



THE
HISTORY
OF THE
Royal-Society
OF
LONDON,
For the Improving of
NATURAL KNOWLEDGE.

BY
T H O. S P R A T.

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THE HISTORY OF THE ROYAL SOCIETY. The SECOND PART.

Thus I am, at length, arriv'd at the second Part of my Method, The *Narration* it self. This I shall divide into three Periods of Time, according to the several Degrees of the *preparation, growth, and compleat Constitution* of the *Royal Society*.

The First shall consist of the *first occasions* of this Model, and the *Men*, who first devis'd to put it in execution: and shall end, where they began to make it a form'd, and *Regular Assembly*.

The Second shall trace out their *first attempts*, till they receiv'd the publick assistance of *Royal Authority*.

The Third shall deliver, what they *have done*, since they were made a *Royal Corporation*.

It may seem perhaps, that in passing through the first of these, I go too far back, and treat of things, that may appear to be of too private, and Domestick concernment, to be spoken in this publick way. But if this *Enterprise*, which is now so well establish'd, shall be hereafter advantageous to Mankind (as I

make no scruple to foretel, that it will) [53] it is but just, that future times should hear the *names*, of its first *Promoters*: That they may be able to render particular thanks to them, who first conceiv'd it in their minds, and practis'd some little draught of it long ago. And besides, I never yet saw an Historian that was cleer from all Affections: that, it may be, were not so much to be call'd *Integrity*, as a stoical *insensibility*: Nor can I, more then others, resist my inclinations, which strongly force me to mention that, which will be for the honor of that place, where I receiv'd a great part of my Education. It was therefore, some space after the end of the Civil Wars at *Oxford*, in *Dr. Wilkins* his Lodgings, in *Wadham College*, which was then the place of Resort for Vertuous, and Learned Men, that the first meetings were made, which laid the foundation of all this that follow'd. The *Vniversity* had, at that time, many Members of its own, who had begun a *free way* of reasoning; and was also frequented by some *Gentlemen*, of Philosophical Minds, whom the misfortunes of the Kingdom, and the security and ease of a retirement amongst Gown-men, had drawn thither.

Their first purpose was no more, then onely the satisfaction of breathing a freer air, and of conversing in quiet one with another, without being ingag'd in the passions, and madness of that dismal Age. And from the Institution of that *Assembly*, it had been enough, if no other advantage had come, but this: That by this means there was a race of yong Men provided, against the next Age, whose minds receiving from them, their first Impressions of *sober* and *generous knowledge*, were invincibly arm'd against all the enchantments of *Enthusiasm*. But what is more, I may [54] venture to affirm, that it was in good measure, by the influence, which these Gentlemen had over the rest, that the *Vniversity* it self, or at least, any part of its Discipline, and Order, was sav'd from ruine. And from hence we may conclude, that the same Men have now no intention, of sweeping away all the honor of Antiquity in this their new Design: seeing they imploy'd so much of their labor, and prudence, in preserving that *most venerable Seat* of antient Learning, when their shrinking from its defence, would have been the speediest way to have destroy'd it. For the Truth of this, I dare appeal to all uninterested men, who knew the Temper of that place; and especially to those who were my own contemporaries there: of whom I can name very many, whom the happy restoration of the Kingdom's peace, found as well inclin'd, to serve their *Prince*, and the *Church*, as if they had been bred up in the most prosperous condition of their Country. This was undoubtedly so. Nor indeed could it be otherwise: for such *spiritual Frensies*, which did then bear Rule, can never stand long, before a cleer, and a *deep skill* in *Nature*. It is almost impossible, that they, who converse much with the subtilty of *things*, should be deluded by such *thick deceits*. There is but one better charm in the world, then *Real Philosophy*, to

allay the impulses of the *false spirit*: and that is, the blessed presence, and assistance of the *True*.

Nor were the good effects of this conversation, onely confin'd to *Oxford*: But they have made themselves known in their printed Works, both in our own, and in the learned Language: which have much conduc'd to the Fame of our Nation *abroad*, and to the spreading of profitable Light, *at home*. This I [55] trust, will be universally acknowledg'd, when I shall have nam'd the Men. The principal, and most constant of them, were Doctor *Seth Ward*, the present Lord Bishop of *Exeter*, Mr. *Boyl*, Dr. *Wilkins*, Sir *William Petty*, Mr. *Mathew Wren*, Dr. *Wallis*, Dr. *Goddard*, Dr. *Willis*, Dr. *Bathurst*, Dr. *Christopher Wren*, Mr. *Rook*: besides several others, who joyn'd themselves to them, upon occasions. Now I have produc'd their Names, I am a little at a stand, how to deal with them. For, if I should say what they deserve; I fear it would be intepreted flatt'ry, instead of justice. And yet I have now lying in my sight, the example of an *Elegant Book*, which I have profess'd to admire: whose Author sticks not, to make large Panegyricks, on the Members of that *Assembly*, whose *Relation* he Writes. But this President is not to be follow'd by a *yong Man*; who ought to be more jealous of publick censure, and is not enough confirm'd in the good liking of the world; to think, that he has such a weighty, and difficult work, as the making of Characters, committed to him. I will therefore pass by their praises in silence; though I believe, that what I might say of them, would be generally confess'd: and that if any ingenuous man, who knows them, or their writings, should contradict me, he would also go neer to gainsay himself, and to retract the applauses, which he had sometime, or other, bestow'd upon them.

