geſt, that the beſt Expedient would be, to find out a Wood having that quality. But certainly there being now no Timber, fit for Ships, that is not known, 'tis not likely that any will be found either more hard, or more bitter, than that, which has been hitherto employed. Some do imagine, that the Propoſer will, by certain *Lixiviums*, give to the ordinary Wood ſuch a quality and bitterneſs, as is found in the already mention'd *Indian* Pear-tree. But this alſo will hardly ſucceed, ſince it will be requiſite not only to make *Lixiviums*, in great quantities at an eaſie rate, and ſtrong enough to penetrate the thick ſides of a Ship, but alſo to make them durable enough, not to be waſh't out by the Sea. Yet notwithſtanding, in theſe matters one ought to ſuſpend on's judgement, untill experience do ſhew, what is to be believed of them.

So far the Extract. To which it may perhaps not be unſeaſonable to add, that a very worthy perſon in *London*, ſuggeſts the Pitch, drawn out of Sea coles, for a good Remedy to ſcare away theſe noyſome inſects.

An Account
Of a Book, very lately publiſh't, entituled, The Origine of Forms and Qualities, *illuſtrated by Conſiderations and Experiments, by the Honourable* Robert Boyle.

This Curious and Excellent Piece, is a kind of *Introduction* to the *Principles* of the *Mechanical Philoſophy*, explicating, by very Conſiderable Obſervations and Experiments, what may be, according to ſuch Principles, conceived of the *Nature and Origine of Qualities and Forms*; the knowledge whereof, either makes or ſuppoſes the Fundamental and Uſeful part of *Natural Philoſophy*. In doing of which, the Author, to have his way the clearer, writes rather for the *Corpuſcularian* Philoſophers (as he is pleaſed to call them) in *General*, than any

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Party of them, keeping himſelf thereby diſengaged from adopting an *Hypotheſis*, in which perhaps he is not ſo throughly ſatisfied, and of which he does not conceive himſelf to be neceſſitated to make uſe here; and accordingly forbearing to employ Arguments, that are either grounded on, *or* ſuppoſe *Atoms*, *or* any *Innate Motion* belonging to them; *or* that the Eſſence of Bodies conſiſts in Extenſion; *or* that a *Vacuum* is impoſſible; *or* that there are ſuch *Globuli Cæleſtes*, *or* ſuch a *Materia Subtilis*, as the *Carteſians* imploy to explicate moſt of the *Phænomena* of Nature.

The *Treatiſe* conſiſting of *a Speculative*, and an *Hiſtorical* part, the Author, with great modeſty leaves the *Reader* to judge; *Whether* in the *Firſt* part he hath treated of the *Nature* and *Origine of Forms and Qualities* in a more Comprehenſive way, than others; *Whether* he has by fit Examples, and other means, rendred it more intelligible, than they have done: *Whether* he has added any conſiderable number of Notions and Arguments towards the compleating and confirming of the propoſed *Hypotheſis*: *Whether* he has with reaſon diſmiſſed Arguments unfit to be relied on; and *Whether* he has propoſed ſome Notions and Arguments ſo warily, as to keep them from being liable to Exceptions and Evaſions, whereto they were obnoxious, as others have propoſed them. And, as to the *Second* and *Hiſtorical* part, he is enclin'd to believe, that the *Reader* will grant, he hath done that part of *Phyſicks*, he is treating of, ſome ſervice, by ſtrengthning the doctrines of the *New Philoſophy* (as 'tis call'd) by ſuch particular Experiments, whoſe Nature and Novelty will render them as well Acceptable as Inſtructive.

The *ſumme* of the *Hypotheſis*, fully and clearly explicated in the *Firſt* Part, is this;

That all Bodies are made of *one Catholick matter*, common to them all, and differ but in *Shape*, *Size*, *Motion* or *Reſt*, and *Texture* of the ſmall parts, they conſiſt off; from which Affections

ctions of Matter, the *Qualites*, that difference particular Bodies, reſult: whence it may be rationally concluded, that one kind of Bodies may be tranſmuted into another; *that* being in effect no more, than that one Parcel of the Univerſal Matter, wherein all Bodies agree, may have a *Texture* produced in it, like the *Texture* of ſome other Parcel of Matter, common to them both.

