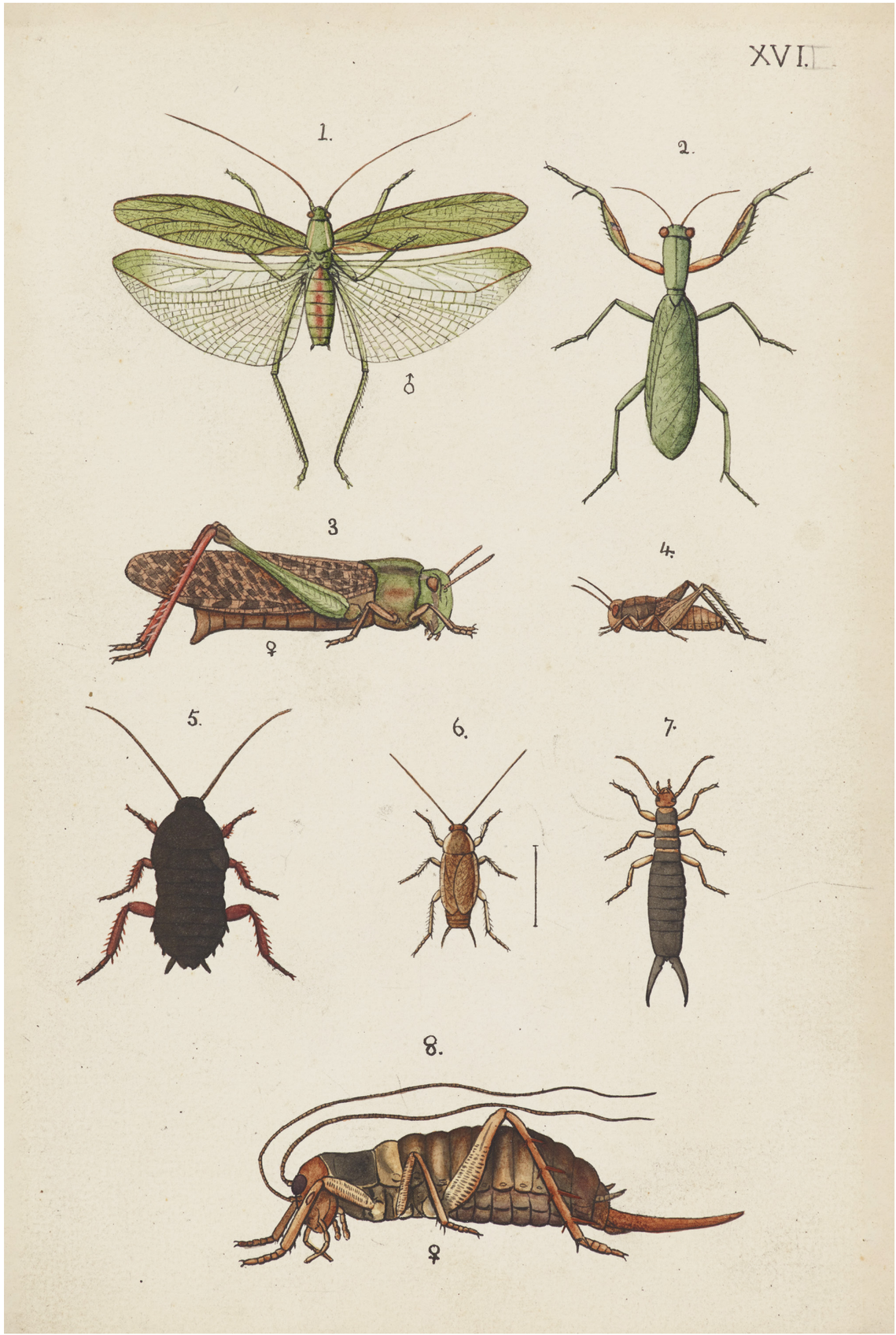
movement but in 1887, during the turbulent times of an economic depression, he lost his seat; the suffrage bill was lost too; and the book had to wait a further six years before any money for publication could be guaranteed from the government.