For such a candid, and unpassionate company, as that was, and for such a gloomy season, what could have been a fitter Subject to pitch upon, then *Natural Philosophy*? To have been always tossing about some *Theological question*, would have been, to have made that their private diversion, the excess of [56] which they themselves dislik'd in the publick: To have been eternally musing on *Civil business*, and the distresses of their Country, was too melancholy a reflexion: It was *Nature* alone, which could pleasantly entertain them, in that estate. The contemplation of that, draws our minds off from past, or present misfortunes, and makes them conquerors over things, in the greatest publick unhappiness: while the consideration of *Men*, and *humane affairs*, may affect us, with a thousand various disquiets; *that* never separates us into mortal Factions; *that* gives us room to differ, without animosity; and permits us, to raise contrary imaginations upon it, without any danger of a *Civil War*.

Their *meetings* were as frequent, as their affairs permitted: their proceedings rather by action, then discourse; cheifly attending some particular Trials, in *Chymistry*, or *Mechanicks*: they had no Rules nor

Method fix'd: their intention was more, to communicate to each other, their discoveries, which they could make in so narrow a compass, than an united, constant, or regular inquisition. And me thinks, their constitution did bear some resemblance, to the *Academy* lately begun at *Paris*: where they have at last turn'd their thoughts, from *Words*, to experimental *Philosophy*, and perhaps in imitation of the *Royal Society*. Their manner likewise, is to assemble in a private house, to reason freely upon the works of Nature; to pass Conjectures, and propose Problems, on any Mathematical, or Philosophical Matter, which comes in their way. And this is an Omen, on which I will build some hope, that as they agree with us in what was done at *Oxford*, so they will go on farther, and come by the same degrees, to erect [57] another *Royal Society* in *France*. I promise for these Gentlemen here (so well I know the generosity of their Design) that they will be most ready to accept their assistance. To them, and to all the Learned World besides, they call for aid. No difference of *Country*, *Interest*, or profession of *Religion*, will make them backward from taking, or affording help in this enterprize. And indeed all *Europe* at this time, have two general Wars, which they ought in honor to make: The one a *holy*, the other a *Philosophical*: The one against the common Enemy of *Christendom*, the other also against powerful, and barbarous Foes, that have not been fully subdu'd almost these six thousand years, *Ignorance*, and *False Opinions*. Against these, it becomes us, to go forth in one common expedition: All civil Nations joyning their *Armies* against the one, and their *Reason* against the other; without any petty contentions, about privileges, or precedence.

Thus they continued without any great Intermissions, till about the year 1658. But then being call'd away to several parts of the Nation, and the greatest number of them coming to *London*, they usually met at *Gresham College*, at the *Wednesdays*, and *Thursdays* Lectures of Dr. *Wren*, and Mr. *Rook*: where there joyn'd with them several eminent persons of their common acquaintance: The Lord *Viscount Brouncker*, the now Lord *Brereton*, Sir *Paul Neil*, Mr. *Iohn Evelyn*, Mr. *Henshaw*, Mr. *Slingsby*, Dr. *Timothy Clark*, Dr. *Ent*, Mr. *Ball*, Mr. *Hill*, Dr. *Crone*: and divers other Gentlemen, whose inclinations lay the same way. This Custom was observ'd once, if not twice a week, in Term time; till they were scatt'red [58] by the miserable distractions of that Fatal year; till the continuance of their meetings there might have made them run the hazard of the fate of *Archimedes*: For then the place of their meeting was made a *Quarter* for *Soldiers*. But, (to make hast through those dreadful revolutions, which cannot be beheld upon Paper, without horror; unless we remember, that they had this one happy effect, to open mens eies to look out for the true Remedy) upon this follow'd the *King's* Return; and that, wrought by such an admirable chain of events, that if we either regard the *easiness*, or *speed*, or *blessed issue* of the

Work; it seems of it self to contain variety, and pleasure enough, to make recompence, for the whole Twenty years Melancholy, that had gone before. This I leave to another kind of History to be describ'd. It shall suffice my purpose, that Philosophy had its share, in the benefits of that glorious Action: For the *Royal Society* had its beginning in the wonderful pacifick year, 1660. So that, if any conjectures of good Fortune, from extraordinary *Nativities*, hold true; we may presage all happiness to this undertaking. And I shall here joyn my solemn wishes, that as it began in that time, when our Country was freed from confusion, and slavery: So it may, in its progress, redeem the minds of Men, from obscurity, uncertainty, and bondage.

These Gentlemen therefore, finding the hearts of their Countrymen enlarg'd by their Joys, and fitted for any noble Proposition: and meeting with the concurrence of many Worthy Men, who, to their immortal Honor, had follow'd the King in his banishment, Mr. *Erskins*, Sir *Robert Moray*, Sir *Gilbert Talbot*, [59] &c. began now to imagine some greater thing; and to bring out experimental knowledge, from the *retreats*, in which it had long hid it self, to take its part in the *Triumphs* of that universal Jubilee. And indeed Philosophy did very well deserve that Reward: having been always Loyal in the worst of times: For though the Kings enemies had gain'd all other advantages; though they had all the Garrisons, and Fleets, and Ammunitions, and Treasures, and Armies on their side: yet they could never, by all their Victories, bring over the Reason of Men to their Party.

