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SEVERAL
ESSAYS
IN
Political
Arithmetick:

The Titles of which follow in the
Ensuing Pages.

UNIVERSITAIRE

B Y
Sir WILLIAM PETTY,
Late Fellow of the *Royal Society*.

L O N D O N :

Printed for *Robert Clavel* at the *Peacock*,
and *Henry Mortlock* at the *Phoenix* in *St. Paul's*
Church-Yard. 1699.

SEVERAL
FESTIVALS
CONCERNING
Political
Arithmetick:

The Titles of which follow in the
List below.

BY
ST. WILLIAM P. B. B. B.

First Fellow of the Royal Society.

LONDON:

Printed for Robert Clavel, at the Press,
and William Morris, in St. Paul's
Church-yard, 1682.

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A N

AN ESSAY

Concerning the
Multiplication of Mankind:

Together with another
ESSAY

IN
Political Arithmetick,

Concerning the Growth of the
City of LONDON:

WITH THE
Measures, Periods, Causes, and Consequences thereof. 1682.

The Third Edition Revised and Enlarged.

By Sir WILLIAM PETTY, late
Fellow of the Royal-Society.

LONDON, Printed for Robert Clavel at the
Peacock, and Henry Mortlock at the Phoenix in
St. Paul's Church Yard, 1698.

THE
STATIONER
TO THE
READER.

THE ensuing Essay concerning
the Growth of the City of
London, was Entitled [Another
Essay] intimating that some o-
ther Essay had preceded it, which was
not to be found. I having been much
importuned for that precedent Essay,
have found that the same was about
the Growth, Increase, and Multipli-
cation of Mankind, which Subject should
in Order of Nature, precede that of
A 2 the

the Growth of the City of London, but am not able to procure the Essay it self, only I have obtained from a Gentleman, who sometimes corresponded with Sir William Petty, an Extract of a Letter from Sir William to him, which I verily believe containeth the scope thereof; wherefore, I must desire the Reader to be content therewith, till more can be had.

The Extract of a Letter concerning the scope of an ESSAY intended to precede another ESSAY concerning the Growth of the City of LONDON, &c.

An ESSAY in Political Arithmetick, concerning the Value and Increase of People and Colonies.

The **T**HE Scope of this *Essay*, is concerning People and Colonies, and to make way for another *Essay* concerning the Growth of the City of London. I desire in this first *Essay*, to give the World some light, concerning the Numbers of People in England, with Wales, and in Ireland;

as also, of the Number of Houses and Families, wherein they live, and of Acres they occupy.

2. How many live upon their *Lands*, how many upon their *Personal Estates* and *Commerce*, and how many upon *Art* and *Labour*; how many upon *Alms*, how many upon *Offices* and *Publick Employments*, and how many as *Cheats* and *Thieves*; how many are *Impotent*, *Children*, and *decrepit old Men*.

3. How many upon the *Poll-Taxes* in *England*, do pay extraordinary Rates, and how many at the Level.

4. How many Men and Women are *Prolifick*, and how many of each are *Married* and *Unmarried*.

5. What the Value of People are in *England*, and what in *Ireland* at a *Medium*, both as Members of the *Church* or *Commonwealth*, or as *Slaves* and *Servants* to one another; with a Method how to estimate the same, in any other *Country* or *Colony*.

6. How to compute the Value of Land in *Colonies*, in comparison to *England* and *Ireland*.

7. How

7. How Ten Thousand People in a *Colony* may be, and planted to the best advantage.

8. A Conjecture in what Number of Years *England* and *Ireland* may be fully peopled, as also all *America*; and lastly the whole habitable Earth.

9. What spot of the *Earth's-Globe* were fittest for a general and universal *Emporium*, whereby all the People thereof may best enjoy one anothers Labours and Commodities.

10. Whether the speedy peopling of the Earth would make,

1. For the good of Mankind.

2. To fulfil the revealed *Will* of *God*.

3. To what *Prince* or *State* the same would be most advantageous.

11. An Exhortation to all thinking Men, to save the Scriptures and other good Histories, concerning the Number of People in all Ages of the World, in the great Cities thereof, and elsewhere.

12. An Appendix concerning the different Number of *Sea-Fish* and *Wild-Fowl*,
A 4

Foot, at the end of every Thousand Years, since *Noah's Flood*.

13. An *Hypothesis* of the use of those Spaces (of about 8000 Miles through) within the *Globe* of our *Earth*, supposing a Shell of 150 Miles thick.

14. What may be the meaning of *Glorified Bodies*, in case the place of the Blessed shall be without the Convex of the Orb of the *fixed Stars*, if that the whole System of the *World* was made for the use of our *Earth's Men*.

The

The Principal Points of this Discourse.

1. **T**HAT London doubles in Forty Years, and all England in Three Hundred and Sixty Years.

2. That there be, Anno 1682. about Six Hundred and Seventy Thousand Souls in London; and about Seven Millions, Four Hundred Thousand in all England and Wales, and about Twenty Eight Millions of Acres of profitable Land.

3. That the Periods of doubling the People, are found to be in all Degrees, from between Ten to Twelve Hundred Years.

4. That the Growth of London must stop of itself, before the Year 1800.

5. A Table helping to understand the Scriptures, concerning the Number of People mentioned in them.

6. That the World will be fully Peopled within the next Two Thousand Years.

7. Twelve

7. *Twelve ways whereby to Try any Proposal, pretended for the publick Good.*

8. *How the City of London may be made (morally speaking) Invincible.*

9. *An help to Uniformity in Religion.*

10. *That 'tis possible to increase Mankind by Generation four times more than at present.*

11. *The Plagues of London are the Chief Impediment and Objection against the Growth of the City.*

12. *That an exact Account of the People is necessary in this Matter.*

Of

Of the Growth of the City of LONDON, and of the Measures, Periods, Causes and Consequences thereof.

BY the City of *London*, we mean the ^{what is meant by} Housing within the Walls of the ^{London,} Old City, with the Liberties thereof, *Westminster*, the *Borough of Southwark*, and so much of the built Ground in *Middlesex* and *Surrey*, whose Houses are contiguous unto, or within Call of those afore-mentioned. Or else we mean the Housing which stand upon the Ninety Seven Parishes within the Walls of *London*; upon the Sixteen Parishes next, without them; the Six Parishes of *Westminster*, and the Fourteen out-Parishes in *Middlesex* and *Surrey*, contiguous to the former, all which One Hundred and Thirty Three Parishes are comprehended

hended within the Weekly *Bills of Mortality*.

What is meant by the Growth of London.

The Growth of this City is measured,
1. By the Quantity of Ground, or Number of Acres upon which it stands. 2. By the Number of Houses, as the same appears by the Hearth-Books and late *Maps*. 3. By the Cubical Content of the said Housing. 4. By the Flooring of the same. 5. By the Number of Days-work, or Charge of Building the said Houses. 6. By the Value of the said Houses, according to their yearly Rent, and Number of Years Purchase. 7. By the Number of Inhabitants; according to which latter Sense only, we make our Computation in this Essay.

Till a better Rule can be obtained, we conceive that the Proportion of the People may be sufficiently measured by the Proportion of the *Burials* in such Years as were neither remarkable for extraordinary Healthfulness or Sickliness.

In what Measures the City hath increased.

That the City hath Increased in this latter Sense, appears from the *Bills of Mortality*, represented in the two following Tables, viz. One whereof is a continuation for Eighteen Years, ending 1682. of that Table which was published

ed in the 117. Page of the Book of the Observations upon the *London Bills of Mortality*, Printed in the Year 1676. The other sheweth what Number of People died at a *Medium* of two Years, indifferently taken, at about Twenty Years distance from each other.

The first of the said two Tables.

Ann. Dom.	97 Pa- rishtes.	16 Pa- rishtes.	Out-Pa- rishtes.	Buried in all.	Besides the Play	Christn'd
1665	5320	12463	10925	28708	68596	9967
1666	1689	3969	5082	10740	1998	8997
1667	761	6405	8641	15807	35	10938
1668	796	6865	9603	17267	14	11633
1669	1323	7500	10440	19263	3	12335
1670	1890	7808	10500	20198		11997
1671	1723	5938	8063	15724	5	12510
1672	2237	6788	9200	18225	5	12593
1673	2307	6302	8890	17499	5	11895
1674	2801	7522	10875	21198	3	11851
1675	2555	5986	8702	17243	1	11775
1676	2756	6508	9466	18730	2	12399
1677	2817	6632	9616	19065	2	12626
1678	3060	6705	10908	20673	5	12601
1679	3074	7481	11173	21728	2	12288
1680	3076	7066	10911	21053		12747
1681	3669	8136	12166	23971		13355
1682	2975	7009	10707	20691	12	3

According to which latter Table there died as followeth.

The

The latter of the said two Tables.

There died in *London*,

At a *Medium* between the Years

1604 and 1605 ——— 5135. A.

1621 and 1622 ——— 8527. B.

1641 and 1642 ——— 11883. C.

1661 and 1662 ——— 15148. D.

1681 and 1682 ——— 22331. E.

