

build up the substances. Year after year he added to his knowledge of the allied substances, until at last he succeeded in forming indigo in small quantities. But his task was not ended. He must improve his processes so as to render *manufacture* of the substance possible and paying. This he has done. His life-long labours have been at last rewarded by success. Patience and perseverance could not have a more striking illustration than this quarter of a century of toil. Chemists are still the hard-working devotees of the science described so quaintly by Dr. Samuel Brown. Instances might be multiplied of this methodical search for a path pointed out clearly by that fruitful theory on which modern chemistry rests. But it does not *rest*. It is ever rising and expanding. New facts brought to light necessitate continual modifications in the theory. These modifications suggest new paths in which to pursue investigation and so *ad infinitum*. In the hands of chemists the molecular theory of matter has certainly been one of the most powerful levers ever devised by man for prying open the great secrets of nature. Without this theory chemistry would be a mere heterogeneous assemblage of facts, and the great advances, especially in organic chemistry, would have been simply impossible. Those unacquainted with the science do not understand the immense practical importance of the molecular theory in guiding and suggesting experiment. Baeyer's labour would have been fruitless had he not been able to *imagine*, to picture to himself the constitution of the ultimate particle of indigo. Every chemist who is an ardent lover of his science pierces more deeply into matter than the most powerful microscope. He sees there the whirl and clash of microcosms,—a universe of almost unimaginable minuteness of dimensions, and rapidity of motion. He sees a system with a central sun of carbon atoms and clustered planets of Hydrogen and other atoms. He pictures the position of each planet in this system—present vividly in *his imagination*, and then he sets himself the task of producing such a system artificially. And this is the scientific use of the imagination, an instrument so much abused by the alchemists and earlier chemists. The alchemists delighted in mystery,—allowed their imaginations to run riot through our planetary system; finding a bond between the sun and lustrous gold, between gloomy Saturn and dull lead; or peopling chemical substances with myriads of controlling spirits, explaining all mysteries by shrouding them in deeper mysteries. They tortured facts into subservience to theory instead of making their theories express and explain all the well-established facts.

This chapter of the history of science well repays study. There is to me something pathetic in these gropings of the awakening intellect after truth. Viewed in the brilliant light of this century the pictures left for us are more grotesque school-boy drawings, bare angular misrepresentations, but we look upon them as one looks upon the rude first attempts of some hand that has "lost its cunning." Their very *faults* are dear to us, and often some bold curve or strong upward stroke reveals to us the bright genius that strove in that far off shadowy age.

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HOLIDAY JOTTINGS.

A STUDENT'S TRIP TO MUSKOKA.

SOMEWHAT wearied with continuous labor and languid with excessive heat, I eagerly welcomed the change of a holiday excursion to the wilds of Muskoka, where I should be untroubled by cuffs and collars, away from the exactions of conventionality. Here basking in the sunshine, fanned by the gentle zephyrs that play across myriad lakes, reclining amid the foliage of forests yet pristine, or perhaps engaged in the more exciting chase, I hope to be restored prior to another session at Queen's. To those unacquainted with the vast solitude of this district, its bush life, and the many attractions it presents to the tourist and the traveller, perhaps my letter may not be uninteresting. The road from Longford to Gravenhurst, over which we drove for the purpose of seeing the country, is not unusually rough. Striking features, however, present themselves along the line. Now a succession of huge boulders towering in mid-air, stares one in the face like very Gibaltars, on one of these gigantic columns, I am told, an old Highland Scotchman who had not forgotten the sound of the Pibroch and the Clarion Call, mounted a cannon, which made these rugged heights more impregnable looking than ever. In the rear, spectre-like, rise lank-looking trees with little foliage, apparently eking out an existence against odds. Farther on are the clumps and stumps, and charred remains of veteran pines and oaks, which have stood many a wintry blast, but at last succumbed to the woodman's axe or the ravages of fire. As we proceed, the open door, and the empty dreariness or dreary emptiness of an occasional log cabin plainly indicate, "To Let," or perhaps its occupation in winter only as a lumber camp. Now and again the chatter of a brook is heard, with its eddies and embryo falls playfully rippling amid its banks of basalt on its way to join the brimming river. At Gravenhurst, the Sawdust city of the North, one notices a busy activity. Station and wharf present their quota of tourists and sports fresh from camp life or the hospitality of friends, returning home, while, too, may be seen many a pale recruit on his way to some rural solitude or happy hunting ground. I embarked on the steamer Wenonah for Bracebridge. Two other boats steamed out at the same time for points on the picturesque Lake Rosseau. The afternoon was delightful, and as our steamer wound her way among the islands of the fairy-like lake, and along the meandering Muskoka river, all eyes were intent on the rapturous scenery around.

While thus engaged I was patronized by one of the class "Oldest inhabitant." In the words of Parhassius: "He stood a grey haired and majestic old man," and I heartily wished at that moment that he were chained to a pillar, for I fear that he was more loquacious than reliable. He told me there was just an island for every day in those lakes, viz: 365, and very modestly added he had stood on each one of them. I cannot vouch for the truth of my informant's statement. But islands and islets there are.