wished the chaired bard success through life and a continuance of skill to win many more chairs. Three hearty cheers for Dyfed ended the ceremony.

On the last day of the Eisteddfod, degrees are conferred. This is generally done in the open air; a circle is formed as at the opening Gorsedd into which the fully privileged bards and the candidates are admitted; the presiding or officiating bard takes the unsheathed sword, which he grasps presiding or officiating bard takes the unsheathed sword, which he grasps by the point of the sheath, while the other bards draw it by the handle from the sheath; then the sword is laid as before upon the stone in the centre of the circle. The officiating bard then states the qualification nec-essary for admission to the various degrees, and having received a recom-mendation of each candidate from a licensed bard present, the degree is conferred the insigning consisting of a piece of blue ribbon for a Bard conferred; the insignia consisting of a piece of blue ribbon for a Bard, green for an Ovate and white for a Druid—the blue ribbon signifying truth, the green the arts, and the white innocence. Each candidate upon receiving his degree touches the drawn sword and binds himself to abstain from doing any violence to anyone with the sword. When all the degrees have been conferred, the bards take the sword by the handle, while the officiating bard holds the sheath into which the sword is thrust.

This is the closing ceremony of the Eisteddfod. In the evening there

is generally a concert and the people disperse to their homes. This curious ritual, it is said, has been handed down without change from the days of the ancient Britons. The Welsh are most loyal to their mountainous country, possibly too much so for their own interests. They cling passionately to their language and the institutions of their native land. In no country, perhaps, are the conditions more favourable to the preservation of these interesting ceremonials. ERNEST HEATON.

A UTUMN.

Thro' the stilled air a silence reigns-a silence filled with sound-The sparrow chirps upon the tree, the cricket from the ground, In shady pools throughout the stream the fishes rise and fall, The wind is gently murmuring-and yet, 'tis stillness all.

Nature has sent her artist-his soft, rich colours glow Upon the breezy hill-tops, through the quiet vales below With immortelles and golden rod the forest path is spread, And crimson, green and golden leaves are blending overhead.

From oak, and beech, and butternut a tiny sound is heard, As if the leaves were parted by a chipmonk or a bird; The nuts, slow-dropping dropping from their prickly outer shell, Beneath the warm grass nestle, and of nearing winter tell.

And see, the pale, cold sunlight is shivering in the wind-Sunlight that fades so quickly, and leaves no warmth behind : A hazy veil is over all—a modest, careful shade To hide the rents in Summer's dress that boisterous winds have made.

Hark ! a shrill chattering is heard ! It comes from yonder tree ; A squirrel there has dropped a nut, and now scolds noisily. Amid the peace that holds the wood and charms the quiet stream, His shrill notes, wildly echoing, like desecration seem.

Slow sinks the sun-his level rays have set the trees on fire, The trees that Summer's hand have decked are now her funeral pyre, The flames are swiftly mounting, stream and forest are aglow, And clouds all crimson that but now were white as driven snow.

Oh hush ! breathe not a word to break the silence deep and dread, Till the last ray is fading—till the last spark has fled— Till the grey shades of twilight like ashes round us fall And wind forms, shuddering past us, spread the night out like a pall.

Then homeward sadly turning, the shutting of the door Seems the parting sound of summer, that will be with us no more.

MARGARET MIDDLETON.

THE LATE SIR WILLIAM LOGAN.

From various causes Geology has become the chief branch of science pursued in Canada. The possibility of considerable mineral resources in the country, and the few appliances required for the pursuit of the study, may partially account for it; but we believe that its prominence has been largely determined by the successful labours of the late Sir William Learner who attracted to his side the principal scientific ability of the Logan, who attracted to his side the principal scientific ability of the Dominion, during the thirty years of his directorship of the Geological

Survey. William Edmond Logan was born in Montreal at the close of the last century, and received an admirable classical and mathematical education there at the school of one Skakel, whose name is still well remembered by old At the age of sixteen he was sent to Scotland to the Édin-Montrealers. burgh High School, where he carried off, in a short time, the highest prizes and honours to be obtained at that institution. Refusing to take a university course, he entered upon commercial life with an uncle in London, where he remained during ten successful years, until his steps were most curiously directed to the study of geology. His uncle had become possessed of shares in a large copper mine at Swansea in Wales. Certain "scientists" had pursuaded the company to adopt some new but expensive method of