Wherein observe, That the Number C. is double to A. and 806 over. That D. is double to B. within 1906. That C. and D. is double to A. B. within 293. That E. is double to C. within 1435. That D. and E. is double to B. and C. within 3341. And that C. and D. and E. are double to A. and B. and C. within 1736. And that E. is above Quadruple to A. All which Differences (every way considered) do allow the doubling of the People of *London* in Forty Years, to be a sufficient estimate thereof in round Numbers, and without the trouble of Fractions. We also say, That 669930 is near the Number of People now in *London*, because the Burials are 22331. which

which multiplied by 30, (one dying yearly out of 30, as appears in the 94 p. of the afore-mentioned Observations) maketh the said Number; and because there are 84000 tenanted Houses (as we are credibly informed) which at eight in each, makes 672000 Souls; the said two Accounts differing inconsiderably from each other.

We have thus pretty well found out in what Number of Years (*viz.* in about 40) that the City of *London* hath doubled, and the present Number of *Inhabitants* to be about 670000. We must now also endeavour the same for the whole *Territory of England and Wales*. In order whereunto, we

First say, That the Assessment of *London* is about an † Eleventh part of the whole *Territory*, and therefore that the People of the whole may well be Eleven times that of *London*, *viz.* about † Seven Millions, Three Hundred Sixty Nine Thousand Souls; with which Account that of the *Poll-Money, Hearth-Money*, and the Bishops late numbring of the *Communicants*, do pretty well agree; wherefore although the said Number of Seven Millions, Three Hundred Sixty Nine Thousand, be not (as it cannot be) a demon-

† The People of *London* are about the 11th. part of all *England* and *Wales*.
 † The People of *England* about seven Millions and Four Hundred Thousand.

demonstrated Truth, yet it will serve for a good *Supposition*, which is as much as we want at present.

As for the time in which the People double, it is yet more hard to be found: For we have good Experience (in the said 94 pag. of the afore-mentioned Observations) that in the Country, but one of fifty die *per Annum*; and by other late Accounts, that there have been sometimes but Twenty Four *Births* for Twenty Three *Burials*: The which two Points, if they were universally, and constantly true, there would be colour enough to say, that the People doubled but in about 1200 Years. As for Example: Suppose there be 600 People, of which let a fiftieth part die *per Annum*, then there shall die Twelve *per Annum*; and if the Births be as Twenty Four to Twenty Three, then the Increase of the People shall be somewhat above half a Man *per Annum*, and consequently the supposed Number of 600, cannot be doubled but in 1126 Years, which to reckon in round Numbers, and for that the afore-mentioned Fractions were not exact, we had rather call 1200.

There

There are also other good *Observations*, That even in the Country, one in about 30, or 32 *per Annum* hath died, and that there have been five *Births* for four *Burials*. Now, according to this Doctrine, 20 will die *per Annum* out of the above 600, and 25 will be born, so as the Increase will be 5, which is a hundred and twentieth part of the said 600. So as we have two fair *Computations*, differing from each other as one to ten; and there are also several other good *Observations* for other *Measures*.

I might here insert, That altho the Births in this last Computation be 25 of 600, or a Twenty fourth part of the People; yet that in Natural possibility, they may be near thrice as many, and near 75. For that by some late *Observations*, the *Teeming* Females between 15 and 44, are about 180 of the said 600, and the *Males* of between 18 and 59, are about 180 also, and that every *Teeming Woman* can bear a *Child* once in two Years; from all which it is plain, that the *Births* may be 90, (and abating 15 for *Sickness*, *Young Abortions*, and *Natural Barrenness*) there may remain 75 Births, which is an Eighth of the People; which by some *Observations*

ons we have found to be but a *two and thirtieth part*, or but a *quarter* of what is thus shewn to be Naturally possible. Now, according to this Reckoning, if the *Births* may be 75 of 600, and the *Burials* but 15, then the *Annual Increase* of the People will be 60; and so the said 600 People may double in 10 Years, which differs yet more from 1200, above-mentioned. Now to get out of this Difficulty, and to temper those vast disagreements, I took the *Medium* of 50 and 30 dying *per Annum*, and pitch'd upon 40; and I also took the *Medium* between 24 *Births* and 23 *Burials*, and 5 *Births* for 4 *Burials*, viz. allowing about 10 *Births* for 9 *Burials*; upon which Supposition, there must die 15 *per Annum* out of the above-mentioned 600, and the *Births* must be 16 and two thirds, and the Increase 1, and two Thirds, or five Thirds of a Man, which Number compared with 1800 *Thirds*, or 600 Men, gives 360 Years for the time of doubling (including some Allowance for *Wars*, *Plagues*, and *Famine*; the Effects whereof, though they be *Terrible* at the Times and Places where they happen, yet in a period of 360 Years, is no great matter in the whole

That the
time of
doubling
is here,
and now
360 Years.

whole Nation. For the *Plagues of England* in 20 Years hath carried away scarce an Eightieth part of the People of the whole Nation; and the late 10 Years *Civil Wars*, (the like whereof hath not been in several Ages before) did not take away above a fortieth part of the whole People.)

According to which Account or Measure of doubling, if there be now in *England and Wales*, 7 Millions 400 Thousand People, there were about 5 Millions 526 Thousand in the beginning of *Queen Elizabeth's* Reign, *Anno* 1560, and about two Millions at the *Norman Conquest*; of which Consult the *Dooms-day Book*, and My Lord *Hale's* *Origination of Mankind*.

Memorandum, That if the People double in 360 Years, that the present 320 Millions, computed by some Learned Men, (from the Measures of all the Nations of the World, their degrees of being Peopled, and good Accounts of the People in several of them) to be now upon the face of the Earth, will within the next 2000 Years. so increase, as to give one Head for every two Acres of Land in the *Habitable* part of the Earth. And then, according to the *Prediction* of the

320 Mil-
lions now
in the
World.

B 2

Scriptures,

Scriptures, there must be *Wars* and great *Slaughter*, &c.

Wherefore, as an *Expedient* against the above-mentioned difference between 10 and 1200 Years, we do for the present, and in this Country admit of 360 Years to be the time wherein the People of *England* do double, according to the present *Laws* and *Practice* of *Marriages*.

Now, if the City double its People in 40 Years, and the present Number be 670 Thousand, and if the *whole Territory* be 7 Millions 400 Thousand, and double in 360 Years, as aforesaid; then by the underwritten Table it appears, that *Anno* 1840, the People of the City will be 10718880, and those of the whole Country but 10917389, which is but inconsiderably more. Wherefore it is certain and necessary that the *Growth* of the City must stop before the said Year 1840; and will be at its utmost height in the next preceding Period, *Anno* 1800, when the Number of the City will be Eight times its present Number, *viz.* 5 Millions 359 Thousand. And when (besides the said Number) there will be 4 Millions 466 Thousand to perform the *Tillage*, *Pasturage*, and other Rural Works necessary

fary to be done without the said City, as by the following Table, *viz.*

	{ <i>Annis.</i> }	{ Burials. }	{ People in London. }	{ People in England. }
As in the former Tab.	1565 ———	2568	77040	5526929
	1605 ———	5135		
	1642 ———	11883		
	1682 ———	22331	669930	7369230
	1722 ———	44662		
	1762 ———	89324		
	1802 ———	178648	5359440	9825650
	1842 ———	357296	10718889	10917389

Now, when the People of *London* shall come to be so near the People of all *England*, Then it follows, that the *Growth* of *London* must stop before the said Year 1842, as aforesaid, and must be at its greatest height *Anno* 1800, when it will be eight times more than now, with above 4 Millions for the Service of the Country and Ports, as aforesaid.

Of the afore-mentioned vast difference between 10 Years and 1200 Years for doubling the People, we make this use, *viz.* To justify the *Scriptures* and all other good *Histories* concerning the Number of the People in Ancient Time. For supposing the Eight Persons who came out of the *Ark*, Increased by a Progressive doubling in every 10 Years, might grow

B 3

in

in the first 100 Years after the *Flood* from 8 to 8000, and that in 350 Years after the *Flood* (when about *Noah* died) to one Million, and by this time 1682, to 320 Millions (which by rational conjecture, are thought to be now in the World) it will not be hard to compute, how in the intermediate Years, the *Growths* may be made, according to what is set down in the following *Table*, wherein making the doubling to be 10 Years at first, and within 1200 Years at last, we take a discretionary liberty, but justifiable by Observations and the Scriptures for the rest; which *Table* we leave to be Corrected by *Historians*, who know the bigness of *Ancient Cities*, *Armies*, and *Colonies* in the respective *Ages* of the *World*: in the mean time affirming, that without such difference in the *Measures* and *Periods* for doubling (the extreams whereof we have demonstrated to be real and true) it is impossible to solve what is written in the *Holy Scriptures* and other *Authentick Books*. For if we pitch upon any one Number throughout for this purpose, 150 Years is the fittest of all round Numbers; according to which, there would have been but 512 Souls in the whole World in *Moses's* time (being

(being 800 Years after the *Flood*) when 603 Thousand *Israelites* of above 20 Years Old (besides those of other Ages, Tribes, and Nations) were found upon an exact Survey appointed by God; whereas our *Table* makes 12 Millions. And there would have been but 8000 in *David's* Time, when were found 1100 Thousand of above 20 Years Old (besides others, as aforesaid) in *Israel*, upon the Survey instigated by Satan; whereas our *Table* makes 32 Millions. And there would have been but a quarter of a Million about the Birth of Christ, or *Augustus* his Time, when *Rome* and the *Roman Empire* were so great; whereas our *Table* makes 100 Millions. Where Note, That the *Israelites* in about 500 Years, between their coming out of *Egypt* to *David's* Reign, increased from 603 Thousand to 1100 Thousand.