To this *Hypotheſis*, is ſubjoin'd an Examination of the *Scholaſtick* opinion of *Subſtantial Forms*; where the Author, *Firſt*, States the Controverſie; *next*, gives the Principal reaſons, that move him to oppoſe that Opinion; *then*, anſwers the Main arguments employed to evince it; *further*, aſſigns both the *Firſt* Cauſe of Forms (*God*;) and the Grand *Second* Cauſe thereof (*Local Motion*;) and *laſtly*, proves the *Mechanical* Production of *Forms*; grounding his proof, *partly* upon the Manner, by which ſuch a *Convention of Accidents*, as deſerve to paſs for a *Form*, may be *produced*; as that the Curious Shapes of *Salts* (believed to be the admirableſt Effects and ſtrongeſt Proofs of *Subſtantial Forms*) may be the Reſults of *Texture*; *Art* being able to produce Vitriol as well as *Nature*: *partly*, upon the poſſibility of *Reproducing* Bodies by skill, that have been deprived of their reputed *Subſtantial Forms*: VVhere he alledges the *Redintegration of Saltpetre*, ſuccesfully performed by himſelf; though his Attempts, made upon the diſſipation and re-union of *Amber*, *Allum*, *Sea-Salt*, and *Vitriol*, proved (by reaſon of *accidental* hindrances rather, than of any impoſſibility in the Nature of the Thing) leſs ſucceſful.

In the *Second* and *Hiſtorical* Part, the Author, appealing to the Teſtimony of Nature, to verifie his Doctrine, ſets down, *both* ſome *Obſervations*, of what Nature does without being over-ruled by the power and skill of man; and ſome *Experiments*, wherein Nature is guided, and as it were, maſtered by Art.

The *Obſervations* are four.

1. The *Firſt* is taken from what happens in the *Hatching of*

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an Egge; out of the *White* whereof, which is a ſubſtance Similar, inſipid, ſoft, diaphanous, colourleſs, and readily diſſoluble in cold water, there is by the *New* and *Various* contrivement of its ſmall parts, cauſed by the Incubation of the Hen, an Animal produced, ſome of whoſe parts are opacous, ſome red, ſome yellow, ſome white, ſome fluid, ſome conſiſtent, ſome ſolid and frangible, others tough and flexible, ſome well, ſome ill-taſted, ſome with ſprings, ſome without ſprings, *&c.*

2. The *Second* is fetcht from *Water*, which being fluid, taſtleſs, inodorous, diaphanous, colourleſs, volatile, *&c.* may by a *Differing Texture* of its parts, be brought to conſtitute Bodies, having qualities very diſtant from theſe, as *Vegetables*, that have firmeneſs, opacity, odors, taſts, colours, Medicinal vertues; yielding alſo a true *Oyle*, that refuſes to mingle with *Water*, *&c.*

3. The *Third*, from *Inoculation*; wherein, a ſmall *Bud* is able ſo to tranſmute all the ſap, that arrives at it, as to make it conſtitute a Fruit quite otherwiſe qualified, then that, which is the *genuine* production of the Tree, ſo that the ſame ſap, that in one part of the Branch conſtitutes (for Inſtance) a *Cluſter of Haws*, in another part of the ſame Branch, may make a *Pear*. Where the Author mentions divers other very conſiderable Effects of Inoculations, and inſerts ſeveral Hiſtories, all countenancing his doctrine.

4. The *Fourth*, from *Putrified Cheeſe*; wherein, the *rotten* part, by the alteration of its Texture, will differ from the *Sound*, in colour, odor, taſte, conſiſtence, vermination, *&c.*

The Experiments are ten.

1. *A Solution of Vitriol and Camphire*; in which by a change of Texture, appear'd the Production of a deep colour from a white

white Body, and a clear Liquor without any external heat: The deſtruction of this Colour, by adding only ſome fair water: The change of an Odorous Body, *as Camphire*, into an Inodorous, by mixing it with a Body, that has ſcarce any ſenſible odour of its own: The ſudden reſtauration of the *Camphire* to its native ſcent and other qualities, by common water, *&c.*

2. *Sublimate, diſtill'd from Copper and Silver*, which both did wholly looſe their Metalline forms, and were melted into brittle lumps, with colours quite differing from their own; both apt to imbibe the moiſture of the Air, *&c.*

3. *A ſolution of Silver into Luna Cornea:* Whereby the opacous, malleable and hardly fuſible Body of *Silver*, was, by the addition of a little ſpirit of ſalt, reduced into Chryſtals, differing from thoſe of other Mettals; diaphanous alſo, and brittle, and far more eaſily fuſible, than Silver; wholly unlike either a Salt or a Mettal, but very like to a piece of *Horn*, and withall inſipid, though the Solution of Silver, be very bitter, and the ſpirit of ſalt, highly ſowre, *&c.*

