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Nec araneorum sane textus ideo melior, quia ex se fila gignunt, nec noster vilior quia ex alienis libamus ut apes.

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THE PLOUGHMAN.

BY MOSES FOSTER, JR.

The twilight grey or early morn
Appears in eastern sky,
And ushers in the new-born day,
In bright imagery.

Old chanticleer his shrill-toned notes,
Is pealing forth in praise;
And from each tree the songsters sing
Their most melodious lays.

The ploughman rises from his couch,
Refreshed by slumber's balm,
And hastens to his daily toil,
With renovated arm.

A fearless heart and spirit brave
Attend him in the field,
Where he with strong and steady hand
The honored plough doth wield.

He strives not as the soldier strives,
For victory by the sword,
But that his house and granary
With plenty may be stored.

His house the poor and needy ones
A blest asylum find,
Peace, comfort, health and charity,
Are there in concord joined.

No king beneath a palace dome
Enjoys an happier lot,
Than to the ploughman is bequeathed,
Within his lonely cot.

A rich reward has meted him,
For long and weary toil;
To crown his labors, pleasantness
Springs from the fruitful soil.

The seed time and the harvest days
Bring tidings of delight,
To make the ploughman glad of heart,
Through winter's gloomy night.

The ploughman has a promise sure,
And never looks in vain,
As looks the merchant for the prize,
He trusteth on the main.

The vessel of the ploughman sails
At dawning of the spring,
And autumn's winds a rich increase
Have never failed to bring.

He builds no castles in the air,
To vanish like a dream,
He risks no cargo on the wave,
Of fortune's giddy stream.

With honest cheer he earns his bread,
By toil and sweat of brow,
Pays homage due to God alone,
And honor to the Plough.

From the Canada Farmer and Mechanic.

ADDRESS

Delivered before the New York State
Agricultural Society, by Professor E.
Emmons, M. D.

I know of no business or profession
which has so much to do with the deep
and profound principles of science, and
which at the same time has made such
shifts to get along without them as Agri-
culture.

This fact, that it can get along without
the direct aid of the principles of science
is one cause that it has advanced so
slowly, and that considering its great age
it is so much behind other arts and pro-
fessions. In this respect it furnishes a
very curious example of the mutual de-
pendence of the sciences and arts upon
each other, for progress and advance-
ment.

Famines have depopulated whole dis-
tricts, and millions of the human race have
died of starvation, and yet we have no
evidence that all this suffering, and all
the evils necessarily connected with them
have ever operated to the improvement of
Agriculture, or have been instrumental in
causing two blades of grass to grow
where only one grew before. The Agri-
cultural world has jogged along as if
nothing had happened, and as if nothing
could be done to save men from these
widely spreading calamities. When,

however, the mind has been awakened by
the light of science; when discoveries are
announced, which if they illuminate only
a small part of his field of labor, it usual-
ly happens that an impulse is given to his
dormant powers, which propels him for-
ward in a career of improvement. What,
therefore, calamity fails to produce—
what the strongest incentives fails to do,
is, in truth effected by an agency the
least expected, the gentle light of discov-
ery, beaming from a kindred department
of knowledge. The same things happen
in morals. Earthquakes swallow up
their thousands, and their continual
shocks day by day startle the living, but
they have never created or even improved
the religious sentiment: their frequent
alarms, and the exposure to such immin-
ent dangers and continual sufferings,
have produced rather a recklessness of
conduct, than a life of religion and chari-
ty.