On the other hand, if we pitch upon a less Number, as 100 Years, the World would have been over-peopled 700 Years since. Wherefore no one Number will solve the *Phænomena*; and therefore we have supposed several in order to make the following *Table*, which we again desire *Historians* to Correct, according

cording to what they find in Antiquity concerning the Number of the People in each Age and Country of the World.

We did (not long since) assist a worthy Divine, writing against some *Scepticks*, who would have baffled our belief of the Resurrection, by saying, that the whole Globe of the Earth could not furnish Matter enough for all the Bodies that must Rise at the last Day, much less would the surface of the Earth furnish footing for so vast a Number; whereas we did (by the Method aforementioned) assert the Number of Men now living, and also of those that had died since the beginning of the World; and did withal shew, that half the Island of *Ireland* would afford them all, not only Footing to stand upon, but Graves to lie down in, for that whole Number; and that two Mountains in that Country were as weighty as all the Bodies that had ever been from the beginning of the World to the Year 1680, when this Dispute happened. For which purpose, I have digressed from my intended purpose, to insert this *Matter*, intending to prosecute this hint further, upon some more proper Occasion.

A

A Table shewing how the People might have doubled in the several Ages of the World.

Anno after the Flood.

Periods of doubling	1	8 Persons.
	10	16
	20	32
	30	64
	40	128
In 10 Years	50	256
	60	512
	70	1024
	80	2048
	90	4096
	100	8000 and more.
In 20 Years	120 Years after the Flood.	16 Thousand.
	140	32
	170	64
30	200	128
40	240	256
50	290	512
60	350	1 Million and more.
70	420	2 Millions.
100	520	4 Millions.
190	710	8 Millions.
290	1000	16 In <i>Moses</i> Time.
400	1400	32 About <i>David's</i> Time.
550	1950	64
750	2700	128 About the Birth of Christ.
1000	3700	256
300		
In 1000	4000	320

It

It is here to be noted, That in this Table we have assigned a different Number of Years for the time of doubling the People in the several Ages of the *World*, and might have done the same for the several *Countries* of the *World*, and therefore the said several *Periods* assigned to the *whole World* in the *Lump*, may well enough consist with the Three Hundred and Sixty Years, especially assigned to *England*, between this day, and the *Norman Conquest*; and the said Three Hundred and Sixty Years may well enough serve for a Supposition between this time, and that of the *World's* being fully Peopled: Nor do we lay any stress upon one or the other in this Disquisition concerning the *Growth* of the City of *London*.

We have spoken of the *Growth* of *London*, with the Measures and Periods thereof, we come next to the Causes and Consequences of the same.

The Causes of its *Growth* from 1642 to 1682, may be said to have been as followeth, *viz.* From 1642 to 1650, that Men came out of the *Countrey* to *London*, to shelter themselves from the Outrages of the *Civil Wars*, during that time;
from

from 1650 to 1660, the *Royal Party* came to *London*, for their more private and inexpensive Living; from 1660 to 1670, the *King's Friends* and *Party* came to receive his *Favours* after his *Happy Restauration*; from 1670 to 1680, the frequency of *Plots* and *Parliaments*, might bring extraordinary Numbers to the City; but what Reasons to assign for the like Increase from 1604 to 1642, I know not, unless I should pick out some *Remarkable Accident* happening in each part of the said *Period*, and make that to be the Cause of this Increase (as vulgar People make the Cause of every Man's Sickness to be what he did last eat) wherefore, rather than so to say, *quidlibet de quolibet*; I had rather quit even what I have above-said to be the Cause of *London's Increase* from 1642 to 1682, and put the whole upon some natural and spontaneous *Benefits* and *Advantages* that Men find by living in great more than in small *Societies*; and shall therefore seek for the *Antecedent Causes* of this *Growth*, in the *Consequences* of the like, considered in greater *Characters* and *Proportions*.

Now,

Now, whereas in Arithmetick, out of two false *Positions* the Truth is extracted, so I hope out of two *extravagant* contrary Suppositions, to draw forth some solid and consistent *Conclusion*, viz.

The first of the said two Suppositions is, That the City of *London* is seven times bigger than now, and that the *Inhabitants* of it are four Millions Six Hundred and Ninety Thousand People; and that in all the other *Cities, Ports, Towns* and *Villages*, there are but two Millions Seven Hundred and Ten Thousand more.

The other *Supposition* is, That the City of *London* is but a seventh part of its present bigness, and that the *Inhabitants* of it are but Ninety Six Thousand, and that the rest of the *Inhabitants* (being Seven Millions Three Hundred Four Thousand) do co-habit thus, One Hundred Four Thousand of them in small *Cities* and *Towns*, and that the rest, being seven Millions Two Hundred Thousand, do inhabit in *Houses* not contiguous to one another, viz. In Twelve Hundred Thousand Houses, having about Twenty Four Acres of Ground belonging to each
of

of them, accounting about Twenty Eight Millions of Acres to be in the whole *Territory* of *England, Wales*, and the adjacent *Islands*; which any Man that pleases may examine upon a good Map.

Now, the Question is, In which of these imaginary States, would be the most convenient, commodious and comfortable Livings?

But this general Question divides it self into the several Questions, relating to the following Particulars, viz.

1. For the *Defence* of the Kingdom against Foreign Powers.
2. For preventing the *Intestine Com-motions* of *Parties* and *Factions*.
3. For *Peace* and *Uniformity* in *Religion*.
4. For the *Administration* of *Justice*.
5. For the proportionably *Taxing* of the People, and easie *Lerying* the same.
6. For *Gain* by Foreign Commerce.
7. For *Husbandry, Manufacture*, and for *Arts* of Delight and Ornament.
8. For lessening the Fatigue of *Carriages* and *Travelling*.
9. For

9. For preventing *Beggars* and *Thieves*.
 10. For the Advancement and Propagation of *Useful Learning*.

11. For *Increasing* the People by *Generation*.

12. For preventing the *Mischiefs* of *Plagues* and *Contagions*. And withal, which of the said two States is most Practicable and Natural; for in these and the like Particulars, do lie the *Tests* and *Touchstones* of all *Proposals*, that can be made for the Publick Good.

First, as to *Practicable*, we say, That although our said Extravagant Proposals are both in Nature possible, yet it is not Obvious to every Man to conceive, how *London*, now seven times bigger than in the beginning of *Queen Elizabeth's Reign*, should be seven times bigger than now it is, and Forty Nine times bigger than *Anno 1560*. To which I say,

1. That the present City of *London* stands upon less than Two Thousand Five Hundred Acres of Ground; wherefore a City seven times as large may stand upon Ten Thousand Five Hundred Acres, which is about equivalent to a Circle of Four Miles and a half in Diameter,

Diameter, and less than Fifteen Miles in Circumference. 2. That a Circle of Ground of Thirty Five Miles Semi-Diameter will bear *Corn*, *Garden-stuff*, *Fruits*, *Hay*, and *Timber* for the Four Millions Six Hundred and Ninety Thousand Inhabitants of the said City and Circle, so as nothing of that kind need be brought from above Thirty Five Miles distance from the said City; for the Number of Acres within the said Circle, reckoning Two Acres sufficient to furnish *Bread* and *Drink-Corn* for every Head, and Two Acres will furnish *Hay* for every necessary Horse; And that the Trees which may grow in the *Hedge-rows* of the Fields within the said Circle, may furnish *Timber* for Six Hundred Thousand Houses. 3. That all live Cattel and great Animals can bring themselves to the said City; and that Fish can be brought from the *Lands-end* and *Berwick*, as easily as now. 4. Of *Coals* there is no doubt: And for *Water*, Twenty Shillings *per Family* (or Six Hundred Thousand Pounds *per Annum* in the whole) will serve this City, especially with the help of the *New-River*. But if by *Practicable* be understood, that the

the present State may be suddenly changed into either of the Two above-mentioned Proposals, I think it is not *Practicable*. Wherefore the true Question is, unto or towards which of the said Two extravagant States is best to bend the present State by degrees, *viz.* Whether it be best to lessen or enlarge the present City? In order whereunto, we enquire (as to the first Question) which State is most *Defensible* against *Foreign Powers*; saying, That if the above-mentioned Housing, and a border of Ground, of Three Quarters of a Mile broad, were encompassed with a Wall and Ditch of Twenty Miles about (as strong as any in *Europe*, which would cost but a Million, or about a Penny in the Shilling of the House-Rent for one Year) what *Foreign Prince* could bring an Army from beyond Seas, able to beat, 1. Our Sea-Forces, and next with Horse harra's'd at Sea, to resist all the fresh Horse that *England* could make, and then Conquer above a Million of Men, well United, Disciplin'd, and Guarded within such a Wall, distant every where Three Quarters of a Mile from the Housing, to exclude the *Granadoes* and great Shot of the

Enemy?

