of the orange- and blue-wattled crows, with albinos of both species (*Glaucopis cinereus* and *G. wilsoni*), a specimen of the very rare New Zealand snipe, from the Auckland Islands; a godwit (kuaka), a dabchick, and a bell-bird, from the Auckland Islands; and a diving-petrel, from Antipodes Island.

Explaining the exhibits to the Philosophical Society, Sir James Hector said the bell-birds had in the past ten years greatly diminished—probably because of the spread of the humble-bee, which entered into competition in obtaining honey from flowers. At the Auckland Islands, however, the bell-bird now existed in large numbers. A peculiar feature about the godwit was that every second year it went to Siberia to do its nesting. He urged that every effort should be made to preserve the New Zealand snipe, which was becoming very rare indeed. This bird, he said, was one of the smartest game-birds that could be got. It retained all the characteristics of the English snipe—flew in a zig-zag manner, was difficult to shoot, and afforded capital sport.

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FOURTH MEETING: *25th September, 1900.*

Mr. G. V. HUDSON, President, in the chair.

*Papers.*—1. "On the *Lepidoptera* of Mount Ida District," by Mr. J. H. Lewis; communicated by Mr. G. V. Hudson. (*Transactions*, p. 186.)

Specimens illustrating the paper were exhibited.

Sir James Hector considered this a most useful contribution, which he hoped would be followed by others.

2. "Early Explorations and Colonisation of Western Canada," by Sir James Hector.

ABSTRACT.

Sir James briefly sketched the early history of Canada, formerly a comparatively insignificant portion of the British possessions in that region, and the adjacent country, millions of square miles of which had been chartered to the Hudson Bay Company, who established a line of small fortified trading-centres, and worked the country solely for its furs. Casual adventurers penetrating this region brought back reports of its vast and fertile plains, its favourable climate, and immense undeveloped wealth. The company, on the other hand, represented it as a desolate and frigid waste, valuable only on account of the wild fur-bearing animals it produced. Agitation for the opening of the country led the Home Government to appoint the Palliser Expedition, which started in 1857. The lecturer—then a young man who had just completed his university course—was selected by the University of Edinburgh for the post of naturalist and medical officer to the expedition, and one of his first duties on arriving in Northern America was to nurse his leader through a sharp attack of typhoid. Subsequently, in the occasional absence of the head from the scene of operations, the whole charge and responsibility fell upon Dr. Hector, who had to act many parts—as geologist, naturalist, surveyor, physician, diplomatist (having negotiated a treaty with a native tribe), besides bearing his own share of the "pack" in those parts of the journey where the party carried their belongings and provisions on their backs.

The expedition started from Lake Superior, on which much of the

ice still remained, and the explorer for the first time "camped out" on a small island off the British shore. Owing to the ice, it had been necessary to charter a steamer; but from here they conveyed their bark canoes by water and "portage" across the intermediate country to Lake Winnipeg. These canoes, weighing 2½ cwt., could only be set down on the water, and the burden on the two boatmen who conveyed these awkward articles on their shoulders, sometimes four miles at a time over steep ridges and rough country, was heavy. Dr. Hector's own pack—"quite an insignificant one"—was 80 lb. His recollections of the country are still vivid—its innumerable cataracts and grand waterfalls, the vast natural rice-fields of Lake Winnipeg, the enormous flocks of geese and ducks of many species, pelicans, and other wild birds, feeding on the rice and the fish of the lake. Then he described the fertile prairies, with their herds of buffalo, extending a thousand miles from the lake to the Rocky Mountains; of the excellent French botanist, whose taste for "le sport" sometimes led him, in defiance of strict orders, to diverge from the direct track, whereby the odometer attached to his vehicle, from which the "log" of distance traversed was taken, would sometimes register more than was warranted. The Grand Plateau was described—the "Thunder-breeding Hills," where a stratum of moist air continually flowing over a dry layer below charged with electricity of the opposite kind caused terrific displays of thunder and lightning almost daily. Sitting one day in his tent, he sketched a small approaching cloud of curious form, the nature of which he did not suspect, when a sudden discharge of lightning stunned him for several minutes. Recovering, he saw a thin column of smoke ascending from an Indian wigwam some 3 or 4 chains away. Hastening to the spot, he found the central support splintered, and the native inmates—four men and two women—all dead. Wintering at Fort Carlton, he made solitary journeys on snow-shoes in various directions, and concluded a treaty with the Blackfoot Indians, whose chiefs affixed their signatures by impressing their thumbs in soft sealing-wax. The treaty obligations, he added, were duly observed, and the signatures were treated almost reverentially by the natives.

