tracted from the specification ſigned by himſelf, is as fol­lows : “ Drift-ſand, or quarry @@(a) sand, which conſists chief­ly of hard quartoſe flab faced grains with ſharp angles ; which is the freest, or may be most eaſily freed by waſhing, from clay, ſalts, and calcareous, gypſeous, or other grains leſs hard and durable than quartz ; which contains the ſmalleſt quantity of pyrites or heavy metallic matter inſeparable by waſhing ; and which ſuffers the ſmalleſt diminution of its bulk in waſhing in the following manner—is to be pre­ferred before any other. And where a coarſe and a fine sand of this kind, and correſponding in the size of their grains with the coarſe and fine ſands hereafter deſcribed, cannot be eaſily procured, let ſuch sand of the foregoing quality be choſen as may be ſorted and cleanſed in the fol­lowing manner :

“ Let the sand be ſifted in ſtreaming clear water, thro’ a ſieve which ſhall give paſſage to all ſuch grains as do not exceed owe-sixteenth of an inch in diameter ; and let the stream of water and the ſifting be regulated ſo that all the sand, which is much finer than the Lynn-ſand commonly uſed in the London glaſs-houſes, together with clay and every other matter ſpecifically lighter than sand, may be washed away with the ftream, whilſt the purer and coarſer sand, which passes through the ſieve, ſubſides in a conveni­ent receptacle, and whilſt the coarſe rubbiſh and rubble re­main on the ſieve to be rejected.

“ Let the sand which thus ſubſides in the receptacle be waſhed in clean ſtreaming water through a finer ſieve, ſo as to be further cleanſed and ſorted into two parcels ; a coar­ſer, which will remain in the ſieve which is to give paſſage to ſuch grains of sand only as are leſs than one-thirtieth of an inch in diameter, and which is to be ſaved apart under the name of *coarſe sand;* and a finer, which will pass thro’ the ſieve and ſubſide in the water, and which is to be ſaved apart under the name of fine sa*nd.—*Let the coarſe and the fine sand be dried ſeparately, either in the ſun or on a clean iron-plate, ſet on a convenient surface, in the manner of a ſand-heat @@(b).

“ Let lime be choſen @@(c) which is ſtone-lime, which heats the moſt in slaking, and slakes the quſekeſt when du­ly watered ; which is the fresheſt made and cloſeſt kept ; which diſſolves in diſtilled vinegar with the leaſt efferveſcence, and leaves the ſmalleſt reſidue inſoluble, and in this reſidue the ſmalleſt quantity of clay, gypſum, or martial matter.

“ Let the lime choſen according to theſe important rules be put in a braſs-wired ſieve to the quantity of 14 pounds. Let the ſieve be finer than either of the foregoing ; the fi­ner, the better it will be : let the lime be slaked @@(d) by plunging it in a butt filled with ſoft water, and raising it out quickly and ſuffering it to heat and fume, and by re­peating this plunging and railing alternately, and agitating the lime, until it be made to pass through the ſieve into the water ; and let the part of the lime which does not eaſily paſs through the ſieve be rejected : and let freſh portions of the lime be thus uſed, until as many @@(e) ounces of lime have paſſed through the ſieve as there are quarts of water in the butt. Let the water thus impregnated ſtand in the butt cloſely covered @@(f) until it becomes clear ; and through wooden @@(g) cocks placed at different heights in the butt, let the clear liquor be drawn off as faſt @@(h) and as low as the lime ſubſides, for uſe. This clear liquor I call the *ce­menting liquor* @@(I). The freer the water is from ſaline mat­ter, the better will be the cementing liquor made with it.

@@@(a) “ This is commonly called *pit-ſand.*

@@@(b) " The sand ought to be ſtirred up continually until it is dried, and is then to be taken off; for otherwiſe the evaporation will be very flow, and the sand which lies next the iron plate, by being overheated, will be diſcoloured.

@@@(c) “ The preference given to ſtone-lime is founded on the preſent practice in the burning of lime, and on the cloſer texture of it, which prevents it from being ſo ſoon injured by expoſure to the air as the more ſpongy chalk­lime is ; not on the popular notion that ſtone-lime has ſomething in it whereby it excels the beſt chalk in the cementing properties. The gypſum contained in lime-ſtone remains unaltered, or very little altered, in the lime, after the burn­ing ; but it is not to be expected that clay or martial matter ſhould be found in their native ſtate in well-burned lime ; for they concrete or vitrify with a part of the calcareous earth, and constitute the hard grains or lumps which remain undiſſolved in weak acids, or are ſeparable from the slaked lime by ſifting it immediately through a ſieve.

@@@(d) “ This method of impregnating the water with lime is not the only one which may be adopted. It is, how­ever, preferred before others, becauſe the water clears the ſooner in conſequence of its being warmed by the slaking lime ; and the gypſeous part of the lime does not diffuſe itſelf in the water ſo freely in this way as it does when the lime is slaked to fine powder in the common method, and is then blended with the water ; for the gypſeous part of the lime slakes at firſt into grains rather than into fine powder, and will remain on the ſieve after the pure lime has paſſed through, long enough to admit of the intended ſeparation ; but When the lime is otherwiſe slaked, the gypſeous grains have time to slake to a finer powder, and paſſing through the ſieve, dissolve in the water along with the lime. I have imagined that other advantages attended this method of preparing the lime-water, but I cannot yet speak of them with preciſion.

@@@(e) “ If the water contains no more acidulous gas than is uſually found in river or rain water, a fourth part of this quantity of lime, or leſs, will be ſufficient.

@@@(f) “ The calcareous crust which forms on the ſurface of the water ought not to be broke, for it aſſists in excluding the air, and preventing the abſorption of acidulous gas whereby the lime-water is spoiled.

@@@(g) "Braſs-cocks are apt to colour a part of the liquor.

@@@( h) “ Lime-water cannot be kept many days unimpaired, in any veſſels that are not perfectly air-tight. If the liquor be drawn off before it clears, it will contain whiting, which is injurious ; and if it be not instantly uſed after it is drawn limpid from the butt into open veſſels, it will grow turbid again, and depoſit the lime changed to whiting by the gas absorbed from the air. The calcareous matter which ſubſides in the butt reſembles whiting the more nearly as the lime has been more ſparingly employed ; in the contrary circumstances, it approaches to the nature of lime ; and in the intermedi­ate state, it is fit for the common composition of the plaſterers for inside stucco.

@@@(I) “ At the time of writing this specification, I preferred this term before that of lime-water, on grounds which I had not ſufficiently examined,