Enemy? 2. As to *Intestine Parties* and *Factions*, I suppose that Four Millions Six Hundred and Ninety Thousand People united within this great City, could easily Govern half the said Number scattered without it; and that a few Men in Arms within the said City and Wall, could also easily Govern the rest unarmed, or armed in such a manner as the *Sovereign* shall think fit. 3. As to *Uniformity in Religion*, I conceive, That if *St. Martin's Parish* (may as it doth) consist of about Forty Thousand Souls, That this great City also may as well be made but as one Parish, with Seven times One Hundred and Thirty Chap-pels, in which might not only be an Uniformity of Common Prayer, but in Preaching also; for that a Thousand Copies of one Judiciously and Authentically composed *Sermon*, might be every Week read in each of the said *Chappels* without any subsequent Repetition of the same, as in the Case of Homilies. Whereas in *England* (wherein are near Ten Thousand Parishes, in each of which upon *Sundays*, *Holy-Days*, and other extraordinary Occasions, there should be about One Hundred Sermons *per Annum*,

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making

making about a Million of Sermons *per Annum* in the whole :) It were a Miracle, if a Million of Sermons composed by so many Men, and of so many Minds and Methods, should produce *Uniformity* upon the discomposed Understandings of about Eight Millions of Hearers.

4. As to the *Administration* of *Justice*. If in this great City shall dwell the Owners of all the Lands and other valuable Things in *England*; if within it shall be all the *Traders*, and all the *Courts*, *Offices*, *Records*, *Juries*, and *Witnesses*; then it follows, that *Justice* may be done with speed and ease.

5. As to the *Equality* and ease *Levying* of Taxes. It is too certain, that *London* hath at some times paid near half the Excise of *England*; and that the People pay thrice as much for the Hearths in *London*, as those in the Country, in proportion to the People of each; and that the Charge of Collecting these Duties, have been about a sixth part of the Duty it self. Now, in this great City, the Excise alone, according to the present Laws, would not only be double to the whole Kingdom, but also more equal.

And

And the Duty of Hearths of the said City, would exceed the present proceed of the whole Kingdom: And as for the *Customs*, we mention them not at present.

6. Whether more would be gained by *Foreign Commerce*?

The Gain which *England* makes by *Lead*, *Coals*, the Freight of Shipping, &c. may be the same, for ought I see, in both Cases. But the Gain which is made by *Manufactures*, will be greater, as the *Manufacture* it self is greater and better. For in so vast a City *Manufactures* will beget one another, and each *Manufacture* will be divided into as many parts as possible, whereby the Work of each *Artisan* will be simple and ease; as for Example. In the making of a *Watch*, if one Man shall make the *Wheels*, another the *Spring*, another shall Engrave the *Dial-plate*, and another shall make the *Cases*, then the *Watch* will be better and cheaper, than if the whole Work be put upon any one Man. And we also see that in *Towns*, and in the *Streets* of a great *Town*, where all the *Inhabitants* are almost of one Trade, the Commodity peculiar to those places is made

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better

better and cheaper than elsewhere. Moreover, when all sorts of Manufactures are made in one place, there every Ship that goeth forth, can suddenly have its Loading of so many several Particulars and Species, as the Port whereunto she is bound can take off. Again, when the several *Manufactures* are made in one place, and shipped off in another, the *Carriage*, *Postage*, and *Travelling-Charges* will inhanche the Price of such *Manufacture*, and lessen the Gain upon *Foreign Commerce*. And lastly, when the imported Goods are spent in the Port it self, where they are landed, the Carriage of the same into other places will create no surcharge upon such Commodity; all which particulars tend to the greater Gain by *Foreign Commerce*.

7. As for *Arts of Delight* and *Ornament*,

They are best promoted by the greatest Number of *Emulators*. And it is more likely that one *ingenious, curious Man* may rather be found out amongst Four Millions than Four Hundred Persons. But as for *Husbandry*, viz. *Tillage* and *Pasturage*, I see no Reason, but the second State (when each Family is charged with the

the Culture of about Twenty Four Acres) will best promote the same.

8. As for lessening the Fatigue of *Carriage* and *Travelling*.

The thing speaks it self; for if all the Men of Business, and all *Artisans*, do live within Five Miles of each other: And if those who live without the great City, do spend only such Commodities as grow where they live, then the Charge of Carriage and Travelling could be little.

9. As to the preventing of *Beggars* and *Thieves*.

I do not find how the differences of the said two States should make much difference in this particular; for Impotents (which are but One in about Six Hundred) ought to be maintained by the rest. 2. Those who are unable to Work, through the evil Education of their *Parents*, ought (for ought I know) to be maintained by their nearest Kindred, as a just Punishment upon them. 3. And those who cannot find Work (though able and willing to perform it) by reason of the unequal application of Hands to Lands, ought to be provided for by the *Magistrate* and *Landlord* till that can
C 3 be

be done ; for there needs be no *Beggars* in Countries, where there are many Acres of unimproved improvable Land to every Head, as there are in *England*. As for *Thieves*, they are for the most part begotten from the same Cause ; for it is against Nature, that any Man should venture his Life, Limb, or Liberty, for a wretched Livelihood, whereas moderate Labour will produce a better. But of this see Sir *Thomas Moor*, in the first part of his *Utopia*.

10. As to the *Propagation* and *Improvement* of *Useful Learning*.

The same may be said concerning it, as was above-said concerning *Manufactures*, and the *Arts* of *Delight* and *Ornament* ; for in the great vast City, there can be no so odd a Conceit or Design, whereunto some Assistance may not be found, which in the thin, scattered way of Habitation may not be.

11. As for the *Increase* of *People* by *Generations*,

I see no great difference from either of the two States, for the same may be hindered or promoted in either, from the same Causes.

12. As

12. As to the *Plague*.

It is to be remembred, that one time with another, a *Plague* happeneth in *London* once in Twenty Years, or thereabouts ; for in the last Hundred Years, between the Years 1582 and 1682, there have been Five great *Plagues*, viz. Anno 1592, 1603, 1625, 1636 and 1665. And it is also to be remembred, that the *Plagues* of *London* do commonly kill one fifth part of the *Inhabitants*. Now, if the whole People of *England* do double but in Three Hundred and Sixty Years, then the Annual Increase of the same is but Twenty Thousand, and in Twenty Years Four Hundred Thousand. But if in the City of *London* there should be Two Millions of People, (as there will be about Sixty Years hence) then the *Plague* (killing one fifth of them, namely, Four Hundred Thousand once, in Twenty Years) will destroy as many in One Year, as the whole Nation can furnish in Twenty : And consequently the People of the Nation shall never Increase. But if the People of *London* shall be above Four Millions (as in the first of our Two *extravagant* Suppositions is premised) then the People of the whole

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Nation

Nation shall lessen above Twenty Thousand *per Annum*. So as if People be worth Seventy Pounds *per Head* (as hath elsewhere been shewn) then the said greatness of the City will be a damage to it self and the whole Nation of Fourteen Hundred Thousand Pounds *per Annum*, and so *pro Rata*, for a greater or lesser Number; wherefore to determine, which of the Two *States* is best, (that is to say, towards which of the said Two *States*, *Authority* should bend the present *State*) a just Balance ought to be made between the Disadvantages from the *Plague*, with the Advantages accruing from the other Particulars above-mentioned; unto which *Balance* a more exact Account of the People, and a better Rule for the Measure of its Growth is necessary, that what we have here given, or are yet able to lay down.

Post-

POSTSCRIPT.

IT was not very pertinent to a *Discourse* concerning the *Growth* of the City of *London*, to thrust in Considerations of the Time when the whole *World* will be fully Peopled; and how to justify the *Scriptures* concerning the Number of People mentioned in them; and concerning the Number of the Quick and the Dead, that may rise at the last Day, &c. Nevertheless, since some Friends liking the said Digressions and Impertinences (perhaps as Sawce to a dry *Discourse*) have desired that the same might be explained and made out: I therefore say as followeth

1. If the Number of Acres in the habitable Part of the Earth, be under Fifty Thousand Millions; if Twenty Thousand Millions of People, are more than the said Number of Acres will feed; (few
or

or no Countries being so fully peopled;) and for that in Six doublings (which will be in Two Thousand Years) the present Three Hundred and Twenty Millions will exceed the said Twenty Thousand Millions.