While they were thus ord'ring their platform; there came forth a Treatise, which very much hasten'd its contrivance: and that was a Proposal by Master *Cowley*, of erecting a Philosophical College. The intent of it was, that in some place neer *London*, there should liberal Salaries be bestow'd, on a competent number of Learned Men, to whom should be committed the operations of Natural Experiments. This Model was every way practicable: unless perhaps, in two things, he did more consult the generosity of his own mind, than of other mens: the one was the *largeness of the Revenue*, with which he would have his College at first indow'd: the other, that he impos'd on his Operators, a Second task of great pains, the *Education of youth*.

The last of these is indeed a matter of great weight: The Reformation of which ought to be seriously examin'd by prudent Men. For it is an undeniable Truth, which is commonly said; that there would be need of fewer Laws, and less force to govern Men, if their Minds were rightly inform'd, and set strait, while they were yong, and pliable. But [60] perhaps this labor is not so proper, for Experimenters to undergo: For it would not only devour too much of their Time: but it would go neer, to make them a

little more *magisterial* in Philosophy, then became them; by being long accustom'd to command the opinions, and direct the manners, of their Scholars. And as to the other particular, the large estate, which he requir'd to the maintenance of his College: It is evident, that it is so difficult a thing, to draw men in to be willing to divert an antient Revenue, which had long run in another stream, or to contribute out of their own purses, to the supporting of any new Design, while it shews nothing but promises, and hopes: that, in such cases, it were (it may be) more advisable, to begin upon a small stock, and so to rise by degrees; then to profess great things at first, and to exact too much benevolence, all in one lump together. However, it was not the excellent Author's fault, that he thought better of the Age, then it did deserve. His purpose in it was like himself, full of honor, and goodness: most of the other particulars of his draught, the *Royal Society* is now putting in practice.

☞ I come now to the Second Period of my Narration: wherein I promis'd, to give an account of what they did, till they were publickly own'd, encourag'd, and confirm'd by Royal Favor. And I trust, that I shall here produce many things, which will prove their attempts to be worthy of all Mens encouragement: though what was perform'd in this interval, may be rather styl'd the *Temporary Scaffold* about the building, then the *Frame it self*. But in my entrance upon this Part· being come to the top of the Hill, I begin to tremble, and to apprehend the greatness of [61] my Subject. For I perceive that I have led my Readers Minds on, by so long, and so confident a Speech, to expect some wonderful Model, which shall far exceed all the former, that I have acknowledg'd to have been imperfect. Now, though this were really so, as I believe it is; yet I question, how it will look, after it has been disfigur'd by my unskilful hands. But the danger of this ought to have deterr'd me in the beginning. It is now too late to look back; and I can only apply my self to that *good Nature*, which a *Great Man* has observ'd to be so peculiar to our *Nation*, that there is scarce an expression to signifie it, in any other Language. To this I must flye for succor, and most affectionately intreat my Countrymen, that they would interpret my failings to be onely errors of obedience to some, whose commands, or desires, I could not resist: and that they would take the measure of the *Royal Society*, not so much from my lame description of it; as from the honor, and reputation, of many of those Men, of whom it is compos'd.

I will here, in the first place, contract into few Words, the whole *summe* of their *Resolutions*; which I shall often have occasion, to touch upon in *parcels*. Their purpose is, in short, to make faithful *Records*, of all the Works of *Nature*, or *Art*, which can come within their reach: that so the present Age, and posterity, may be able to put a mark on the Errors, which have been strengthned by long prescription: to restore the Truths, that have lain neglected: to push on those, which are already known, to more various

uses: and to make the way more passable, to what remains unreveal'd. This is the compass of their [62] Design. And to accomplish this, they have indeavor'd, to separate the knowledge of *Nature*, from the colours of *Rhetorick*, the devices of *Fancy*, or the delightful deceit of *Fables*. They have labor'd to enlarge it, from being confin'd to the custody of a few; or from servitude to private interests. They have striven to preserve it from being over-press'd by a confus'd heap of vain, and useless particulars; or from being straitned and bounded too much up by General Doctrines. They have try'd, to put it into a condition of perpetual increasing; by settling an inviolable correspondence between the hand, and the brain. They have studi'd, to make it, not onely an Enterprise of one season, or of some lucky opportunity; but a business of time; a stedly, a lasting, a popular, an uninterrupted Work. They have attempted, to free it from the Artifice, and Humors, and Passions of Sects; to render it an Instrument, whereby Mankind may obtain a Dominion over *Things*, and not onely over one anothers *Iudgements*. And lastly, they have begun to establish these Reformatations in Philosophy, not so much, by any solemnity of Laws, or ostentation of Ceremonies, as by solid Practice, and examples: not, by a glorious pomp of Words; but by the silent, effectual, and unanswerable Arguments of real Productions.

This will more fully appear, by what I am to say on these four particulars, which shall make up this part of my Relation, the *Qualifications* of their *Members*: the *manner* of their *Inquiry*: their *weekly Assemblies*: and their *way of Registring*.

As for what belongs to the *Members* themselves, that are to constitute the *Society*: It is to be noted, [63] that they have freely admitted Men of different Religions, Countries, and Professions of Life. This they were oblig'd to do, or else they would come far short of the largeness of their own Declarations. For they openly profess, not to lay the Foundation of an *English, Scotch, Irish, Popish, or Protestant* Philosophy; but a Philosophy of *Mankind*.