Although Hudson expressed no regrets about the delay in his diaries, the frustration must at times have been overwhelming. He approached a London publisher, J.T. Carrington, in 1887 and again in 1888. That he considered taking up the study of dentistry in 1889 is surely a clear indication of how dispirited he must have been. Nevertheless, trying to be more positive, he concluded that year by saying he was making considerable progress with his entomology. Finally, in 1890 there was cause for celebration – his office position improved with regular hours and holidays, and he learnt that the government would be prepared to order 1,000 copies of the *Manual* at 5s per copy. The book was sent to West, Newman & Co of 54 Hatton Garden, London, for publication, and dentistry was never mentioned again. The *Manual* duly arrived and was on sale to the public on 9 April 1892.

I have a copy of the book inscribed on its brown endpapers to 'Florence Gillon, dated April 6th 1892, from G.V.H. The first copy of this book issued in New Zealand.' Its hard red cover is imprinted at the top with 'Manual of New Zealand Entomology' in gold letters. In the bottom right-hand corner a small gold-leaf butterfly appears, not faithful to any figure inside the book (that is, to any New Zealand insect), and may well have been added by the publisher. Another copy, dedicated to Stella on her eleventh birthday in 1908, has the same cover but coloured green. A third copy has a blue cover.

Hudson's next book project was much more comprehensive than the *Manual*, yet it has slipped into obscurity owing to the success of its 1928 replacement. Unlike the *Manual*'s introductory approach, *New Zealand Moths and Butterflies (Macro-Lepidoptera)*, of 1898, attempted to cover all the then-known kinds of 'Macro-Lepidoptera' – 235 species in all. A few species were not figured because Hudson was either unacquainted with them or hesitant to consider them distinct.

In Hudson's 'Summary of Diaries', *Moths and Butterflies* is first mentioned in



New Zealand Moths and Butterflies (1898), Plate XII. The chromolithography and production of this book was done in London. Fortunately, the completed books made it back to New Zealand, but no trace of its original artwork remains; possibly it was lost at sea. This volume was a full quarto size (31 x 25cm) and contained over 400 coloured paintings of the larger moths, otherwise referred to as Macro-Lepidoptera. The insects are mostly shown at about life size on the plates. This plate depicts admiral (Nymphalidae) and copper (Lycaenidae) butterflies.

1893. Twenty-six-year-old George was busy with 'many alterations and additions to the house etc which rather stopped our usual trips', not to mention marriage to Florence on 30 December and their glorious honeymoon at Lake Wakatipu. Life continued on a new level when the Hudsons 'settled down to domestic life and rather many visitors at times' while still finding the time to make progress on 'collections and *Moths and B's*'. With Florence now part of the 'team', and the availability of his good friend and field assistant, Frank Hawthorne, serious South Island field-collecting trips continued, at least for a few years. They made a successful assault on the Mt Arthur Tablelands, and in 1896 George was devoting his time to construction of an observatory on the hill next to Will's house while continuing 'work on *N.Z. Moths*'. During 1897 he had made preliminary arrangements for the publication of this volume, in addition to hailing the birth of their daughter Stella. There is also a glimpse that book projects were planned at least one step ahead when he wrote at the bottom of the page for 1897 that he had 'started book on *Neuroptera*'.

New Zealand Moths and Butterflies is an impressive full quarto size, but with an unadorned cover, apart from its gold-leaf title – no symbolic little butterfly. It contains 408 figures painted at life-size scale, along with 95 pen-and-ink drawings of structural features, mostly wing veins, á là Meyrick. The chromolithography gives attractive results for New Zealand's predominantly cryptic endemic moth fauna with their muted browns, black and ochreous colours, but falls short on brightly pigmented species like the butterflies and many of the diurnal moths which feature leaf- or moss-green pigments. (BOX 4) The most annoying point about the figures is their non-sequential numbering on the colour plates, which makes the individual species hard to find. Although carefully arranged in columns or symmetrical patterns, the columns are more or less randomly numbered. This is the only Hudson book to which this criticism applies; coincidentally, it is also the only book for which the whereabouts of the original plates is unknown. Perhaps he painted each entire colour plate (up to 51 figures in one case) on a separate sheet of paper before allocating the numbers. By whatever means he reached the final arrangement, the outcome is suggestive of indecision owing to the addition of extra species and/or a change of ordering late in the book's production. No clues are offered in his diaries. Significantly, the much smaller *Manual* had been illustrated by using a separate sheet for each colour plate, but in all his later books the individual figures were executed on the small pieces of card that could be replaced, edited,

Fragments (1950), Plate XI. This plate was left, fully completed, at his death, along with the other plates for *Fragments of New Zealand Entomology*, including all the instructions for its publication. According to his custom, each insect had been painted separately on a small high-quality card at the size it was to appear in the book. It could thus be replaced if necessary by another painting before the book went to press.