2. That the Number of all those who have died since the *Flood*, is the Sum of all the Products made by multiplying the Number of the doubling Periods mentioned in the first Column of the last Table, by the Number of People respectively affixed to them, in the third Column of the same Table; the said Sum being divided by Forty (One dying out of Forty *per Annum*, out of the whole Mass of Mankind) which Quotient is Twelve Thousand Five Hundred and Seventy Millions; whereunto may be added, for those that died before the *Flood*, enough to make the last mentioned Number Twenty Thousand Millions, as the full Number of all that died, from the beginning of the World, to the Year 1682; unto which, if Three Hundred and Twenty Millions, the Number of those who are now alive, be added, the total of the Quick and the Dead will amount but to One Fifth Part of the Graves, which the surface of *Ireland* will afford,

afford, without ever putting two Bodies into one Grave; for there be in *Ireland* Twenty Eight Thousand square *English* Miles, each whereof will afford about Four Millions of Graves, and consequently above One Hundred and Fourteen Thousand Millions of Graves, *viz.* about Five times the Number of the Quick and the Dead, which should arise at the last Day, in case the same had been in the Year 1682.

3. Now, if there may be place for five times as many Graves in *Ireland*, as are sufficient for all that ever died; and if the Earth of one Grave weigh five times as much as the Body interred therein, then a Turf, less than a Foot thick, pared off from a fifth part of the surface of *Ireland*, will be equivalent in bulk and weight to all the Bodies that ever were Buried; and may serve as well for that purpose, as the Two Mountains afore-mentioned in the Body of this Discourse. From all which it is plain, how madly they were mistaken, who did so petulantly vilifie what the *Holy Scriptures* have delivered.

F I N I S.

FURTHER
OBSERVATIONS
UPON THE
Dublin Bills:
OR,
ACCOMPTS
OF THE
Houses, Hearths, Baptisms,
and Burials in that
CITY.

The Third Edition Corrected and Enlarged.

By Sir WILLIAM PETTY, late
Fellow of the *Royal-Society*.

LONDON, Printed for Robert Clavel at the
Peacock, and Henry Mortlock at the Phoenix in
St. Paul's Church Yard, 1698.

THE
STATIONER
TO THE
READER.

I Have not thought fit to
make any Alteration of
the First Edition, but
have only added a New Ta-
ble, with Observations upon it,
placing the same in the Front
of what was before ; which
perhaps

perhaps might have been as well placed after the like Table at the Eighth Page of the First Edition.

DUBLIN,

DUBLIN, 1682.				
Parishes.	Houſes	Fire-plac.	Bapt.	Buried
St. James	272	836	122	306
St. Katherines	540	2198		
St. Nicholas with- out, and	1064	4082	154	414
St. Patricks				
St. Bridgets	395	1903	68	149
St. Audones	276	1510	56	164
St. Michaels	174	884	34	50
St. Johns	302	1636	74	101
St. Nicholas with- in, and	153	902	26	52
Chriſt-Chur. Lib.				
St. Warbors	240	1638	45	105
St. Micans	938	3516	124	389
St. Andrews	864	3638	131	300
St. Kevans	554	2120	87	233
Donobrook	253	506		
	6025	25369	912	2263

Further Observations upon the Dublin Accounts of Baptisms and Burials, Houſes and Hearths, viz.

THE Table hath been made for the Year 1682, wherein is noted,
1. That the Houſes which Anno 1671, were but Three Thouſand Eight Hundred and

and Fifty, are *Anno* 1682, Six Thousand and Twenty Five; but whether this Difference is caused by the real encrease of Housing, or by Fraud and Defect in the former Accompts, is left to Consideration. For the Burials or People have increased but from One Thousand Six Hundred Ninety Six, to Two Thousand Two Hundred Sixty Three; according to which proportion, the Three Thousand Eight Hundred and Fifty Houses *Anno* 1671, should *Anno* 1682, have been but Five Thousand One Hundred and Forty Three, wherefore some fault may be suspected as aforesaid, when Farming the Hearth-Money was in agitation.

2. The Hearths have encreased according to the Burials, and One Third of the said increase more, *viz.* The Burials, *Anno* 1671, were One Thousand Six Hundred Ninety Six, the One Third whereof is Five Hundred Sixty Three, which put together, makes Two Thousand Two Hundred Fifty Nine, which is near the Number of Burials *Anno* 1682. But the Hearths *Anno* 1671, were Seventeen Thousand Five Hundred, whereof the One Third is Five Thousand Eight Hundred Thirty Three, making in all but Twenty Three Thousand Three Hundred

dred and Thirty Three; whereas the whole Hearths *Anno* 1682, were Twenty Five Thousand Three Hundred and Sixty Nine, *viz.* One Third and better of the said Five Thousand Eight Hundred and Thirty Three more.

3. The Housing were *Anno* 1671, but Three Thousand Eight Hundred and Fifty, which if they had encreased *Anno* 1682, but according to the Burials, they had been but Five Thousand One Hundred and Forty Three, or according to the Hearths, had been but Five Thousand Four Hundred and Eighty Eight, whereas they appear Six Thousand and Twenty Five, encreasing double to the Hearths. So as 'tis likely there hath been some Error in the said Account of the Housing, unless the new Housing be very small, and have but one Chimney apiece, and that one fourth Part of them are untenanted. On the other hand, 'tis more likely that when Sixteen Hundred Ninety Six died *per Annum*, there were near Six Thousand; for Six Thousand Houses at Eight Inhabitants *per House*, would make the Number of the People to be Forty Eight Thousand, and the Number of Sixteen Hundred Ninety Six that died according to the Rule of One out of Thirty,

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would have made the Number of Inhabitants about Fifty Thousand: For which Reason I continue to believe there was some Error in the Accompt of Three Thousand Eight Hundred and Fifty Houses as aforeſaid, and the rather becauſe there is no Ground from Experience to think, that in Eleven Years, the Houſes in *Dublin* have encreaſed from Three Thouſand Eight Hundred and Fifty, to Six Thouſand and Twenty Five.

Moreover, I rather think that the Number of Six Thouſand and Twenty Five is yet ſhort, becauſe that Number at Eight Heads *per* Houſe makes the Inhabitants to be but Forty Eight Thouſand Two Hundred; whereas the Two Thouſand Two Hundred and Sixty Three who died in the Year 1682, according to the afore-mentioned Rule of One dying out of Thirty, makes the Number of People to be Sixty Seven Thouſand Eight Hundred and Ninety; the *Medium* betwixt which Number and Forty Eight Thouſand Two Hundred, is Fifty Eight Thouſand and Forty Five, which is the beſt Eſtimate I can make of that Matter, which I hope Authority will e'er long rectifie, by direct and exact Enquiries.

4. As

4. As to the Births, we ſay that *Anno* 1640, 1641, and 1642, at *London*, juſt before the Troubles in Religion began, the Births were Five Sixths of the Burials, by reaſon I ſuppoſe of the greatneſs of Families in *London* above the Country, and the fewer Breeders, and not for want of Regiſtring. Wherefore deducting One Sixth of Two Thouſand Two Hundred and Sixty Three, which is Three Hundred and Seventy Seven, there remains One Thouſand Eight Hundred and Eighty Six for the probable number of Births in *Dublin*, for the Year 1682; whereas but Nine Hundred and Twelve are repreſented to have been Chriſtn'd in that Year, though One Thouſand and Twenty Three were Chriſtn'd *Anno* 1671, when there died but One Thouſand Six Hundred and Ninety Six; which decreaſing of the Chriſtnings, and increaſing of the Burials, ſhews the increaſe of Non-Regiſtring in the Legal Books, which muſt be the increaſe of *Roman-Catholicks* in *Dublin*.

The Scope of this whole Paper therefore is, That the People of *Dublin* are rather Fifty Eight Thouſand, than Thirty Two Thouſand; and that the Diſſenters,

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who

who do not Register their Baptisms, have encreased from Three Hundred Ninety One to Nine Hundred Seventy Four; but of Dissenters, none have increased but the *Roman-Catholicks*, whose Numbers have encreased from about Two to Five in the said Years. The exacter Knowledge whereof, may also be better had from direct Enquiries.

F I N I S.

O B S E R V A T I O N S
UPON THE
D U B L I N

Bills of MORTALITY, 1681.

And the State of that

C I T Y.

THE Observations upon the *London Bills of Mortality* have been a new Light to the World; and the like Observations upon those of *Dublin*, may serve as Snuffers to make the same Candle burn clearer.

The *London* Observations flowed from *Bills* regularly kept for near One hundred years; but these are squeezed out of Six stragling *London Bills*, out of Fifteen *Dublin Bills*, and from a Note of the *Fa-*

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milies

milies and *Hearths* in each *Parish* in *Dublin*; which are all digested into the following *Tables*, consisting of Three Parts, mark'd *A, B, C*; being indeed the *A, B, C*, of *Publick Oeconomy*, and even of that *Policy* which tends to Peace and Plenty.

Observations upon the Table A.

1. **T**HE Total of the *Burials* in *London*, (for the said Six stragling years mentioned in the Table *A*) is One hundred twenty thousand one hundred and seventy; whereof the Medium or Sixth part is Twenty thousand and twenty eight; and exceeds the *Burials* of *Paris*, as may appear by the late Bills of that City.

