

coarse shells are applied. The lime from these old shells is equally as valuable as that derived from those which are recent. Some of the best crops, and the finest land, have been produced solely by the application of shell mould and lime burnt from shell banks.

*Mode and Condition in which Lime should be Applied.*—A knowledge of the specific action and effect of lime affords us the clearest and only rational explanation on this subject.

We have elsewhere stated that lime acts chiefly by decomposing the insoluble minerals in a soil, and thus causes them to assume a form in which their constituents can be used by plants; that it decomposes inert vegetable matter, and causes it to give its dormant materials to the plant; that it affords in itself material for the structure of the plant. It also acts by changing and correcting the physical properties of soils.

Since one of the effects of lime on the soil is the decomposition of mineral and vegetable matter, the first inquiry naturally is, in what condition will it best effect this purpose; for in that condition of course, if possible, it should be applied. Does lime best decompose mineral and vegetable substances when it is in the condition of *carbonate or air-slaked lime, hydrate or water-slaked lime, or quick or caustic lime?*

The experience of every one who has any knowledge or experience on the subject, shows, and the opinion of every one acquainted with the nature and the properties of lime, and of mineral and vegetable matter, is, that lime, when quick or caustic, acts more vigorously than either water-slaked or air-slaked lime.

It is also well ascertained that water-slaked lime, though not quite so efficient as quick or caustic lime, nevertheless, exercises a much more potent influence in decomposing mineral and vegetable matter, than does air-slaked lime, which only acts so in a very slight degree.

The conclusion, then, from these premises, which are true, is, that lime should always be applied either in the quick or caustic state, or as water-slaked lime to soils having insoluble minerals, and that it should never be suffered to slake in the air before being used, because just in proportion to its degree of air-slaking, is its virtue destroyed and its power lost, to produce its desired effects.

If possible, lime should then always be applied in the caustic state to soils of this class; when this cannot be done, then it should be used as water-slaked lime, and in this condition it can always be applied.

The practice which is frequently followed of hauling out lime from the kiln and letting it lie in heaps months before scattering it, is fraught with great expense in the loss of the specific effects of lime—a part, and a large part of it becomes air-slaked, and is thus for ever deprived of any power to benefit the land. The whole effect of lime, when used in this way, is due to that part which be-