His daughter Stella faithfully completed the task after his death. In her view, her father's 'artistic skill reached its consummation in the figures for this book, thus fulfilling the life's task he had set for himself'. These paintings for Plate XI were given the subtitle 'some Rare and Interesting Beetles'. Incidentally, the 'del.' term after Hudson's initials on each plate are an abbreviation for 'delineated'.

and moved around on the plate at any time throughout the preparation period. Curiously too, this is the only book in which he placed the figure numbers below each painting, not above.

Criticisms of the 1898 book have long been forgotten due to its replacement by a superior new and revised volume covering all Lepidoptera, both macro- and micro-, published in 1928 and colour-printed by photoengravure. It marks the pinnacle of his publishing career. But certain mysteries remain. Were the plates ever returned after being printed in London? Were they lost at sea? A family myth had it that the originals of one of the books were lost during the bombing of London – a most unlikely scenario, given that none of the books was printed during wartime, and the London blitz occurred long after this one was completed.

By the time he was finalising *Moths and Butterflies*, with revision of proofs in early 1898, Hudson was well into *New Zealand Neuroptera,* a radically different book aimed at trout fishers and 'the general reader'. Its subject matter was a new field of entomology for him. He needed to rely on expert assistance from David Sharp and Robert McLachlan,23 museum authorities in Britain, as well as on the work of Frederick Hutton, a retired professor of biology at Canterbury University, who had written a review of New Zealand freshwater insects in 1899. My feeling is that what he really enjoyed most about this little book was that the field collecting could be done locally, without unduly disturbing his newly established home life. He also found the insects themselves a joy to work with. At this time, the Hudson family were taking their holidays in the Wainuiomata valley to the east of the Hutt Valley, a water-catchment area of superb, undisturbed indigenous forest where the aquatic insect life was extremely rich and where rentable accommodation was available. It was only a few hours from home. The unpolluted pristine streams around Karori, well populated by aquatic insects, were also perfect collecting localities. His diaries from this period came to resemble an art gallery of aquatic insect larvae – most of which were unidentifiable when captured in their larval stage. He needed to rear each type through to adult to discover which species they belonged to. The larvae (or 'nymphs' as they may be referred to – Hudson uses both terms) could be kept alive in a variety of ingenious aquaria in his 'back bedroom' (or 'caterpillar room') where he could study their feeding behaviour and growth, and

