phide of ammonium formed by the action of ammonia on sulphuretted hydrogen is eventually converted, through the agency of the oxygen of the air, into hyposulphite of ammonia, the sulphur being partly precipitated and partly oxydized, a portion of the hydrogen combining, at the same time, with the oxygen of the air, and thus the poisonous properties of sulphuretted hydrogen become annihilated.

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If this did not take place, it would be impossible for men to exist as they do for hours in the sewers of the metropolis. It is true the sewage is not stagnant in the sewers; but were its decomposition would take place more rapidly, perhaps than oxidation of the deleterious gases could be accomplished. The dilution with a large quantity of water, also renders the change less rapid than it otherwise would be. One portion of the sewage is continually displaced by a succeeding portion, and its course along the sewer, is constantly becoming supplied with water scarcely rendered impure; it is always moving, and always being diluted. It would seem therefore, that as ammonia is not injurious, unless in large quantities, it may be considered as one of the most wholesome forms in which nitrogen and hydrogen pass off from decomposing matter into the atmosphere. In cases where there is no exposure, or, at least when the substance is in water, inflammable gases are produced, which was first shown by PRIESTLEY, and which has since been to a certain extent explained by LIEBIG. It appears that when decomposition commences, oxidation of one portion necessarily takes place, leaving the other portion without oxygen, except when an abundant supply can be obtained. DALTON found the gas from the floating island at Derwentwater to contain carburetted hydrogen and nitrogen. When nitrogen comes off alone, or as ammonia, the same division of a substance into oxidised and deoxydized occurs, as in the fermentation of sugar, where carbonic acid, a body oxidised, and alcohol, a body to a great extent deoxidised, occur. We have only to suppose compounds of carbon, hydrogen, and nitrogen, coming from decomposing matter, to show us the great danger. It is not to be depended upon that these bodies always appear in modes of combination mentioned above, as they combine variously, and they are capable of forming the most active poisons with which we are acquainted.

Although a large quantity of water may mask decomposition, or retard it, by preventing access of air to all the matter preparing to undergo decomposition, yet a certain amount of moisture is essential to chemical changes, and the consequent escape of odour from sewage, as well as from many other bodies. The vapour of water is a vehicle for organic matter, and water also favours decomposition in bodies, so that, as they decompose, the vapour is given off. From what cause soever, it will be found that moisture rapidly facilitates the escape of odour. We ascertain by breathing on a mineral what its nature may be. The moisture of an evening affects the scent of flowers, and even the watering of them causes them to emit their odour. The moist state of the atmosphere, or a shower, is the cause, as we often experience, of great fragrance in a flower garden. But whilst this is being effected, the same laws are operating for injurious effects wherever there is a reservoir of putrid matter, for then the exhalations are so abundant that bubbles of gas, the result of decomposition, may be seen to arise from filthy water.

Dr. ANGUS SMITH observes that it is not improbable that the state of the atmospheric pressure may cause this, as Mr. G. W. BINNEY has shown that the gases in coal-pits are caused to escape rapidly during a depression of the barometer. We all are in the habit of observing that rain is likely to come, when we perceive an odour from sinks or drains, the escape of odoriferous matter being consequent upon a lighter atmosphere, the gases escaping which had been retained under a higher atmospheric pressure.

Bodies that are moist will give out more organic vapours than those in a drier condition. If there be abundance of water, as in a lake, large river or sewer, the vapours will to a great extent be dissolved, even if the same kind of decomposition were to proceed as in merely moist or marshy ground. We may expect then that soil, if moist, will give out, not pure vapour of water, but water carrying up organic matter within it. Wet soil is a little acid generally, and when very acid, is bad land; but when made alkaline by matters producing ammonia, it becomes fertile. This neutralizing of acidity in a soil is frequently effected by lime. This state of almost neutrality of soil is also regulated by nature, and a fertile alkalinity is attained by the rapid decomposition of organic matter through moisture and warmth. In this alkaline and warm state more vapours will of course be given off, and the ammonia will assist in passing off organic matter into the air.

The substance obtained from dew collected by condensation on a glass cylinder, and allowed to drop into a glass vessel below, was found by Dr. SMITH to be very different from that obtained from the condensed vapour of a warm and crowded room, of which we spoke in a former article. The residue from dew, unlike that from the condensed vapour of a room, is almost devoid of nitrogenized matter, and is rather agreeable than otherwise. It is not improbable that the *matter* resulting from dew may be made a measure of its amount in the atmosphere; if so, the decided difference between that of the country and that of crowded rooms is to be remarked, and may probably form a good guide towards a knowledge of comparative purity of atmosphere. In walking along the fields in an evening, when there is much dew, it may be observed how much effect a dry soil has; indeed, the climate of a field will be found to vary almost every yard. Every cause of cold, the formation of a drain, the looseness of any spot its being higher or more level, or more sheltered, is indicated by this delicate thermometer, the rise of vapour and the perception of cold. If we ascend higher, the same is seen on a large scale—on miles instead of yards. A house may be in a clear atmosphere, and the lawn before it in an impenetrable fog. One foot in height makes a difference, and one foot also of level distance, if the ground differ in quality. The damper places give a feeling of freshness, and cause a slight irritation of the nose. Every wall causes a certain amount of dampness; and even on a windy day, a leafless hedge will protect the