Much of the energy of the expedition was devoted to the task of finding a pass through the Rocky Mountains. Here they were hampered by two conditions insisted on by the Home Government—they must take the horses through, and the pass must be above the 49th parallel. Unfortunately, this geographical boundary just cut off an excellent pass, through which there ran an ancient Indian trail. However, the best pass in the range (the Kicking-horse Pass) was discovered, and through this, since renamed the "Hector Pass," the railway-line now runs. The adventure which gave the pass its name was nearly a tragic one. Dr. Hector was kicked so severely in the chest that when he recovered consciousness he found that his mates had dug his grave, and it was only by winking his eyelids—the sole signal he was able to give—that he escaped premature interment. On the further side of the Rockies lies the wonderful valley of the Columbia River, up which salmon come to spawn twelve hundred miles from the sea. Here the native goats are woolly, and the large sheep, being covered with hair, are like deer. He told how, stooping to drink from the Saskatchewan Lake one night, he saw a wondrous light in the water—the reflection, as he soon found, of a comet—the great comet of 1858.

The explorer at times suffered severe privations. He narrated vividly how, when half-famished in the snow, his native comrade tracked a moose, and how anxiously he sat awaiting the preconcerted signal—a third shot—announcing that the game was slain; and how, in the extremity of hunger, they were driven to take their first meal without cooking the flesh. Subsequent surveys have made no important change in the map of the vast district then explored.

The work of the expedition occupied three years, and the results appeared in 1860, when, for the first time, the outside world had the opportunity of forming an idea of the wealth and value of the territory locked up by the Hudson Bay Company. Nothing, however, was done for five years, when this territory and British Columbia were annexed by Canada. Agitation to open up the region, however, was fruitless, until, after a stormy debate in the Canadian Parliament, permission was given to a syndicate to carry a railway through to Vancouver, concessions of land being given, and the line to be completed in ten years. The syndicate had money and "grit"; it bought out the rights of the Hudson Bay Company for £300,000 cash and one-twentieth of the produce of the land-sales and set to work. Within a few days of five years, half the stipulated time, the last rail was laid, and trains ran across the continent. The company made no elaborate surveys. It showed the purchasers of land their two pegs facing the railway-line, and gave them the measurements and bearings of their boundaries. He contrasted the condition of the country he explored forty years ago with its present state, and said he knew of no parallel in the world to its progress. Perhaps a hundred and fifty Europeans might then be found in the whole region—now its population was reckoned by hundreds of thousands, and along its railway-line were great cities with every appliance of civilisation.

During the five months and a half in the year in which the lakes were open to navigation they conveyed from this territory 30,000,000 tons of goods, which he contrasted with the 9,000,000 annually conveyed through the Suez Canal. In other respects the changes had been enormous. The populous Indian tribes had almost vanished, those that remained having taken to the woods. Of the countless herds of buffalo, he believed about thirteen individual specimens survived. Many of the species of native birds had wholly or partly disappeared. He spoke of the barbarous and wanton destruction of the native fauna. The last great buffalo hunt was in 1890, when thirty thousand head were killed, and the race practically exterminated.

Mr. W. T. L. Travers, in moving a vote of thanks to Sir James Hector for his address—which was rendered the more interesting because of the production of his original large-scale map—said the eminent services of Sir James Hector in connection with pioneer work in Canada had never been properly recognised in New Zealand, but his name would always be associated with the discovery of the only practicable pass (the Hector Pass) through the Canadian portion of the Rocky Mountains. Mr. Travers also gave an interesting description of the rapid settlement of the country referred to by Sir James Hector in his paper.

A very remarkable plant was exhibited by Sir James Hector.

By the last English mail Sir James received a peculiar root from Sir Walter Buller, who is at present travelling abroad, and which had been picked up in a cave at Mexico. The accompanying instruction was to "place it in water." Sir James did so, and within twenty-four hours a plant of the genus *Lycopodium* came to life and developed in an astonishing manner, shooting out leaves and giving every indication of a thriving existence. The plant was thrown back a little by being placed in the sun, but looked quite healthy when placed on exhibition. Sir James said that some held that it was probable that life had lain dormant in this plant for a hundred and eighty years until suddenly revivified by contact with water in the manner stated.

Mr. Kruger's signature and two Transvaal coins bearing the ex-President's head were exhibited.

They were sent from South Africa by Trooper Gillespie, a member of one of the New Zealand contingents, to his brother in Wellington.