It is not my purpose to stop here and
inquire into the cause of such seeming
anomalies in the human constitution: it
is sufficient to allude to the facts. I pass
on to say that agriculture had made only
a feeble effort to improve its mechanical
modes of tillage until the period when
chemistry had so far advanced that it was
an established truth that its principles
stood in very intimate relationship to it.
So Botany and Geology, which had been
cultivated as independent systems about
the same time with chemistry, began also
to be studied in their relations to other
sciences; and hence these, together with
physiology and other collateral branches,
implanted clearer views of the wants of
Agriculture, as well as to furnish striking
illustrations of the true nature and import
of the principles which lie at the founda-
tion of its system. It is true that practi-
cal agriculture is not deeply interested
in questions relating to life in the abstract
or essence; but certainly much more so
to those powers which modify or control
its developments. These powers belong
to the deep and profound inquiries which,
in later times are destined to achieve tri-
umphs for her, of a still more decided
character than the world has yet witness-
ed. It is the peculiar province of the
sciences to improve the outward condi-
tion of men. Literature had attained its
highest state of excellence, and yet men
were not discontented in hovels, nor with
straw beds, nor coarse food spread out on
rough boards. Literature was brilliant
as well as solid in Queen Elizabeth's day,
and yet laboring men were more poorly
fed and cared for than cattle in the period
in which they are permitted to live.—
Times have therefore changed; the ne-
cessities of men have increased—the value
of time is felt—the supremacy of
mind is acknowledged—the schemes of
life are of a more exalted character—the
destiny of the race begins to assume its
importance; and now, awakened from
slumber, man tames the wildest elements
and compels them to speed his progress
towards an universal dominion over the
powers of matter. Light paints for him
pictures true to life: lightning bears his
commands. He imprisons the steam,
and compels it to roll his car over moun-
tains and through vallies, and transports
his products to the most distant parts,
over water and over land. The mind,
once aroused, turns itself to find where it
may still have something more to do.—
Agriculture could not be overlooked—the
art which makes all other arts possible,
and which, perfected, is civilization itself.
Agriculture is civilization, and hence its
progress is linked with the highest desti-
ny of the race. But regarded in a subor-
dinate light, and in following out the
practical requirements of the age, that of
drawing from the earth greater supplies of
bread, it was soon found that it might be
overtaxed. Such a result could not fail
to open the whole field of inquiry relat-
ing to production and exhaustion, and the
relation in which they stood to each other.
From exhaustion originated the analysis
of productions, in which are locked up
the elements they have drawn from this
store house; the first leads to a know-
ledge of what, and how much the soil
contains; the latter of what and how
much has been taken from it. So also

the fact is brought out by inference, what
must be returned, to maintain it at least
in its present state of fertility, or increase
it to an indefinite extent.

The state of agricultural knowledge at
the present time is characterised by an ac-
cumulation of facts which are unclassified
and unarranged. They are like the brick
and stone piled before and around the site
of a great edifice about to be founded,
and which are ready to be arranged in the
walls of a spacious building. Many of
these facts, it is true, have a definite sig-
nification, or, in other words, their rela-
tions are well known, but a great majori-
ty of them have no known collocation, al-
though they clearly belong to the edifice.
So too, to keep up the simile, I may with
truth remark, that the master builder is
yet to be found, whose sagacity and skill
is equal to the task of putting together
the discordant parts, and to construct
from them a symmetrical whole.

Notwithstanding the illustration I have
employed, to show the view which I en-
ertain of the state of agricultural science,
it is still true that it requires only a
moderate amount of information of
Chemistry and the collateral sciences, to
understand many of the applications of
the principle upon which the practices of
husbandry are based. When I speak,
therefore, of the accumulation of facts, I
mean to be understood that it is their re-
lation to a system, and not to the mean-
ing which they may have as individual
facts. For example, the good effects of
draining may be explained on philosophi-
cal principles, though the theory of Agri-
culture is yet to be put into form and
shape. Draining operates beneficially in
many ways; it may merely remove sur-
plus water, by the construction of
artificial underground channels, or it may
in addition to this, carry off water charg-
ed with astringent salts, which are poi-
sonous to the more valuable plants. In
either case, the principal result upon
which the good effects depend, is the perma-
nent elevation of the temperature of
the soil. Surfaces constantly bathed in
water, and which are supplied with this
element from living springs, cannot attain
the temperature required for the better
grasses, cereals, or esculents, so long as
you well know, is a source of cold; vapor
cannot be formed without heat; and
hence, the heat, instead of being expend-
ed in the elevation of the temperature of
the earth, as it is in a dry place, is wholly
taken up by vaporous water, and carried
off. Hence, in a hot day, the tempera-
ture is always low, rising scarcely above
50° of Fahrenheit, while the surrounding
dry places are 70, 80, and even 120 de-
grees when the soil is dark. The princi-
ples of draining, then, are perfectly
understood, and this is the case with ma-
ny other agricultural practices.

