rest, and where, when his time is come, he shall be laid by his children. These are the feelings of the owner of the soil. Words cannot paint them—gold cannot buy them—they flow out of the deepest fountains of the heart; they are the life spring of the fresh, healthy, and generous national character.—*E. Everett.*

General Science and Miscellany.

THE SILK-WORM'S WILL.

BY MISS H. F. GOULD.

On a plain rush hurdle a silk-worm lay,
When a proud young princess came that way;
The haughty child of a human king
Threw a sidelong glance at the humble thing,
That took, with a silent gratitude,
From the mulberry leaf her simple food,
And shrunk, half scorn and half disgust,
Away from her sister child of dust;
Declaring she could never see
Why a reptile form like this should be,
And that she was not made of nerves so firm,
As calmly to stand by a "crawling worm."
With mute forbearance the silk-worm took
The taunting words and the spurning look,
Alike a stranger to self and pride,
She'd no disquiet from aught beside,
And lived of a meekness and peace possessed,
Which these debar from the human breast.
She only wished for the harsh abuse
To find some way to become of use
To the haughty daughter of lordly man;
And thus did she lay a noble plan
To teach her wisdom, and make it plain
That the humble worm was not made in vain—
A plan so generous, deep, and high,
That to carry it out she must even die.
"No more," said she, "will I drink or eat!
I'll spin and weave me a winding-sheet,
To wrap me up from the sun's clear light,
And hide my form from her wounded sight.
In secret then till my end draws nigh,
I'll toil for her; and when I die,
I'll leave behind a farewell boon,
To the proud young princess, my whole cocoon,
To be reeled and wove to a shining lace,
And hung in a veil o'er her scornful face!
And when she can calmly draw her breath
Thro' the very threads that have caused my death,
When she finds at length she has nerves so firm
As to wear the shroud of a crawling worm,
May she bear in mind, that she walks with pride
In the winding-sheet where the silk-worm died!"

LIME AND SALT MIXTURE.

In a former article on this subject, we stated that, for the purpose of making the chloride of lime, and carbonate of soda, as the resultants from the admixture of lime and salt, three bushels of shell lime should be slaked with one bushel of salt dissolved in water. Since writing the article above referred to, we have received a letter from a practical friend, stating that he could not use so large a quantity of the solution of salt with the lime and that he had therefore been compelled to mix part of the salt in an undissolved state with the lime. He suggests, also, that we should further explain, to prevent similar difficulties arising with others.

If the three bushels of lime be hot from the kiln, it will take up as much water as is necessary to dissolve one bushel of salt; but if it be long exposed to the action of the atmosphere, it will not readily receive so large a quantity. In such case, we should advise that after the mass has been turned over, new portions of the solution of salt should be added each day, until the necessary quantity is combined. We have often met with the same difficulty, but have continued daily to add the solution of salt until the necessary quantity is combined. The undissolved salt which our friend has added, he will find combined after the mass has been several times turned over; but it will require more time to complete the combination.—*Working Farmer.*

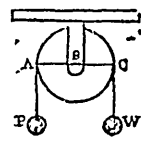
NATURAL PHILOSOPHY.

No. V.

ON THE MECHANICAL POWERS.

THE PULLEY.

The *pulley*, which is the second mechanical power we are to examine, is a circular flat piece of wood or metal, with a string running in a groove round it, by means of which a weight may be pulled up. Thus pulleys are used for drawing up curtains, the sails of a ship, &c.—When the pulley is fixed, it gives no mechanical advantage. If P represent the power to raise the weight W,



it is evident that the power must be something greater than the weight in order to move it. A fixed pulley is useful, therefore, only in altering the direction of the power, and its most frequent practical application is to enable us to draw up a weight by drawing down the string, connected with the pulley. But a moveable pulley affords mechanical assistance. The hand which sustains the cask by means of the cord D E, passing round the moveable pulley A C, does it more easily than if it held the cask suspended to a cord without a pulley; for the fixed hook H, to which one end of the cord is fastened, bearing one half of the weight of the cask, the hand has only the other half to sustain.

Now, it is evident, that the hook affords the same assistance in raising, as in sustaining the cask, so that the hand will have only one half of the weight to raise.—But observe, that the velocity of the hand must be double that of the cask; for in order to raise the latter one inch, the hand must draw the two strings (or rather the two parts, D and E, into which the string is divided by the pulley,) one shortened two inches, while the cask is raised only one. Thus the advantage of a moveable pully consists in dividing the difficulty. Twice the length of string, it is true, must be drawn, but one-half the strength is required which would be necessary to raise the weight without such assistance; so that the difficulty is overcome in the same manner as it would be by dividing the weight into two equal parts, and raising them successively. The pulley, therefore, acts on the same principle as the lever, the deficiency of strength of the power being compensated by superior velocity; and it is on this principle that all mechanical power is founded. In the fixed pulley, [p. 281.] the line A C may be con-