That the *Church of England* ought not to be apprehensive, of this free converse of various Judgments, I shall afterwards manifest at large. For the present, I shall franckly assert; that our *Doctrine*, and *Discipline*, will be so far from receiving damage by it; that it were the best way to make them universally embrac'd, if they were oftner brought to be canvas'd amidst all sorts of dissenters. It is dishonorable, to pass a hard Censure on the Religions of all other Countries: It concerns them, to look to the reasonableness of their Faith; and it is sufficient for us, to be establish'd in the Truth of our own. But yet this comparison I may modestly make; that there is no one Profession, amidst the several denominations of Christians, that can be expos'd to the search and scrutiny of its adversaries, with so


much safety as ours. So equal it is, above all others, to the general Reason of Mankind: such honorable security it provides, both for the liberty of Mens Minds, and for the peace of Government: that if some Mens conceptions were put in practice, that all wise Men should have two Religions; the one, a *publick*, for their conformity with the people; the other, a *private*, to be kept to their own Breasts: I am confident, that most considering Men, whatever their first were, would make ours their second, if they were well acquainted with it. Seeing therefore, our Church would be in [64] so fair a probability of gaining very much, by a frequent contention, and incounter, with other Sects: It cannot be indanger'd by this Assembly; which proceeds no farther, then to an unprejudic'd mixture with them.

By their *naturalizing* Men of all Countries, they have laid the beginnings of many great advantages for the future. For by this means, they will be able, to settle a *constant Intelligence*, throughout all civil Nations; and make the *Royal Society* the general *Banck*, and Free-port of the World: A policy, which whether it would hold good, in the *Trade of England*, I know not: but sure it will in the *Philosophy*. We are to overcome the mysteries of all the Works of Nature; and not onely to prosecute such as are confin'd to one Kingdom, or beat upon one shore. We should not then refufe to list all the aids, that will come in, how remote soever. If I could fetch my materials whence I pleas'd, to fashion the *Idea* of a perfect Philosopher: he should not be all of one *clime*, but have the different excellencies of several Countries. First, he should have the *Industry, Activity, and Inquisitive humor* of the *Dutch, French, Scotch, and English*, in laying the ground Work, the heap of Experiments: And then he should have added the cold, and *circumspect, and wary* disposition of the *Italians, and Spaniards*, in meditating upon them, before he fully brings them into speculation. All this is scarce ever to be found in one single Man: seldom in the same Countrymen: It must then be supply'd, as well as it may, by a *Publick Council*; wherein the various dispositions of all these Nations, may be blended together. To this* [65] strangers of all Countries, into its number. And this they have constantly done, with such peculiar respect, that they have not oblig'd them to the charge of contributions: they have always taken care, that some of their Members, should assist them in interpreting all that pass'd, in their publick Assemblies: and they have freely open'd their Registers to them; thereby inviting them, to communicate forein Rarities, by imparting their own discoveries. This has been often acknowledg'd, by many Learned Men, who have travell'd hither; who have been introduc'd to their meetings, and have admir'd the decency, the gravity, the plainness, and the calmness of their debates. This they have publish'd to the world: and this has rous'd all our neighbors to fix their eies upon *England*. From hence they expect the great improvements of knowledge will flow: and though, perhaps, they send their *Youth* into other parts, to

learn *Fashion*, and *Breeding*: yet their *Men* come hither for nobler ends; to be instructed, in the *masculine*, and the *solid Arts of Life*: which is a matter of as much greater Reputation, as it is more honorable, to teach Philosophers, than Children.

By their admission of Men of all *professions*, these *two* Benefits arise: The *one*, that every *Art*, and every way of life already establish'd, may be secure of receiving no damage by their Counsels. A thing which all new Inventions ought carefully to consult. It is in vain, to declare against the profit of the most, in any change that we would make. We must not always deal with the violent current of popular passions; as they do with the furious *Eager* in the *Severn*: Where the safest way is, to set the head of the Boat directly against its force. But here Men must [66] follow the shore; wind about leisurably; and insinuate their useful alterations, by soft, and unperceivable degrees. From the neglect of this Prudence, we often see men of great Wit, to have been overborn by the multitude of their opposers; and to have found all their subtile projects too weak, for custom, and interest: While being a little too much heated with a love of their own fancies; they have rais'd to themselves more Enemies than they needed to have done; by defying at once, too many things in use. But here, this danger is very well prevented. For what suspicion can *Divinity*, *Law*, or *Physick*, or any other course of life have, that they shall be impair'd by these mens labours: when they themselves are as capable of sitting amongst them as any others? Have they not the same security that the whole Nation has for its lives and fortunes? of which this is esteem'd the Establishment, that men of all sorts, and qualities, give their voice in every law that is made in *Parliament*. But the other benefit is, that by this equal Balance of all Professions, there will no one particular of them overweigh the other, or make the *Oracle* onely speak their *private* sence: which else it were impossible to avoid. It is natural to all Ranks of men, to have some one Darling, upon which their care is chiefly fix'd. If *Mechanicks* alone were to make a Philosophy, they would bring it all into their Shops; and force it wholly to consist of Springs and Wheels, and Weights: if *Physicians*, they would not depart farr from their Art; scarce any thing would be consider'd, besides the *Body of Man*, the *Causes*, *Signs*, and *Cures* of Diseases. So much is to be found in Men of all conditions, of that which is call'd *Pedantry* in Scholars: which is nothing else but an obstinate addiction, to [67] the forms of some private life, and not regarding general things enough. This freedom therefore, which they use, in embracing all assistance, is most advantageous to them: which is the more remarkable, in that they diligently search out, and join to them, all extraordinary men, though but of ordinary Trades. And that they are likely to continue this comprehensive temper hereafter, I will shew by one Instance: and it is the recommendation which the *King* himself was pleased to make, of the judicious Author of *the*

Observations on the Bills of Mortality: In whose Election, it was so farr from being a prejudice, that he was a Shop-keeper of *London*; that His Majesty gave this particular charge to His Society, that if they found any more such Tradesmen, they should be sure to admit them all, without any more ado. From hence it may be concluded, what is their inclination towards the manual Arts; by the carefull regard which their *Founder*, and *Patron*, has engag'd them to have, for all sorts of *Mechanick Artists*.