2. The *Births*, for the same time, are Seventy three thousand six hundred eighty and three, the Medium or Sixth part whereof is Twelve thousand two hundred and Eighty, which is about Five eighth parts of the *Burials*; and shews, that *London* would in time decrease quite away, were it not supplied out of the Country,

Country, where are about Five *Births* for Four *Burials*, the proportion of Breeders in the Country being greater than in the City.

3. The *Burials* in *Dublin* for the said Six years, were Nine Thousand eight hundred sixty five, the Sixth part or Medium whereof is, One thousand six hundred forty and four, which is about the Twelfth part of the *London Burials*; and about a Fifth part over. So as the People of *London* do hereby seem to be above Twelve times as many as those of *Dublin*.

4. The *Births* in the same time at *Dublin*, are Six thousand one hundred fifty and seven, the Sixth part or Medium whereof is One thousand twenty and six, which is also about five eighth parts of the One thousand six hundred forty and four *Burials*; which shews, that the proportion between *Burials* and *Births* are alike at *London* and *Dublin*, and that the *Accompts* are kept alike; and consequently are likely to be true, there being no Confederacy for that purpose: Which if they be true, we then say,

5. That the *Births* are the best way (till the *Accompts* of the People shall be purposely taken) whereby to judge of the Increase

Increase and Decrease of People, that of *Burials* being subject to more Contingencies and variety of Causes.

6. If *Births* be as yet the measure of the People, and that the Births (as has been shewn) are as Five to Eight, then Eight fifths of the Births is the number of the Burials, where the year was not considerable for extraordinary Sickness or Salubrity; and is the Rule whereby to measure the same. As for Example: The Medium of Births in *Dublin* was One thousand twenty and six, the Eight fifths whereof is One thousand six hundred forty and one, but the real Burials were One thousand six hundred forty and four; so as in the said years they differed little from the One thousand six hundred forty and one, which was the *Standard of Health*; and consequently, the years 1680, 1674, and 1668, were *sickly* years, more or less, as they exceeded the said Number One thousand six hundred forty and one; and the rest were *healthful* years, more or less, as they fell short of the same number. But the City was more or less *Populous*, as the Births differed from the Number One thousand twenty and six; viz. *Populous* in the years 1680, 1679,

1679, 1678, and 1668: For other causes of this difference in Births, are very occult and uncertain.

7. What hath been said of *Dublin*, serves also for *London*.

8. It hath already been observ'd by the *London Bills*, That there are more *Males* than *Females*. It is to be further noted, that in these Six *London Bills* also, there is not one instance either in the Births or Burials to the contrary.

9. It hath been formerly observ'd, That in the years wherein most dye, fewest are born, & vice versa. The same may be further observ'd in *Males* and *Females*, viz. When fewest Males are born, then most dye: for here the Males dyed as Twelve to Eleven, which is above the mean proportion of Fourteen to Thirteen; but were born but as Nineteen to Eighteen, which is below the same.

Obser-

Observations upon the Table B.

1. **F**rom the Table B, it appears, That the Medium of the Fifteen years Burials, (being Twenty four thousand one hundred ninety and nine) is One thousand six hundred and thirteen; whereas the Medium of the other six years in the Table A, was One thousand six hundred forty and four, and that the Medium of the Fifteen years Births (being in all Fourteen thousand seven hundred sixty and five) is nine hundred eighty and four, whereas the Medium of the said other six years, was One thousand twenty and six. That is to say, there were both fewer Births and Burials in these fifteen years, than in the other six years; which is a probable sign that at a Medium there were fewer People also.

2. The Medium of *Births* for the Fifteen years being Nine hundred eighty and four, whereof Eight fifths (being One thousand five hundred seventy and six) is the *Standard of Health* for the said Fifteen years; and the Triple of the said One

One thousand five hundred seventy and six, being Four thousand seven hundred twenty and eight, is the standard for each of the Ternaries of the Fifteen years within the said Table.

3. That Two thousand nine hundred fifty and two, the triple of Nine hundred eighty and four Births, is for each Ternary the Standard of Peoples increase and decrease from the year 1666 to 1680 inclusive, *viz.* The People increased in the second Ternary, and decreased from the same in the Third and Fourth Ternaries, but re-increased in the Fifth Ternary beyond any other.

4. That the last Ternary was withal very healthful, the Burials being but Four thousand six hundred twenty and four, *viz.* below Four thousand seven hundred twenty and eight, the Standard.

5. That according to this proportion of increase, the Housing of *Dublin* have probably increased also.

Obfer-

Observations upon the Table C.

1. **F**irst, from the Table C, it appears, That the Housing of *Dublin* is such, as that there are not five Hearths in each House one with another, but nearer five than four.

2. That in *St. Warburgh's* Parish are near six Hearths to an House. In *St. John's* five. In *St. Michael's* above five. In *St. Nicolas* within above six. In *Christ Church* above seven. In *St. James's*, and *St. Katherine's*, and in *St. Michan's*, not four. In *St. Kevans* about four.

3. That in *St. James's*, *St. Michan's*, *St. Brides*, *St. Warburgh's*, *St. Andrew's*, *St. Michael's*, and *St. Patrick's*, all the Christnings were but Five hundred and fifty, and the Burials One thousand fifty and five, *viz.* near double; and that in the rest of the Parishes the Christnings were five, and the Burials seven, *viz.* as Four hundred fifty to Six hundred thirty and four. Now whether the cause of this difference were negligence in Accounts, or the greaterness of the Families, &c, is worth inquiring.

4. It

4. It is hard to say in what order (as to greatness) these Parishes ought to stand, some having most Families, some most Hearths, some most Births, and others most Burials. Some Parishes exceeding the rest in two, others in three of the said four particulars, but none in all four. Wherefore this Table ranketh them according to plurality of the said four particulars wherein each excelleth the other.

5. The *London Observations* reckon eight heads to be in each Family; according to which estimation, there are Thirty two thousand Souls in the Four thousand Families of *Dublin*; which is but half of what most Men imagine; of which but about one sixth part are able to bear Arms, besides the Royal Regiment.

6. Without the knowledge of the true number of People, as a Principle, the whole scope and use of the keeping Bills of Births and Burials is impaired; wherefore by laborious Conjectures and Calculations to deduce the number of People from the Births and Burials, may be Ingenious, but very Preposterous.

7. If the number of Families in *Dublin* be about Four thousand, then Ten Men

Men, in one week (at the Charge of about Five pound, Surveying Eight Families in an hour) may directly, and without Algebra, make an Accompt of the whole People, expressing their several Ages, Sex, Marriages, Title, Trade, Religion, &c. and those who survey the Hearths, or the Constables or Parish-Clerks, (may, if required) do the same *ex Officio*, and without other Charge, by the Command of the Chief Governor, the Diocesan, or the Mayor.

8. The Bills of *London* have since their beginning, admitted several Alterations and Improvements; and eight or ten pound *per annum* surcharge, would make the Bills of *Dublin* to exceed all others, and become an excellent Instrument of Government. To which purpose the Forms for Weekly, Quarterly, and Yearly Bills are humbly recommended, *viz.*

Yearly

Yearly Bills of Mortality for					
LONDON and DUBLIN.					
Anno.	LONDON.		DUBLIN.		
	Burials.	Births.	Burials.	Births.	
1680	21053	12747	1826	1096	
1679	21730	12288	1397	1061	
1678	20678	12601	1401	1045	
1674	21201	11851	2106	942	
1672	18230	12563	1436	987	
1668	17278	11633	1699	1026	
	120170	73683	9865	6157	
The medium or 6th part whereof is				20028	12280
				1644	1026

A

LONDON.					
Burials.		Births.			
Males.	Femal.	Males.	Femal.		
11039	10044	6543	6199		
11154	10576	6247	6041		
10681	9977	6568	6033		
11000	10196	6113	5738		
9560	8070	6443	6120		
9111	8167	6073	5566		
62545	57030	37992	35697		
10424	9505	6332	5949		

E

DUBLIN

B

D U B L I N.				
Ann.	Burials	Births.	In Ternaries of Years.	
1666	1480	952	4821	2979
1667	1642	1001		
1668	1699	1026		
1669	1666	1000	5353	3070
1670	1713	1067		
1671	1974	1003		
1672	1436	967	5073	2842
1673	1531	933		
1674	2106	942		
1675	1578	823	4328	2672
1676	1391	952		
1677	1359	897		
1678	1401	1045	4624	3202
1679	1397	1061		
1680	1826	1096		
	24199	14765	24199	14765
The medium or 14th part whereof is				
	1613	984	1613	984

The

The Parishes of D U B L I N.				
1	St. Katherine and St. James,	661	2399	161
2	St. Nicholas without,	490	2348	207
3	St. Michael,	656	2301	127
4	St. Andrews with Donabrook,	483	2123	108
5	St. Bridget's,	416	1989	70
6	St. John's,	244	1337	70
7	St. Warbrough's,	267	1650	54
8	St. Andrew's,	216	1081	53
9	St. Michael,	140	793	44
10	St. Kevin's,	106	433	64
11	St. Nicholas within,	93	614	28
12	St. Patrick's Liberties,	52	255	21
13	Christ-Church and Trinity-College per estimate,	26	197	1
Houses built between 1671, and 1681, per estimate,		3850	17500	1013
		150	550	1696
		4030	18150	

C

Caluities and Diseases.	
Aged above 70 years.	Head-ach, and Megrim.
Abortive and Still-born.	Epilepsie, and Planet.
Childbed-women.	Fever, and Ague.
Convulsion	Pleurisie.
Teeth.	Quinsey.
Worms.	Executed, Murder'd, Drown'd
Gout, and Sciatica.	Plague, and Spotted-Fever.
Stone.	Gripping of the Guts.
Palsey.	Scouring, Vomiting, Bleed-
Consumption, and French	ing.
Pox.	Small Pox.
Dropfie, and Tympany.	Measles.
Rickets, and Livergrow.	Neither of all the other sorts.