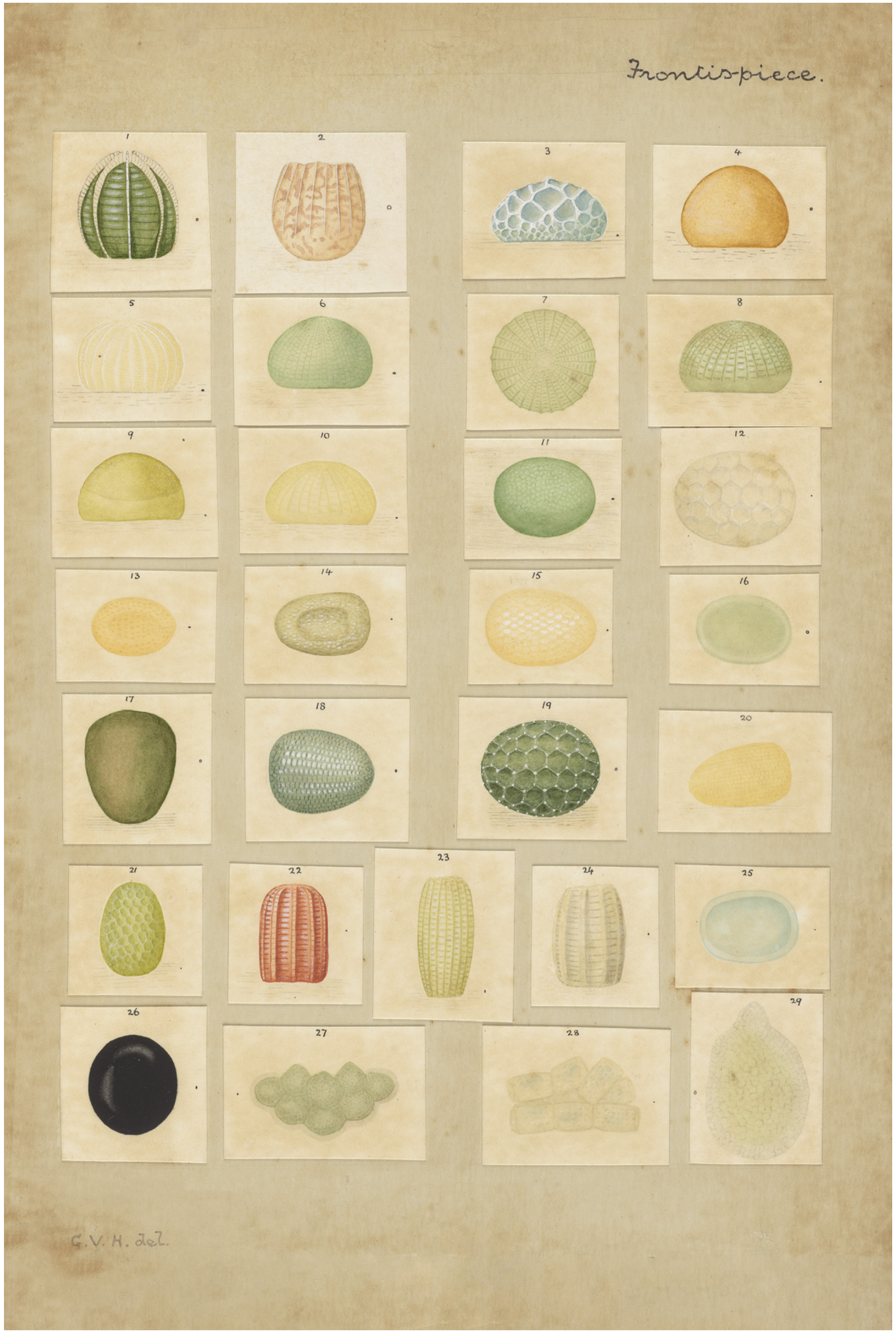
Eggs of New Zealand's butterflies and moths. These were presented as the Frontispiece plate for Hudson's largest work in 1928. This whole plate, painted from life, represents a triumph of patience and perseverance: each egg with a background story to explain precisely how the painting was obtained; the trials and tribulations of collecting the female moth and keeping her alive long enough to provide a sample of eggs; and finally having the opportunity to paint the egg before its normal colour-changes began to take place over the next few days.