But,  though the *Society* entertains very many men of *particular Professions*; yet the farr greater Number are *Gentlemen*, free, and unconfin'd. By the help of this, there was hopefull Provision made against *two corruptions* of Learning, which have been long complain'd of, but never remov'd: The *one*, that *Knowledge* still degenerates, to consult *present profit* too soon; the *other*, that *Philosophers* have bin always *Masters*, & *Scholars*; some imposing, & all the other submitting; and not as equal observers without dependence.

The first of these may be call'd, the *marrying of Arts too soon*; and putting them to generation, before they come to be of Age; and has been the cause of [68] much inconvenience. It weakens their strength; It makes an unhappy disproportion in their increase; while not the *best*, but the *most gainfull* of them flourish: But above all, it diminishes that very profit for which men strive. It busies them about possessing some petty prize; while Nature it self, with all its mighty Treasures, slips from them: and so they are serv'd like some foolish Guards; who, while they were earnest in picking up some small Money, that the Prisoner drop'd out of his Pocket, let the Prisoner himself escape, from whom they might have got a great ransom. This is easily declam'd against, but most difficult to be hindred. If any caution will serve, it must be this; to commit the Work to the care of such men, who, by the freedom of their education the plenty of their estates, and the usual generosity of Noble Bloud, may be well suppo'd to be most averse from such sordid considerations.

The second Error, wich is hereby endeavour'd to be remedied, is, that the Seats of Knowledg, have been for the most part heretofore, not *Laboratories*, as they ought to be; but onely *Scholes*, where some have *taught*, and all the rest *subscrib'd*. The consequences of this are very mischievous. For first, as many *Learners* as there are, so many hands, and brains may still be reckon'd upon, as useless. It being onely the *Master's* part, to examine, and observe; and the Disciples, to submit with silence, to what they conclude. But besides this, the very inequality of the Titles of *Teachers*, and *Scholars*, does very much suppress, and tame mens Spirits, which though it should be proper for Discipline and Education; yet is by no means consistent with a free Philosophical Consultation. It is undoubtedly true; that scarce any

man's [69] mind, is so capable of *thinking strongly*, in the presence of one, whom he *fears* and *reverences*; as he is, when that restraint is taken off. And this is to be found, not only in these weightier matters; but also (to give a lighter instance) in the Arts of *Discourse*, & *raillery* themselves. For we have often seen men of bold tempers, that have over-aw'd and govern'd the Wit of most Companies; to have been disturb'd, and dumb, & bashful as children, when some other man has been near, who us'd to out-talk them. Such a kind of natural sovereignty there is, in some mens minds over others: which must needs be farr greater, when it is advanc'd by long use & the venerable name of a *Master*. I shall only mention one prejudice more, & that is this; That from this onely teaching, and learning, there does not onely follow a continuance, but an increase of the yoaK upon our Reasons. For those who take their opinions from others Rules, are commonly stricter Imposers upon their Scholars, than their own Authors were on them, or than the first Inventors of things themselves are upon others. Whatever the cause of this be; whether the first men are made meek, and gentle, by their long search, and by better understanding all the difficulties of Knowledg; while those that learn afterwards, onely hastily catching things in small *Systems*, are soon satisfy'd, before they have broken their pride, & so become more imperious: or, whether it arises from hence, that the same *meanness of Soul*, which made them bound their thoughts by others Precepts, makes them also *insolent* to their inferiors; as we always find *cowards* the most *cruel*: or whatever other cause may be alleg'd, the observation is certain, that the *successors* are usually more positive, and Tyrannical, than the *beginners* of Sects. [70] If then there can be any cure devis'd for this; it must be no other, than to form an *Assembly* at one time, whose privileges shall be the same; whose gain shall be in common; whose *Members* were not brought up at the feet of each other. But after all, even this cannot be free from prevarication in all future Ages. So apt are some to distrust, and others to confide too much in themselves: so much sweetness there is, in leading parties: so much pride, in following a Faction: such various artifices there are, to ensnare mens *Passions*, and soon after their *Vnderstandings*. All these hazards, and many more, are to be suppos'd; which it is impossible, for mortal Wit, wholly to foresee, much less to avoid. But yet we have less ground of jealousie from this Institution, than any other, not only, because they only deal in matters of *Fact*, which are not so easily perverted; but also upon security of the Inclinations of the greatest part of the *Members* of the *Society* it self. This, I hope, most men will acknowledg, and I will take the permission, to say in general of them, that in all *past* and *present* times, I am confident, there can never be shewn, so great a Number of *Contemporaries*, in so narrow a space of the World, that lov'd truth so zealously; sought it so constantly; and upon whose labours, mankind might so freely rely. This I speak,

