

planted trees or plants, so as to prevent rapid evaporation, is a better expedient, in very dry weather, than artificial watering, except in the case of due necessity. It is not advisable to press the earth too firmly upon seeds because their germination depends upon the free circulation of oxygen. If moisture be too excessive, seeds will rot, therefore it is useless to sow on undrained land, and it is better to wait, than to plant, during a continuance of very wet, cold weather.

A free supply of oxygen from abundant circulation of atmospheric air is essential to germination.

The oxygen combines with the excess of carbon present in the seed and carries it off in a gaseous form, so as to leave the remaining substance in the proper chemical condition to serve as food to the developing plant, and at the same time the combustion of the carbon generates a certain proportion of heat which constitutes another important requisite of germination. The disengagement of the oxygen sets free the calorific, and hence seeds, moistened, and thrown into a heap, germinate, and are found to generate a great heat.

But irrespective of this, a certain degree of external heat is indispensable, no seed was ever known to germinate at the freezing point of water, for in that case it is entirely destitute of moisture, and yet seeds, before germination, are uninjured by the severest cold. Seeds in a perfectly dry state would not be hurt by a temperature of 167°, but if placed in the soil would be killed by two or three days exposure to 122° Fahrenheit.

The heat at which seeds germinate varies according to the habits of the plants or their native zone; the seeds of the tropics will not germinate in a lower temperature than that of our garden hot beds and green houses, while the seeds of temperate or cold climate will germinate at a temperature a few degrees only above freezing; the latter should be kept in the coolest part of the seed room, and garden seeds should be classified into three classes, hardy, half-hardy, and tender.

Ammonia is a requisite in germination, acting presumably, as a chemical force within, and a stimulating force without; and if not supplied as a principle of manure in the soil, it finds access to seeds in a state of solution in rain water, thus rain or liquid manure acts more favourably than waterings from a pond or stream.

Any one may observe how seeds, sown in the

open ground, spring up after a shower, and this is not occasioned by heat alone, as the same effect can be noticed when hot bed sashes are removed to expose the beds to the influence of the atmosphere or of the gentle rain. This may be thus accounted for: a greater quantity of sugar is present in the rain water and the air, which descending with the rain into the ground excites the seed to increased activity; and here we notice why the soil, for seed, should be well prepared by being broken into small particles.

So much for the chemical phenomena of germination, simply considered, but there are yet others which claim our notice. The nitrogenous principle in seed although small is highly important; in the earliest stages of excitement it passes into a substance termed "diastase" which turns the starch into glucose or grape sugar, and, during fermentation, 1 part of diastase is sufficient for the conversion of 2000 parts of starch; this accounts for the sweetness in seeds in a certain stage of the germinating process; the fermentation part of which is the saccharine one; the seeds at this time are particularly palatable to many animals and it is then that the greatest danger is to be apprehended from the depredations of birds, mice, and insects, and extra vigilance required to prevent them as much as possible.

(To be continued).

THE PUBLIC SQUARES OF THE CITY OF QUEBEC.

Few places have awoke to the march of improvement during the last few years than has the "Old Rock City"; those who traveled over its roughly paved and unpaved narrow streets, or were taken at a snail's gallop in slow going horse cars from one part of the City to another in past time, will realize how great an improvement, as to locomotion, has been effected by the laying of concrete road ways and the use of electricity cars.

There are no cities where the change has been more marked, or more advantageous, and not only is the betterment noticeable in these respects, but great attention has been paid to the beautifying of the place with regard to its public squares; pieces of land which were lying waste, or covered with all sort of vile rubbish have been converted by the gardener's skill, into beautiful