A
P O S T S C R I P T
T O T H E
S T A T I O N E R .

W Hereas you complain, that these Observations make no sufficient Bulk, I could answer you, That I wish the Bulk of all Books were less ; but do nevertheless comply with you in adding what follows, *viz.*

1. That the Parishes of *Dublin* are very unequal ; some having in them above Six hundred Families, and others under Thirty.

2. That Thirteen Parishes are too few for Four thousand Families ; the midling Parishes of *London* containing One hundred and twenty Families ; according to which rate, there should be about Thirty three Parishes in *Dublin*.

3. It

3. It is said, that there are Eighty four thousand Houses or Families in *London*, which is Twenty one times more than are in *Dublin*; and yet the Births and Burials of *London* are but Twelve times those of *Dublin*: which shews, that the Inhabitants of *Dublin*: are more crowded and streightned in their Housing, than those of *London*; and consequently, that to increase the Buildings of *Dublin*, will make that City more conformable to *London*.

4. I shall also add some Reasons for altering the present forms of the *Dublin* Bills of Mortality, according to what hath been here recommended, *viz.*

1. We give the distinctions of Males and Females in the Births only; for that the Burials must, at one time or another, be in the same proportion with the Births.

2. We do in the Weekly and Quarterly Bills propose, that notice be taken in the Burials of what numbers dye above Sixty and Seventy, and what under Sixteen, Six, and Two yards old; foreseeing good uses to be made of that distinction.

3. We do in the Yearly Bill, reduce the Casualties to about Twenty four, being such as may be discerned by common sense

sense and without Art; conceiving that more will but perplex and imbroil the Account. And in the Quarterly Bills we reduce the Diseases to Three Heads, *viz.* Contagious, Acute, and Chronical; applying this distinction to Parishes, in order to know how the different Situation, Soil, and way of living in each Parish, doth dispose Men to each of the said Three Species: and in the Weekly Bills we take notice not only of the Plague, but of the other Contagious Diseases in each Parish; that Strangers and fearful Persons may thereby know how to dispose of themselves.

4. We mention the Number of the People, as the Fundamental Term in all our proportions; and without which, all the rest will be almost fruitless.

5. We mention the number of Marriages made in every Quarter, and in every year; as also the proportion which Married Persons bear to the whole; expecting in such Observations to read the improvement of the Nation.

6. As for Religions, we reduce them to Three, *viz.* 1. Those who have the Pope of *Rome* for their Head. 2. Who are Governed by the Laws of their Country. 3. Those

3. Those who rely respectively upon their own private Judgments. Now whether these distinctions should be taken notice of or not, we do but faintly recommend, seeing many Reasons *pro* and *con* for the same: and therefore although we have mentioned it as a matter fit to be considered, yet we humbly leave it to Authority.

TWO
ESSAYS

IN

Political Arithmetick,

Concerning the

People, Housing, Hospitals, &c.

OF

LONDON and PARIS.

By Sir WILLIAM PETTY, late
Fellow of the *Royal-Society*.

— *Qui sciret Regibus uti*
Fastidiret olus —

LONDON, Printed for Robert Clavel at the
Peacock, and Henry Mortlock at the Phoenix in
St. Paul's Church-Yard, 1699.

TO THE
KING'S

Most EXCELLENT

MAJESTY.

I Do presume, in a very
small Paper, to shew Your
Majesty, that Your City
of London seems more consi-
derable than the Two best Ci-
ties of the French Monarchy,
and for ought I can find, greater
than any other of the Uni-
verse; which because I can say
F with-

Epistle Dedicatory.

*without flattery, and by such
Demonstration as Your Majesty
can examine, I humbly pray Your
Majesty to accept from*

Your Majesty's

Most Humble, Loyal

and Obedient Subject,

William Petty.

AN

[83]

AN

ESSAY

IN

Political ARITHMETICK,

BY

Sir WILLIAM PETTY,

Tending to prove, that *London* hath
more People and Housing than the Ci-
ties of *Paris* and *Rouen* put together,
and is also more considerable in several
other respects.

i. THE Medium of the *Burials*
at *London* in the three last
years, viz. 1683, 1684 and
1685, (wherein there was no
extraordinary Sicknefs, and wherein the
Christnings do correspond in their ordinary

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proportions with the *Burials* and *Christnings* of each year one with another) was Twenty two thousand three hundred thirty and seven, and the like Medium of *Burials* for the three last *Paris* Bills we could procure, *viz.* for the years 1682, 1683 and 1684 (whereof the last, as appears by the *Christnings*, seems to have been very sickly) is Nineteen thousand eight hundred eighty and seven.

2. The City of *Bristol* in *England* appears to be by good estimate of its *Trade* and *Customs* as great as *Rouen* in *France*; and the City of *Dublin* in *Ireland* appears to have more Chimnies than *Bristol*, and consequently more People; and the *Burials* in *Dublin* were *Anno* 1682 (being a sickly year) but Two thousand two hundred sixty and three.

3. Now the *Burials* of *Paris* (being Nineteen thousand eight hundred eighty and seven) being added to the *Burials* of *Dublin* (supposed more than at *Rouen*) being Two thousand two hundred sixty and three, makes but Twenty two thousand one hundred and fifty, whereas the *Burials* of *London* were One hundred eighty and seven more, or Twenty two thousand three hundred thirty and seven, or as about six to seven.

4. If

4. If those who die unnecessarily, and by miscarriage in *L'hostel Dieu* in *Paris* (being above Three thousand) as hath been elsewhere shewn, or any part thereof, should be subtracted out of the *Paris Burials* aforementioned, then our assertion will be stronger, and more proportionable to what follows concerning the Housing of those Cities, *viz.*

5. There were burnt in *London*, *Anno* 1666, above Thirteen thousand Houses, which being but a fifth part of the whole, the whole number of Houses in the said year, were above Sixty five thousand; and whereas the ordinary *Burials* of *London* have increased between the years 1666 and 1686, above one third, the total of the Houses at *London*, *Anno* 1686, must be about Eighty seven thousand, which *Anno* 1682, appeared by accmpt to have been Eighty four thousand.

6. *Monsieur Morery*, the great *French* Author of the late *Geographical Dictionaries*, who makes *Paris* the greatest City in the *World*, doth reckon but Fifty thousand Houses in the same, and other Authors and knowing Men much less; nor are there full Seven thousand Houses in the City of *Dublin*; so as if the Fifty

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thousand Houses of *Paris*, and the Seven thousand Houses in the City of *Dublin* were added together, the total is but Fifty seven thousand Houses, whereas those of *London* are Eighty seven thousand as aforesaid, or as Six to Nine.

7. As for the Shipping and Foreign Commerce of *London*, the common sense of all Men doth judge it to be far greater than that of *Paris* and *Rouen* put together.

8. As to the Wealth and Gain accruing to the Inhabitants of *London* and *Paris* by Law Suits (or *La Chicane*) I only say, that the Courts of *London* extend to all *England* and *Wales*, and affect seven Millions of People, whereas those of *Paris* do not extend near so far; Moreover there is no palpable conspicuous argument at *Paris* for the Number and Wealth of Lawyers, like the Buildings and Chambers in the *Two Temples*, *Lincoln's-Inn*, *Gray's-Inn*, *Doctors-Commons*, and the Seven other Inns in which are Chimnies, which are to be seen at *London*, besides many Lodgings, Halls and Offices relating to the same.

9. As to the plentiful and easie living of the People; we say,

1. That

1. That the People of *Paris* to those of *London*, being as about Six to Seven, and the Housing of the same as about Six to Nine, we infer, that the People do not live at *London* so close and crouded as at *Paris*, but can afford themselves more room and liberty.

2. That at *London* the *Hospitals* are better and more desirable than those of *Paris*; for that in the best at *Paris* there die Two out of Fifteen, whereas at *London* there die out of the worst scarce Two of Sixteen; and yet but a fiftieth part of the whole die out of the *Hospitals* at *London*, and two fifths, or twenty times that proportion die out of the *Paris-Hospitals*, which are of the same kind; that is to say, the number of those at *London* who chuse to lie sick in *Hospitals* rather than in their own Houses, are to the like People of *Paris* as One to Twenty; which shews the greater Poverty or want of Means in the People of *Paris* than those of *London*.