not out of Bravery to *Foreiners* (before whose eyes, I believe this negligent Discourse will never appear) but to the learned Men of this *Nation*, who are better Judges of what I say. And this too, I dare affirm, in an *Age*, wherein I expect to be condemn'd of falshood, or partiality, for this Character, which I have given. For so it happens, that we are now arriv'd at that excessive censuring humor, that he who takes upon him to commend any [71] thing, though never so worthy, will raise to himself farr more Enemies than Friends. And indeed this *sowness* of *Criticism*, which now bears all down before it, is very injurious to the honour of our Countrey. For by despising men, for not being absolutely excellent; we keep them from being so: while *admonitions*, join'd with *praises*; and *reproofs*, with *directions*; would quickly bring all things to a higher perfection. But the rudeness of such *Criticks*, I do not so much regard; as the objections of soberer men, who have a real good will to the promotion of this design, and yet may be a little dissatisfy'd in this place. For here especially they may doubt of two things. The first, whether the *Royal Society*, being so numerous as it is, will not in short time be diverted from its primitive purpose; seeing there wil be scarce enough men of Philosophical temper always found, to fill it up; and then others will crowd in, who have not the same bent of mind; and so the whole business will insensibly be made, rather a matter of noise and pomp, than of real benefit? The second, Whether their number being so large, will not afright private men, from imparting many profitable secrets to them; lest they should thereby become common, and so they be depriv'd of the gain, which else they might be sure of, if they kept them to themselves.

To the first, I shall reply, That this scruple is of no force, in respect of *the Age wherein we live*. For now the Genius of *Experimenting* is so much dispers'd, that even in this *Nation*, if there were one, or two more such *Assemblies* settled; there could not be wanting able men enough, to carry them on. All places and corners are now busie, and warm about this Work: [72] and we find many Noble Rarities to be every day given in, not onely by the hands of Learned and profess'd Philosophers; but from the Shops of *Mechanicks*; from the Voyages of *Merchants*; from the Ploughs of *Husbandmen*; from the Sports, the Fishponds, the Parks, the Gardens of *Gentlemen*; the doubt therefore will onely touch *future Ages*. And even for them too, we may securely promise; that they will not, for a long time be barren of a Race of Inquisitive minds, when the way is now so plainly trac'd out before them; when they shall have tasted of these first Fruits, and have been excited by this Example. There was scarce ever yet, any the meanest Sect, or the most contemptible Opinion, that was utterly extinguish'd in its Cradle. Whether they deserv'd to live, or not, they all had their course; some longer, some shorter; according as they could combine with the Interests, or affections, of the Countreys where they began. What reason then have

we to bode ill alone to this *Institution*; which is now so earnestly embrac'd; and which, the older it grows, cannot but still appear more inoffensive? If we onely requir'd *perfect Philosophers*, to manage this employment, it were another case. For then I grant it were improbable, that threescore, or an hundred such should meet in one time. But here it is far otherwise. If we cannot have a sufficient choice of those that are skill'd in all *Divine* and *human* things (which was the antient definition of a Philosopher) it suffices, if many of them be plain, diligent, and laborious observers: such, who, though they bring not much knowledg, yet bring their hands, and their eyes uncorrupted: such as have not their Brains infected by false Images; and can honestly assist in the *examining*, and *Registring* [73] what the others represent to their view. It seems strange to me, that men should conspire, to believe all things more perplex'd, and difficult, than indeed they are. This may be shewn in most other matters; but in this particular in hand, it is most evident. Men did generally think, that no man was *fit* to meddle in matters of this consequence, but he that had bred himself up in a long course of Discipline for that purpose; that had the habit, the gesture, the look of a Philosopher. Whereas experience on the contrary tells us, that greater things are produc'd, by the *free* way, than the *formal*. This mistake may well be compar'd, to the conceit we had of *Souldiers*, in the beginning of the civil Warrs. None was thought worthy of that name, but he that could shew his wounds, and talk aloud of his exploits in the *Low Countreys*. Whereas the whole business of fighting, was afterwards chiefly perform'd by *untravell'd Gentlemen*, *raw Citizens*, and *Generals*, that had scarce ever before seen a Battel. But to say no more, it is so farr from being a blemish; that it is rather the excellency of this Institution, that *men of various Studies* are introduc'd. For so there will be always many sincere witnesses standing by, whom self-love wil not persuade to report falsly, nor heat of invention carry to swallow a deceit too soon; as having themselves no hand in the making of the Experiment, but onely in the *Inspection*. So cautious ought men to be, in pronouncing even upon Matters of Fact. The whole care is not to be trusted to *single* men: not to a *Company* all of *one mind*; not to *Philosophers*; not to *devout*, and religious men *alone*: By all these we have been already deluded; even by those whom I last nam'd, who ought most of all to abhor falshood; of whom yet many have multiply'd [74] upon us, infinite Stories, and false Miracles, without any regard to Conscience, or Truth.

