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## Poetry.

### WELCOME ARE THE BIRDS AGAIN!

BY GEO. A. HAMILTON.

Hark! I hear the merry ringing  
Of a joyful Blue-bird singing!  
This betokens spring returning,  
And we know the birds are coming;  
Welcome every brightening hue  
That is decking earth anew,—  
Most, among the gladning train,  
Welcome are the birds again!

Welcome sunshine, bright and warm,  
Following the wintry storm,—  
Winter has its pleasures fair,—  
Pleasing rides and bracing air;  
But we see them pass away,  
Nor would wish a longer stay,—  
Now a song comes o'er the plain,  
Welcome are the birds again!

Welcome all the festive hours,  
And the genial April showers,—  
Welcome murmurs of the rill,  
Blooming Rose or Daffodil;  
Welcome humble Violet, too,  
Sparkling in the vernal dew,—  
But while all these beauties reign,  
Welcome are the birds again!

Yes, we welcome all the brightness,  
And the joyful, spring-like lightness,—  
Welcome March with brightening ray,  
Smiling April, lovely May,  
All the swelling buds and leaves,  
All the garlands Nature weaves,—  
Most of all the joyful train,  
Welcome are the birds again!

Yes, the bright and genial spring  
Pure and sweet delights shall bring,—  
Bring a thousand precious joys,—  
Bring ten thousand blooming toys;  
Now each little brook is swelling,  
And each sparkling fountain weeping,—  
Coming with the cheerful train,  
Welcome are the birds again.

While we cherish every gem,  
Every spring-like diadem,  
While we see the brightness now  
Glowing on the vernal brow,  
While we see that God will bless  
Nature with his bright impress,  
Let our song's most grateful strains  
Welcome here the birds again!

### HEAT, WORKING AND SUPER-HEATING STEAM.

Philosophers have been divided in opinion respecting the nature of heat. One class have supposed it to be a property of matter, like gravity, and that it consisted in the peculiar vibration of its particles. The other class believed it to be a distinct substance—a peculiar subtle fluid pervading bodies. The latter hypothesis was supposed to have been proved by experiments made about sixty years ago with colored glasses by Sir John Herschel and others, and it had been taught as an es-

tablished scientific doctrine. Recently the former hypothesis modified, has prevailed under the name of "The Mechanical Theory of Heat." New and important discoveries have been made respecting the modes of measuring the effects of heat and unit of energy for it has been adopted and is called "Joule's Equivalent." It was discovered by Mr. Joule of Manchester, England, while making experiments with friction in heating water, oil, &c., that 772 lbs. lifted one foot, produced that quantity of frictional heat which elevated 1 lb. of water one degree. A pound of water raised one degree in temperature is therefore a unit of heat, and is equal in mechanical energy to 772 lbs. lifted one foot.

Heat and mechanical energy are mutually convertible, and the most perfect example which we have of this upon an extended scale, is the steam engine. The work done by a steam engine is just in proportion to the heat developed and usefully applied. In a late paper upon the theory of heat, read by Prof. Macquorn Rankine, F. R. S., before the Glasgow Philosophical Society, he directs attention to the discovery of Joule and Thomson, that when gases (such as steam) expand without performing work, scarcely any cooling effect is produced. It is therefore possible that steam may be used expansively without doing its proper quantity of work, which is equivalent to so much heat wasted. Some useful facts in this relationship have lately been published in the *Engineer*, taken from the annual report of Mr. L. E. Fletcher, chief engineer of the Manchester Association for the Prevention of Steam Boiler Explosions. He directs the attention of those who use condensing engines to the fact that these motors generally do not execute work in proportion to the quantity of steam delivered from the boilers. The loss, as measured frequently, is about thirty-three per cent. This is due to the alternating connection of the cylinder, each stroke of the engine, with the boiler at a high temperature, and the condenser at a low one—about 200° Fah. In such engines there is an alternate action of condensation and re-evaporation in the internal surfaces of

the cylinder, and it is thus a considerable percentage of steam passes from the boiler to the condenser through the engine without doing useful work. This action is so silent and subtle that it had escaped detection for many years. Such a loss is of most consequence in steamships which have to carry their own fuel. It amounts to about three hundred tons of coal on one of the larger class of steamers in a voyage across the Atlantic ocean. "The remedy for this loss," says Mr. Fletcher, "is to adopt the steam jacket for the cylinder, or superheat the steam. There is nothing new, or untried, or dangerous in either of these." Some have held up superheated steam as a bugbear, and have asserted that it destroyed the interior surfaces of cylinders, cut the faces of valves, corroded the metal and prevented proper lubrication. Actual experience has proved these objections to be visionary. Mr. Fletcher says, on this head, "I find that when superheated steam has been fully tested, no difficulty is experienced in its use, and no alteration is required for old engines to which it may be applied beyond the introduction of a slightly better description of packing for the glands. The Peninsular and Oriental Steam Navigation Company have, in many of their engines, realized an economy of upwards of 30 per cent by the introduction of superheated steam," and a new steamer, lately built, of 2,600 tons Lurthen, with engines of 400 horse power, in which steam jackets, surface condensers, and superheated steam are applied, has realized, we are told, a saving of fifty per cent in fuel compared with a steamer of like tonnage and power without such appliances. These statements claim the attention of all steam engineers and steamship companies. It has been found most advantageous to superheat the steam to about 100° above that in the boiler, when no difficulty is experienced in lubricating valves, pistons and glands. Every new economical application of steam deserves to be generally known and carried into practice.

Men of some vocations are usually undersized. The most strapping fellows in the community are the school masters.