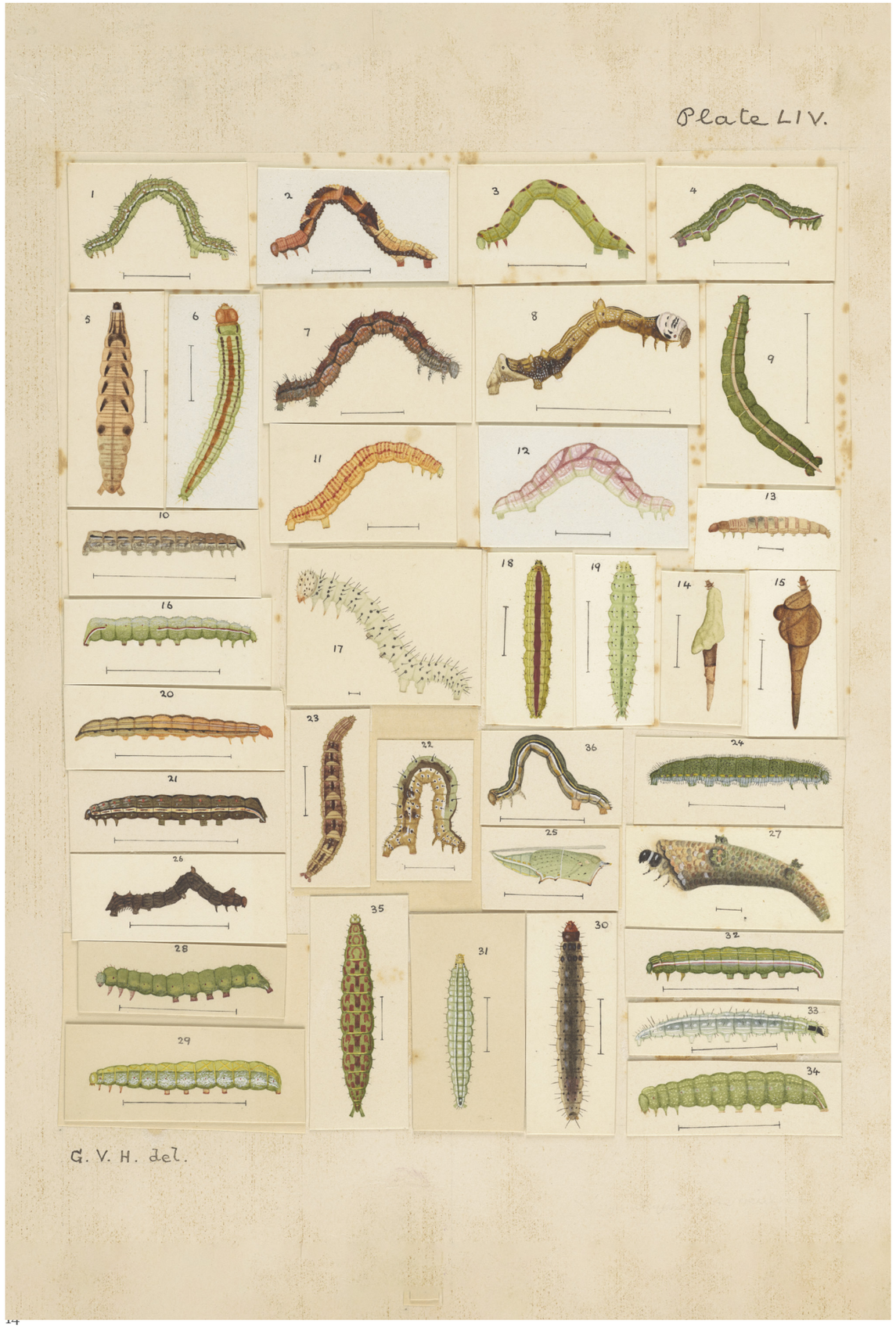
the connection between the stream-dwelling stage and the short-lived, delicate, gauzy-winged adult that would emerge. Life-history studies were always first and foremost in his work programmes, no matter what kind of insect was being investigated. The aquatics presented an additional challenge because once prepared, dried, and mounted on a pin for the collection, their net-veined wings posed a serious test of artistic skill.

In those days, 'Neuroptera' was what we would call today a mixed bag of diverse insect groups, incorporating the mayflies, stoneflies, dragonflies, caddisflies and lacewings that live in or beside freshwater streams, with a few termites and an alderfly thrown in. Knowing your insect is a key factor in the Victorian art of fly-tying for freshwater angling. Hudson's *Neuroptera* book contained an appendix on the food of trout, which he compiled from examinations of trout stomachs brought to him fresh from the hands of local anglers. Assessment of the culinary fate of these specimens is avoided. *Neuroptera*'s genesis continued until 1902, three years after *Moths* was released for distribution (1899), when the plates were again sent off to West Newman & Co. of London for printing by chromolithography – his last book to utilise this technology.

New Zealand Neuroptera is a small but attractive volume of 101 pages with painted figures of 49 winged adults and 40 of larvae and pupae. I have a copy inscribed to me by the author during my sixth year, probably a subtle offering designed to entice me to participate in the joys of entomology. I have another copy inscribed for Stella on her twelfth birthday (which her father had marked with the presentation of two of his books). This book set a new standard for his following four books by using an exquisite gold-leaf mayfly imprinted on the cover. As a representative of the diversity of New Zealand neuropterans, his cover choice was an exceptionally good one: the two-tailed male of *Ichthybotus hudsoni*, our largest mayfly species and one named in honour of Hudson by Robert McLachlan, working from London.23 GVH discovered that its distinctive carnivorous larva, unique in the New Zealand fauna, lived in the gravelly substrate of streams, where its populations were synchronised to the extent of a few mass emergence flights that took place over the Christmas period.