The practice of hoeing or stirring the
soil is far more general than draining,
but the principle upon which the practice
is founded are not so well understood.—
Generally farmers suppose that the object
is to kill the weeds; so far it is good;
but the effect of hoeing is not confined to
this single result; for hoeing, when all
the weeds are already extirpated is fol-
lowed by the most decided advantage to
the crop, hence something more than the
destruction of weeds comes to pass. One
result undoubtedly arises from the absorp-
ent powers of a fresh surface. Nutri-
tive matters, such as carbonic acid and am-
monia dissolved in atmospheric air, are
readily taken up in this state of the sur-
face, but an old indurated surface becomes
inert and inactive. The power of surface
alone is effectual in promoting absorption
and decomposition of the most active bod-
ies. The perfect combustion of vegeta-
ble and animal matter, takes place first
upon the surface, upon which they rest.
An impure ash exposed to heat, though
just elevated above redness, undergoes a
perfect combustion in contact with pla-
tina soil, while that part of the ash above
the surface is still impure or unburned.—
So the power of surface condenses the
nutritive gases and chemical changes
take place there more energetically than
elsewhere. The surface of a leaf has sur-
face action, and becomes the seat of che-
mical combination through its physical

powers; for surface action is at first phy-
sical action, and precedes that of decom-
position. What is here termed surface
action may not be readily apprehended;
it is undoubtedly analogous to the action
of platinum black, or platinum sponge in
igniting hydrogen. If a jet is thrown
upon it, it takes fire, and has long been
used as a means of producing instantane-
ous light and combustion. The earth
acts upon the gases when light and por-
ous and fresh, as platinum sponge on
hydrogen gas. Whatever way we may
choose to explain the good effects of hoe-
ing, there is no doubt that a fresh surface
is frequently required if we desire a rap-
id and vigorous growth.

There is probably no substance in use
as a manure which as frequently disap-
points the farmer as plaster. In the first
place, it may operate far more effectually
than is expected, and again it may have
no effect whatever; and finally, when it
has operated very beneficially for a time,
it ceases to do so. This is what is called
plaster sickness. Now these facts
ought to be explained. On what princi-
ple does plaster ever promote vegetation?
Liebig says that it is by the absorption of
ammonia; sulphate of ammonia being the
product of change. Were this always
true, I can see in its reasons why it
should always benefit crops. Sulphate
of ammonia always does, but plaster does
not. But there is another reason why
plaster is useful. Its sulphur is wanting
in the nitrogenous bodies—the protein
compounds. It may, too, operate well in
virtue of its lime, which is an element of
the highest importance to vegetables.—
There may be therefore three reasons why
plaster promotes vegetation—the supply
of ammonia for the nitrogenous bodies,
the supply of sulphur for the same, and
finally the supply of lime. But why it
should cease to do good, is a question
than has been answered only hypotheti-
cally. We may suppose that in the first
place the soil requires, at the time, no
additional matter which plaster itself can
furnish; it is in this case a negative.—
When it ceases to do good at the end of a
few years, it may be from exhaustion;
that is the soil originally light may be
deprived of phosphoric acid, of chlorine,
of magnesia or soluble silica and the alkali-
es particularly, at a much earlier period
than if plaster had not been used. It has
aided in the removal of a larger quantity
of inorganic matter, different from itself,
in less time than if it had not been em-
ployed. If a crop is increased one-third
it has taken up one third more of the
potash of the soil than would have been
obtained without it. If this is true, we
may see that the further use of plaster
will be worse than useless.

There is nothing plainer than this, that
every element which is found in a plant
in analyses, is necessary to its constitu-
tion, and is liable to be removed in a se-
ries of cropping. This leads to the ne-
cessity of supplying it directly; but what
element or elements may be wanting, can
be known for a certainty only by analysis.
In plaster sickness, therefore, our reme-
dies need not be hypothetical, if we per-
sue the method proposed; analysis will
reveal the cause of plaster sickness, and
probably any other sickness which fol-
lows from constant cultivation.

From the Scientific American.

UTILITY OF NETTLES.

The Medical Times says it is a singu-
lar fact that steel dipped in the juice of
the nettle becomes flexible. Dr. Thorn-
ton, who has made the medical properties
of our wild plants his peculiar study,
states that lint dipped in nettle juice and
put up the nostril, has been known to stay
the bleeding of the nose, when all other
remedies have failed—and adds that four-
teen or fifteen of the seeds ground into
powder, and taken daily, will cure the
swellings in the neck known by the name
of goitre, without in any way injuring
the general habit.

Cork for a Horse Pulling at the Hal-
ter.—Fold one ear under a small strong
cord which fastens him. He will give
one jerk but never a second.