To the second Objection I shall briefly answer; that if all the Authors, or Possessors of extraordinary inventions, should conspire to conceal all, that was in their power, from them; yet the *Method*, which they take, will quickly make abundant reparation for that defect. If they cannot come at Nature in its particular *Streams*, they will have it in the *Fountain*. If they could be shut out from the Closets of

Physicians, or the Work-houses of *Mechanicks*; yet with the same, or with better sorts of Instruments, on more materials, by more hands, with a more rational light, they would not onely restore again the old Arts, but find out, perhaps, many more of farr greater importance. But I need not lay much tress stress upon that hope; when there is no question at all, but all, or the greatest part of such *Domestick Receipts*, and Curiosities, will soon flow into this *publick Treasure*. How few secrets have there been, though never so gainful, that have been long conceal'd from the whole World by their *Authors*? Were not all the least Arts of life at first private? Were not *Watches*, or *Locks*, or *Guns*, or *Printing*, or lately the *Bow-dye*, devis'd by *particular men*, but soon made *common*? If neither *chance*, nor *friendship*, nor *Treachery* of servants, have brought such things out; yet we see *ostentation* alone, to be every day powerful enough to do it. This desire of glory, and to be counted *Authors*; prevails on all, even on many of the dark and reserv'd *Chymists* themselves: who are ever printing their greatest mysteries; though indeed they seem to do it, with so much reluctancy, and with a willingness to hide still; which makes their *style* to resemble the *smoak*, in which they [75] deal. Well then, if this disposition be so *universal*; why should we think, that the Inventors, will be only tender, and backward to the *Royal Society*? From which they will not only reap the most *solid honor*; but will also receive the strongest assurances, of still retaining the *greatest part of the profit*? But if all this should fail; there still remains a refuge, which will put this whole matter out of dispute: and that is, that the *Royal Society* will be able by degrees, to purchase such extraordinary inventions, which are now close lock'd up in *Cabinets*; and then to bring them into one common Stock, which shall be upon all occasions expos'd to all mens use. This is a most *heroick Invention*: For by such concealments, there may come very much hurt to mankind. If any certain remedy should be found out against an *Epidemical* disease; if it were suffer'd to be ingross'd by one man, there would be great swarms swept away, which otherwise might be easily sav'd. I shall instance in the *Sweating-Sickness*. The *Medicine* for it was almost infallible: But, before that could be generally publish'd, it had almost dispeopl'd whole Towns. If the same disease should have return'd, it might have been again as destructive, had not the *Lord Bacon* taken care, to set down the particular course of *Physick* for it, in his History of *Henry the Seventh*, and so put it beyond the possibility of any private man's invading it. This ought to be imitated in all other *sovereign cures* of the like nature, to avoid such dreadful casualties. The *Artificers* should reap the common crop of their *Arts*: but the *publick* should still have *Title* to the miraculous productions. It should be so appointed, as it is in the profits of mens Lands: where the Corn, and Grass, and Timber, and some courser Metals belong to the [76] *owner*: But the *Royal Mines*, in whose ground soever they are discover'd, are no man's

propriety, but still fall to the *Crown*.


These therefore are the *Qualities*, which they have principally requir'd, in those, whom they admitted: still reserving to themselves a power of *increasing*, or keeping to their number, as they saw occasion. By this means, they have given assurance of an eternal quietness, and moderation, in their experimental progress; because they allow themselves to differ in the weightiest matter, even in the *way of Salvation* it self. By this they have taken care, that nothing shall be so remote, as to escape their reach: because some of their *Members* are still scattered abroad, in most of the habitable parts of the Earth. By this, they have provided, that no profitable thing shall seem too mean for their consideration, seeing they have some amongst them, whose life is employ'd about *little* things, as well as *great*. By this they have broken down the partition wall, and made a fair entrance, for *all conditions of men* to engage in these Studies; which were heretofore affrighted from them, by a groundless apprehension of their chargeableness, and difficulty. Thus they have form'd that *Society*, which intends a *Philosophy*, for the use of *Cities*, and not for the retirements of *Schools*, to resemble the *Cities* themselves: which are compounded of all sorts of men, of the *Gown*, of the *Sword*, of the *Shop*, of the *Field*, of the *Court*, of the *Sea*; all mutually assisting each other.

Let us next consider what *course of Inquiry* they take, to make all their Labours unite for the service of man-kind: And here I shall insist on their *Expence*, [77] their *Instruments*, their *Matter*, and their *Method*.

Of the Stock, upon which their *Expence* has been hitherto defraid, I can say nothing, that is very *magnificent*: seeing they have rely'd upon no more than some small *Admission-money*, and *weekly Contributions* amongst themselves. Such a *Revenue* as this, can make no great sound, nor amount to any *vast summ*. But yet, I shall say this for it, that it was the onely way, which could have been begun, with a security of success, in that condition of things. The *publick Faith* of *Experimental Philosophy*, was not then strong enough, to move Men and Women of all conditions, to bring in their Bracelets and Jewels, towards the carrying of it on. Such affections as those may be rais'd by a mis-guided zeal; but seldom, or never, by calm and unpassionate Reason. It was therefore well ordain'd, that the first Benevolence should come from the *Experimenters themselves*. If they had speedily at first call'd for *mighty Treasures*; and said aloud, that their Enterprise requir'd the *Exchequer of a Kingdom*; they would onely have been contemn'd, as vain *Projectors*. So ready is man-kind, to suspect all new undertakings to be Cheats, and *Chimaeraes*; especially, when they seem *chargeable*: that it may be,

many excellent things have been lost by that jealousy. Of this we have a fatal Instance amongst our selves. For it was this fear of being circumvented, that made one of our wisest *Kings* delay *Columbus* too long, when he came with the promise of a *new World*: whereas a little more confidence in his *Art*, and a small charge in furnishing out some few Ships, would have yearly brought all the Silver of the *West-Indies* to *London*, which now arrives at *Sevill*.