The year 1904 not only heralded the publication of *Neuroptera* but also marked what turned out to be a significant change to his publication plans. This





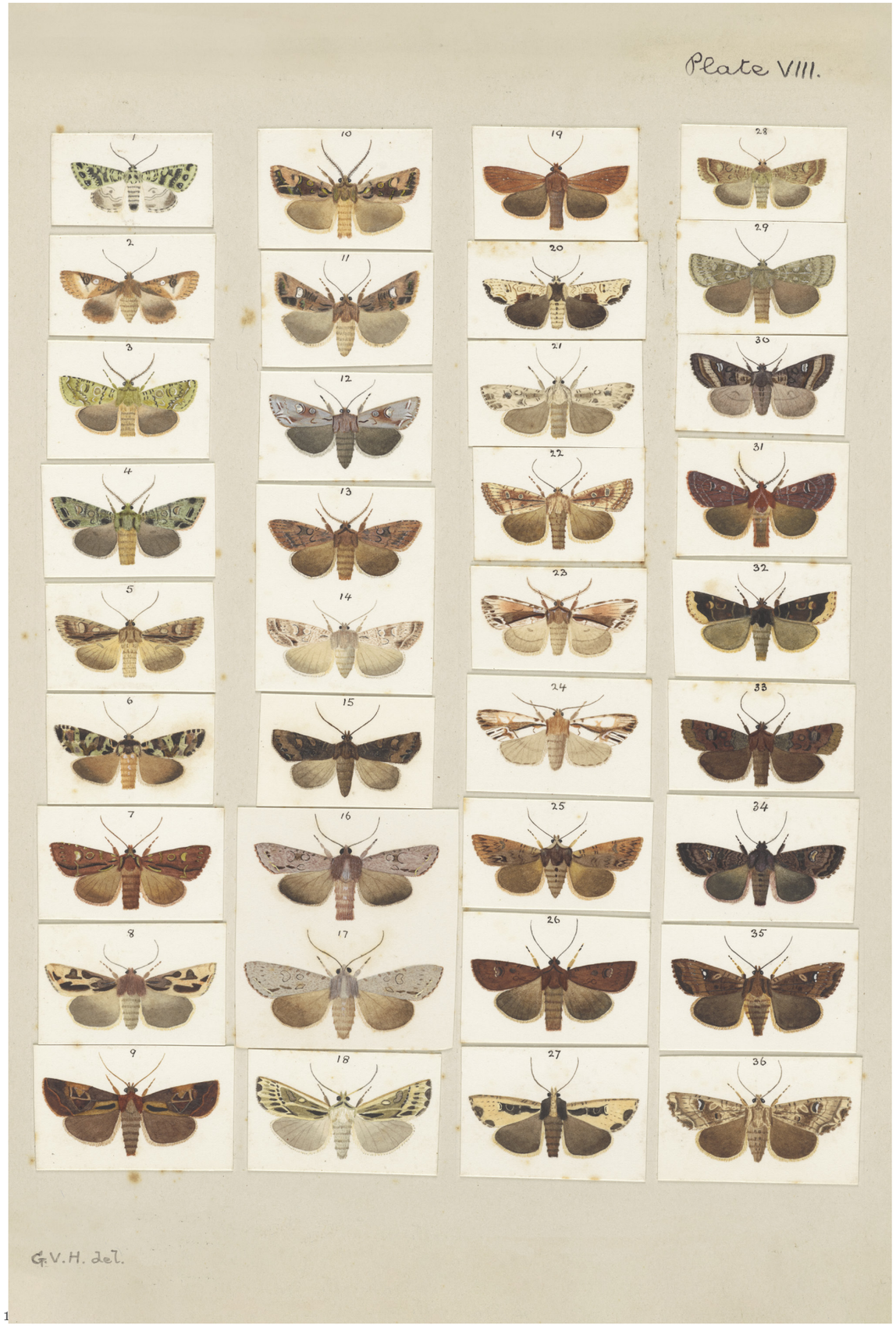
Caterpillars of New Zealand Lepidoptera. One of the five plates that Hudson painted to show the living colours of moth and butterfly caterpillars of New Zealand Lepidoptera. This one is from the *Supplement to Butterflies and Moths of New Zealand* (1939), Plate LIV.

OVERLEAF: Night-flying moths. This plate shows a selection of noctuids, one of the largest of the moth families, heavy-bodied species that are commonly attracted to lights at night. The plate is from *Butterflies and Moths of New Zealand*. The family Noctuidae or 'owlet moths' are characterised by their cryptic colours and nocturnal activity which draws them to artificial lights. New Zealand has about 160 known species in this family. George Hudson lived through the heyday of discovery for many of these moths, collaborating with Alfred Philpott and several others referred to here as the 'gang of five'. He described 15 new species of noctuid, wrestling with the variable nature of their colourpatterns.

was the year the 'Big Book' – *The Butterflies and Moths of New Zealand* – was conceived and begun. It was a project that would occupy him for the next 24 years and become the landmark achievement of his entomological career. He was at his prime – fit, active and able to organise and carry out physically demanding collecting expeditions to the far corners of New Zealand. According to Stella's account, the book started as a revised and enlarged edition of his previous *Moths and Butterflies*, but with the inclusion of the Micro-Lepidoptera the work assumed monumental proportions.