extracting the metal from the ore, and the returns not proving satisfactory, it was decided that Logan, who had proved himself to be an admirable man of business, should be sent down to look after the financial interests of the company. In this he was successful, but in a very short time he fell in love with the copper and coal around Swansea from another point of view than the economical. He immediately sent to London for text books and a few scientific instruments, and entered upon the study of the "anticlinal" and the "synclinal" with an enthusiasm which he never lost to the end of his long and useful life. A considerable knowledge of mathematics and a slight acquaintance with chemistry were of great advantage to him, and in less than a year he had acquired the technicalities of the science. He spent all his spare hours in the field, and thus began to find, at the age of thirty-one, when most men of good prospects are think-ing of settling down in life, the beginning of his life's work. He first attracted notice by the production of a geological map of the district, which was published by the Geological Survey. It was admirably executed and very accurate and gained a hearing for him when he published, a short time after, a paper on "Underclays," in which he proved satisfactorily that the vast density of coal in the Carboniferons, enough had been formed in eith. vast deposits of coal in the Carboniferous epoch had been formed in situ; and were not, as had been previously held, the result of drift from larger areas. In our limited space we cannot give the data on which his conclusions were based, but is it sufficient to say that they have been adopted by Sions were based, but is it summer to say that they have been adopted by Sir Charles Lyell and the other leading geologists of the day, and that they have economic as well as scientific value. Trusting that our readers will fill up the details of this slight sketch by a perusal of Dr. Harrington's admirable "Life," we will now briefly notice his work in Canada, where he became the first director of the Geological Survey.

The survey was founded in 1842, and its establishment may be entirely attributed to Logan, who succeeded, after considerable delay, in procuring from the Government the sum of $\pounds 1,500$ for the geological examination of Canada. It was not an annual grant, and has proved, of course, to be far from adequate to the purpose, but it was a beginning, and Logan entered upon the work as enthusiastically as if he had been assured of many years' support. The story of the long struggle which followed, against all kinds of discouragement and opposition, and of the devotion of his whole time, thought, energy, and even private means to the work of the survey, cannot be too often recalled to the minds of our countrymen as an example of the devotion to public interests possible in a land where "national spirit" is still considered a fiction. We say "public interests" advisedly, for his labours were not confined to matters of purely scientific interest, but embraced, as they should the large field of unsational superior compared with according they should, the large field of practical questions connected with economic mining and agriculture. He had, too, refused a high geological appointment for India, which would have been easy, remunerative and certain, to take the Canadian survey, where the prospects were the very reverse.

The work of a survey in a new country is necessarily, for the first few years at least, rather crude. When a great deal of ground has to be covered the stratification can only be superficially examined; and the collection of fossils is so limited that precise generalizations are impossible. There is little scope for scientific speculation in a body of facts which is daily being increased by new facts modifying or expanding the old, and theories, if indulged in, have therefore little time to crystallize into "pets." But accuracy of observation and measurement in geological work will soon tell, and the thoroughness of Logan's labours, as displayed in the annual reports and valuable maps which he published, elicited marked enthusiasm from the leaders of the older surveys of England and the United States. He was assisted, indeed, in the different departments of his work by many eminent men, including Dr. Sterry Hunt, Dr. Dawson and Messrs. Bill-ings, Murray and Richardson, but the department of stratigraphy, which he made especially his own, was that in which the survey achieved its greatest success; and the "Geology of Canada," published in 1863, still remains the most valuable work we have on the geological formations of the country.

The simplicity and geniality of Sir William Logan's character attracted many able men to his side, few of whom failed to catch the enthusiasm for science which animated the whole of his own life. They were qualities, combined with his untiring love of work, which eminently fitted him ties, combined with his untiring love of work, which eminently fitted num-for the position which he worthily occupied for so long, and it is, there-fore, "no reflection upon his successor," as a Committee, lately appointed by the House of Commons to inquire into the present management of the survey, have remarked, "that he does not attain Sir William's suc-cess in this respect." Men so admirably suited to the positions in which they are placed may be exceptional men, and it may therefore he unfair they are placed may be exceptional men, and it may, therefore, be unfair to look for a like capacity in their successors, but we think it is none the less incumbent upon us to recognize and honour them when they do appear. We therefore trust that Canadians will not soon forget the honour conferred upon their country by the fellow-countryman who was their first and greatest scientist. J. B. S.

It has remained for D. Kauffman, a German chemist, to solve finally the problem of solidifying petroleum. He works it up into cakes like soap, which, though not easily kindled, burn smoothly, and leave a resid-ual ash of only two per cent. This will be good news to the people of Western cities, where fears are already entertained of the exhaustion of the Western cities, where fears are already entertained of the exhaustion of the gas-wells. Petroleum in some form—gas, spray, oil, or solid—is believed by many manufacturers to be the fuel of the future, or at least till we know a great deal more than we do a serie of the future. a great deal more than we do now about electricity. Dr. Kauffman's discovery, if it can be practically applied, will do away with some of the perils and much of the expense of transportation which have hitherto stood in the way of a more general use of petroleum and increase the markets of both the United States and Device and increase the markets of both the United States and Russia for the products of their oil-fields. Washington Star.