This suspicion, which is so natural to mens breasts, [78] could not any way harm the *Royal Societies* establishment: seeing its first claims, and pretensions were so modest. And yet I shall presume to assure the World; that what they shall raise on these mean Foundations, will be more answerable to the largeness of their intentions, than to the narrowness of their beginnings. This I speak so boldly, not onely because it is almost generally found true; that those things, which have been *small* at first, have oftener grown *greater*, than those which have begun upon a *wider* bottom, which have commonly stood at a stay: But also in respect of the present prevailing *Genius* of the *English* Nation. It is most usually found, that every People, has some one study or other in their view, about which their minds are most intent, and their Purses readier to open. This is sometimes a profusion in *Habit*, and *Dyet*; sometimes *Religious Buildings*; and sometimes the *Civil Ornaments* of their Cities, and Country. The first of these will shortly vanish from amongst us, by the irresistible correction of the King's own example: the *next* is of late years very sensibly abated: and it is the *last* of the three towards which mens desires are most propense. To evidence this; I think it may be calculated, that since the *Kings* Return, there have been more *Acts of Parliament*, for the *clearing* and *beautifying* of Streets, for the *repayring* of *Highwayes*, for the *cutting* of *Rivers*, for the *increase* of *Manufactures*, for the setting on foot the Trade of Fishing, and many other such Publick Works, to adorn the State; than in divers Ages before. This *General Temper* being well weigh'd; it cannot be imagin'd, that the *Nation* will withdraw its assistance from the *Royal Society* alone; which does not intend to stop at some *particular benefit*, but goes to the root [79] of *all noble Inventions*, and proposes an infallible course to make *England* the glory of the Western world.

This my Love, and my Hopes prompt me to say. But besides this, there is one thing more, that persuades me, that the *Royal Society* will be *Immortal*.  And that is, that if their Stock should still continue narrow, yet even upon that, they will be able to free themselves from all difficulties, and to make a constant increase of it, by their managing. There is scarce any thing, has more hindred the *True Philosophy*; than a vain opinion, that men have taken up, that nothing could be done in it, to any purpose, but upon a *vast charge*, and by a *mighty Revenue*. Men commonly think, that the *pit*, in which

(according to *Democritus*) Truth lyes hid, is bottomless: and that it will devour, whatever is thrown into it, without being the fuller. This false conception had got so much ground, that assoon as a man began to put his hands to *Experiments*, he was presently given over, as impoverish't and undone. And indeed the Enemies of Real Knowledge, had some appearance of Reason to conclude this heretofore: because they had seen the great Estates of some *Chymists* melted away, without any thing left behind, to make recompence. But this imagination can now no longer prevail. Men now understand, that Philosophy needs not so great a prodigality to maintain it: that the most *profitable* Tryals are not always the most *costly*: that the best Inventions have not been found out by the *richest*, but by the most *prudent*, and *Industrious* Observers: that the right *Art* of *Experimenting*, when it is once set forward, will go near to sustain it self. This I speak, not to stop mens future Bounty, by a Philosophical Boast, [80] that the *Royal Society* has enough already: But rather to encourage them to cast in more help; by shewing them, what return may be made from a little, by a wise administration.

Of the variety, and excellence of the *Instruments*, which it lyes in their power to use; I will give no other proof, then the wonderfull perfection to which all Manual Arts have of late years arriv'd. Men now generally understand, to employ those very Tools which the *Antients* lent us, to infinite more Works, than formerly: they have also *of late* devis'd a great multitude of all sorts, which were before *unknown*: and besides, we may very well expect, that time will every day bring forth *more*. For, according as the *matter* to work upon does abound, the greater plenty of *Instruments*, must by consequence follow: such a connexion there is between *Inventions*, and the *means* of Inventing, that they mutually increase each other.

I might be as large, as I pleas'd, in this particular; in running through some part of all the Innumerable Arts of the *Western world*; and it were not difficult to shew, that the ordinary shops of *Mechanicks*, are now as full of *rarities*, as the *Cabinets* of the former *noblest Mathematicians*. But I will leave that subject, which is so familiar to all; and choose rather, to fetch a confirmation of this, even from those Countreys, which (after the manner of the *Antients*) we call *Barbarous*. And in going thither for an example, I have a farther end. In my foregoing discourse, I try'd to make out the advantages of the *Moderne* Times, above the *antient*; by following the progress of Learning, down through their tracks, to which *Scholars* [81] usually confine it; I will now also strengthen that argument; by briefly comparing the skill, and the works of the *unlearned* parts of the *present* world, with those that are *past*. The antient *Barbarians* then, those *Nations* I mean, who lay without the circle of those Arts which we admire; the *Gaules*, the *Britains*, the *Germans*, the *Scythians*, have scarce left any footsteps behind them, to shew

that they were rational men. Most of them were savage in their *practices*; gross in their *contrivances*; ignorant of all, that might make life either safe, or pleasant. Thus it was with them, and this all History speaks with one voice: whereas the *Barbarians* of our Times (if I may take the liberty still to use that word, which the pride of *Greece* first brought into fashion) the *Turks*, the *Moors*, the *East-Indians*, and even the *Americans*, though they too are utterly unacquainted with all our Sciences; yet by the help of an *Vniversal Light*, which seems to overspread this *Age*, are in several *Handicrafts* most ready, and dextrous: insomuch that in some, they can scarce be imitated by the *Europeans* themselves. I shall leave it to any man, to conjecture from hence, which of these two times has the Prerogative; and how much better helps are probably to be found at this day, in the most *Civil Countries*: when we now find so much artifice, amongst those our *Contemporaries*, who only follow *rude*, and *untaught* Nature.

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