Stella was ideally placed to describe the production of this work, written during the years of her residence at Hillview. She stressed that her father was undismayed at the magnitude of the task. His goal was to include every known species of New Zealand lepidopteran, however great or small – it had to be painted and described, preferably reared from egg to adult, so that its full life cycle could be included. She noted that hundreds of drawings and paintings were discarded as 'not quite up to standard', and were re-done a second or even third time. Ultimately, in this quarto volume and the *Supplement* that followed 11 years later, 1,471 species were covered – a quantum leap from the 235 species of the earlier book. The 'Big Book' plus *Supplement* required 364 pen-and-ink diagrams of wing-vein patterns and 2,035 coloured figures of eggs, caterpillars, pupae and adult insects. Without doubt, these two volumes established Hudson as New Zealand's foremost lepidopterist. The New Zealand government undertook to buy 300 copies, which, together with sales guaranteed by numerous private subscribers, covered the costs of publication. These, of course, don't come unsolicited, representing in themselves a significant part of the production effort for books of this calibre. The 1928 volume shifted the gold insect (a tussock butterfly) to its broad spine, leaving the title alone on the cover, but the 1939 *Supplement* returned the imprint to the cover, placing a gold moth below the title.

After publication of *Butterflies and Moths*, Hudson shifted his attention to the study of beetles. As before, he focused on rearing larval stages, a task which involved great perseverance because many lived concealed inside living or dead



timber which, when kept for extended periods, tended either to dry and squash the larvae or, if kept too moist, to become mouldy. Several years might elapse before he could finally secure a complete life history for certain key species. Fresh artistic problems arose too, for beetles must be represented as three-dimensional creatures with bulbous sculptured or reflective surfaces, quite different from the flat pigmented wings of moths and butterflies. In the field, the butterfly net was replaced by a large white umbrella, which was inverted and held open under beaten foliage or blossoms until a shower of rain necessitated restoring it to its rightful purpose. Many beetles were found by simply searching for them on the bark of a tree, or by prising off large flakes of bark to see what was hiding underneath. Others were found by spreading leaf litter or mosses on sheets of brown paper in the hot sun, thus encouraging the targeted insects to get up and run. Hudson always said that beetle-hunting was a suitable hobby for an old man. He pursued it vigorously until the day before his death.

The last book published during his lifetime was *New Zealand Beetles and Their Larvae*, released in 1934. A gold giraffe weevil, *Lasiorrhynchus barbicornis*, adorns the blue cover. Like some of his earlier books, it was intended as an introduction to the fauna, offering an elementary guide to the various types of beetles and their larvae. Over 4,000 species of beetle had been described from New Zealand by the time he prepared this volume – what else could he have done? For those seeking more detail he compiled a systematic index to the whole known fauna, with references to their publication – a mammoth task in itself. The artwork in this and his final, posthumous work, *Fragments of New Zealand Entomology*, reaches heights not achieved in the earlier volumes.

Fragments of New Zealand Entomology was published by Stella in 1950 in accordance with Hudson's instructions. At the time of his death, the manuscript was complete to virtually every full stop. It included a preface in which Hudson outlines the purpose of the volume as a suitable publication for gathering together a number of miscellaneous observations. Because many are in relation to recent discoveries in the Lepidoptera, he suggests they serve as a second supplement to the *Butterflies and Moths of New Zealand*. *Fragments* also contains four additional plates and a chapter of text written as a direct continuation of *New Zealand Beetles*. Similarly, Hudson took the opportunity to republish and draw attention to the numerous disparate observations on the New Zealand glow-worm that he had made during his early years here, including the glow-worm plate that had first been published in 1890. As Stella noted, this final work is a fitting memorial to the consummation of his artistic skills. A gold cicada on the cover draws attention to the fact that this book devotes a whole chapter to reviewing the known fauna of these singing insects, one of his favourite groups.

Before we leave this brief resumé of his books, it is of interest to note the quotations that Hudson selected to accompany the title page of each volume.