4. *An Anomalous Salt*; (which the Author had not, it ſeems the liberty to teach the Preparation off) whoſe Ingredients were purely Saline, and yet the Compound, made up only of ſalt, ſowre, and ſtrongly taſted Bodies, was rather *really* ſweet, than of any other taſte, and when a little urged with heat, its odour became ſtronger, and more inſupportable than that of *Aqua fortis*, *diſtilled Urine*, and even *ſpirit of ſalt Armoniack*; but yet when theſe Fumes ſettled again into ſalt, their odour would again prove inoffenſive, if not pleaſant, *&c.*

. *A Sea-ſalt, whence Aqua fortis had been diſtilled:* Where the Liquor, that came over, proved an *Aqua Regis*: the ſubſtance in the bottom, had not onely a mild taſte, and

affected the Pallat much more like ſalt-peter, than Common ſalt; but was alſo very fuſible, and inflammable, though produced of two un-inflammable bodies: and the ſame ſubſtance, conſiſting of *Acid* ſalts, by a certain way of the Author, produced a *Fixt* ſalt.

6. *Oyle of Vitriol pourell upon a Solution of Bay-ſalt:* whence was abſtracted a liquor, that by the ſmell and Taſte appeared to be a ſpirit of ſalt. In which operation, the mixture, by working a great change of Texture, did ſo alter the nature of the compounding Bodies, that the ſea-ſalt, though a conſiderably fixt Body, was diſtill'd over in a moderate Fire of ſand, whilſt the Oyl of Vitriol, though no ſuch groſs ſalt, was by the ſame operation ſo fixt, as to ſtay behind: Beſides that the ſame, by a competent heat yeilded a ſubſtance, though not inſipid, yet not at all of the taſte of Sea-ſalt, or of any other pungent one, much leſs having the highly corroſive acidity of oyl of Vitriol, *&c.*

7. *A diſſolvent, made by pouring a ſtrong ſpirit of Nitre on the rectified Oyl of the Butter of Antimony, and then diſtilling off all the liquor, that would come over, &c.* This *Menſtruum* (called by the Author *Peracutum*) being put to highly refined Gold, deſtroyed its Texture, and produced, after the method preſcribed in the book, a *true Silver*, as its whiteneſs in colour, diſſolublenes in *Aqua fortis*, and odious Bitterneſs, did manifeſt: which change of a Mettal, commonly eſteemed to be abſolutely indeſtructible by Art, though it be far from being *Lucriferous*, is yet exceedingly *Inſtructive*; as is alſo the way, the Author here adds, of *Volatilizing* Gold, by the power of the ſame *Diſſolvent*.

8. *Aqua fortis, concoagulated with differing Bodies*, produced very differing Concretes: And the ſame Numeral Saline Corpuſcles, that being aſſociated with thoſe of one Mettal, had already produced a Body eminent in one Taſte, did after-

terwards, being freed from that Body, compoſe a Liquor of a very differing taſte; and after *that* too, being combin'd with the parties of another Mettal, did with them conſtitute a Body of a very eminent Taſte, as oppoſite as any one can be to both the other Taſts; and yet theſe Saline Corpuſcles, being inſtead of this ſecond Mettal, aſſociated with ſuch a one as that, they are driven from, did therewith exhibite again the firſt of the three mention'd Taſts.

9. *Water tranſmuted into Earth*, though the Author ſaith of this Tranſmutation, that it was not ſo perfect, as he wiſh'd, and as he hopes to make it.

10. *A mixture of Oyle of Vitriol and Spirit of Wine.* Theſe two Liquors, being of odd Textures in reference to each other, their conjunction and diſtillation made them exhibite theſe *Phænomena*: *vid.* That, whereas Spirit of Wine has no great, nor good ſcent, and moderately dephlegm'd Oyl of Vitriol is wont to be inodorous; the Spirit, that firſt came over from their mixture, had a ſcent not only very differing from Spirit of Wine, but from all things elſe, that the Author ever ſmelt; the Odor being very fragrant & pleaſant, and ſo ſubtle, that in ſpight of the care taken in luting the Glaſſes exactly together, it would perfume the neighbouring parts of the *Laboratory*, and afterwards ſmell ſtrongly at ſome diſtance from the Viol, wherein it was put, though ſtopt with a cloſe Cork, covered with two or three ſeveral Bladders. But, after this volatile and odoriferous Spirit was come over, and had been follow'd by an Acid Spirit, it was at laſt ſucceeded by a ſtrongly ſtinking Liquor, *&c.*

But *Manum de Tabula*: the Book it ſelf will certainly give a ſatisfaction far beyond what here can be ſaid of it.

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