3. We infer from the premises, viz. the dying scarce Two out of Sixteen out of the *London Hospitals*, and about Two of Fifteen in the best of *Paris*, (to say nothing of *L' hostel Dieu*) that either the *Physicians* and *Chirurgeons* of *London* are

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better than those of *Paris*, or that the Air of *London* is more wholesome.

10. As for the other great Cities of the *World*, if *Paris* were the greatest, we need say no more in behalf of *London*. As for *Pequin* in *China*, we have no account fit to reason upon; nor is there any thing in the Description of the two late Voyages of the *Chinese* Emperor from that City into East and West *Tartary*, in the years 1682 and 1683, which can make us recant what we have said concerning *London*. As for *Dely* and *Agra* belonging to the *Mogul*, we find nothing against our Position, but much to shew the vast numbers which attend that Emperor in his business and pleasures.

11. We shall conclude with *Constantinople* and *Gran Cairo*; as for *Constantinople* it hath been said by one who endeavour'd to shew the greatness of that City, and the greatness of the Plague which reigned in it, that there died One thousand five hundred *per diem*, without other Circumstances; To which we answer, that in the year 1665 there died in *London* One thousand two hundred *per diem*, and it hath been well proved, that the Plague of *London* never carried away
above

above one fifth of the People, whereas it is commonly believed that in *Constantinople*, and other Eastern Cities, and even in *Italy* and *Spain*, that the Plague takes away two fifths, one half or more; wherefore where One thousand two hundred is but one fifth of the People, it is probable that the number was greater than where One thousand five hundred was two fifths, or one half, &c.

12. As for *Gran Cairo* it is reported, that Seventy three thousand died in ten weeks or One thousand *per diem*; where note, that at *Gran Cairo* the Plague comes and goes away suddenly, and that the Plague takes away Two or three fifth parts of the People as aforesaid; so as Seventy three thousand was probably the number of those that died of the Plague in one whole year at *Gran Cairo*, whereas at *London* Anno 1665, Ninety seven thousand were brought to account to have died in that year. Wherefore it is certain, that that City wherein Ninety Seven thousand was but one fifth of the People, the number was greater than where Seventy three thousand was two fifths or the half.

We

We therefore conclude, that *London* hath more People, Housing, Shipping and Wealth, than *Paris* and *Rouen* put together; and for ought yet appears, is more considerable than any other City in the Universe, which was propounded to be proved.

AN

AN
E S S A Y

IN

Political ARITHMETICK,

BY

Sir WILLIAM PETTY,

Tending to prove that in the Hospital called *L' hostel Dieu* at *Paris*, there die above Three thousand *per Annum* by reason of ill accommodation.

1. IT appears that *Anno* 1678. there entered into the Hospital of *La Charité* Two thousand six hundred forty and seven Souls, of which there died there within the said year Three hundred thirty and eight, which is above an eighth part of the said Two thousand six hundred

dred forty and seven, and that in the same year there entred into *L' hostel Dieu* Twenty one thousand four hundred ninety and one, and that there died out of that number Five thousand six hundred and thirty, which is above *one quarter*; so as about half the said Five thousand six hundred and thirty, being Two thousand eight hundred and fifteen, seem to have died for want of as good usage and accommodation as might have been had at *La Charité*.

2. Moreover in the year 1679 there entred into *La Charité* Three thousand one hundred and eighteen, of which there died Four hundred fifty and two, which is above a seventh part; and in the same year there entred into *L' hostel Dieu* Twenty eight thousand six hundred thirty and five, of which there died Eight thousand three hundred ninety and seven: and in both the said years 1678 and 1679 (being very different in their degrees of Mortality) there entred into *L' hostel Dieu* Twenty eight thousand six hundred thirty and five, and Twenty one thousand four hundred ninety and one, in all Fifty thousand one hundred twenty and six, the Medium whereof is Twenty five thousand

sand sixty and three, and there died out of the same in the said two years Five thousand six hundred and thirty, and eight thousand three hundred ninety and seven, in all Fourteen thousand twenty and seven, the Medium whereof is Seven thousand and thirteen.

3. There entred in the said years into *La Charité* Two thousand six hundred forty and seven, and Three thousand one hundred and eighteen, in all Five thousand seven hundred sixty and five, the Medium whereof is Two thousand eight hundred eighty and two, wherefore there died Three hundred thirty and eight, and Four hundred fifty and two, in all Seven hundred ninety, the Medium whereof is Three hundred ninety and five.

4. Now if there died out of *L' hostel Dieu* Seven thousand and thirteen *per annum*, and that the proportion of those that died out of *L' hostel Dieu* is double to those that died out of *La Charité* (as by the above Numbers it appears to be near thereabouts) then it follows, that half the said Numbers of Seven thousand and thirteen, being Three thousand five hundred and six, did not die by *natural necessity*, but by the evil Administration of that Hospital.

5. This

5. This Conclusion seem'd at the first sight very strange, and rather to be some mistake or chance than a solid and real truth; but considering the same matter as it appeared at *London*, we were more reconciled to the belief of it, *viz.*

1. In the Hospital of *St. Bartholomew* in *London* there was sent out and cured in the year 1685, 1764 Persons, and there died out of the said Hospital Two hundred fifty and two. Moreover there were sent out and cured out of *St. Thomas's* Hospital One thousand five hundred twenty and three, and buried Two hundred and nine, that is to say, there were cur'd in both Hospitals Three thousand two hundred eighty and seven, and buried out of both Hospitals Four hundred sixty and one, and consequently cured and buried Three thousand seven hundred and forty and eight, of which number the Four hundred sixty and one buried is less than an eighth part, whereas at *La Charité* the part that died was more than an eighth part, which shews that out of the most poor and wretched Hospitals of *London* there died fewer in proportion than out of the best in *Paris*.

2. Far-

2. Farthermore, it hath been above shewn that there died out of *La Charité* at a Medium Three hundred ninety and five *per annum*, and One hundred forty and one out of *Les Incurables*, making in all Five hundred thirty and six; and that out of *St. Bartholomew's* and *St. Thomas's* Hospitals, *London*, there died at a Medium but Four hundred sixty and one, of which *Les Incurables* are part; which shews, that although there be more People in *London* than in *Paris*, yet there went at *London* not so many People to Hospitals as there did at *Paris*, although the poorest Hospitals at *London*, were better than the best at *Paris*; which shews that the poorest People at *London* have better accommodation in their own Houses, than the best Hospital of *Paris* affordeth.

6. Having proved that there die about Three thousand five hundred and six Persons at *Paris* unnecessarily to the damage of *France*, we come next to compute the value of the said damage, and of the Remedy thereof, as follows, *viz.* the value of the said Three thousand five hundred and six Persons at 60 *l. Sterl. per Head*, being about the value of *Argier Slaves*, (which is less than the intrinsic value of People at *Paris*)

ris) the whole loss of the Subjects of France in that Hospital seems to be sixty times 3506 li. Sterl. per Annum, viz. 210360 li. Sterl. equivalent to about 2524320 French Livres.

7. It hath appeared that there came in to *L'hostel Dieu* at a Medium Twenty five thousand sixty and three per Annum, or Two thousand eighty and nine per Menssem, and that the whole stock of what remain'd in the precedent Months is, at a Medium, about Two thousand one hundred and eight (as may appear by the third Line of the Table N^o 5, which shall be shortly published) viz. the Medium of Months is Two thousand four hundred and ten for the sickly year 1679, whereunto One thousand eight hundred and six, being added as the Medium of Months for the year 1678 makes Four thousand two hundred and sixteen, the Medium whereof is the Two thousand one hundred and eight above mentioned; which number being added to the Two thousand eighty and nine which entered each Month, makes Four thousand one hundred ninety and seven for the Number of Sick which are supposed to be always in *L'hostel Dieu* one time with another.

8. Now

8. Now if sixty French Livres per Annum for each of the said Four thousand one hundred ninety and seven sick Persons, were added to the present ordinary Expence of that Hospital (amounting to an addition of Two hundred fifty one thousand eight hundred and twenty Livres) it seems that so many lives might be saved as are worth above ten times that sum, and this by doing a manifest deed of Charity to Mankind.

Memorandum, That Anno 1685. the Burials of London were Twenty three thousand two hundred twenty and two, and those of Amsterdam Six thousand two hundred forty and five; from whence, and the difference of Air, 'tis probable that the People of London are quadruple to those of Amsterdam.

F I N I S.

G

OBSERVATIONS
UPON THE
CITIES
OF
LONDON
AND
ROME.

By Sir WILLIAM PETTY, late
Fellow of the *Royal-Society*.

The Second Edition Corrected.

LONDON, Printed for Robert Clavel at the
Peacock, and Henry Mortlock at the Phoenix in
St. Paul's Church-Yard, 1699.

OBSERVATIONS
UPON THE
CITIES
OF
LONDON and ROME.

1. **T**HAT before the Year 1630, the Christnings at *London* exceeded the Burials of the same; but about the Year 1655, they were scarce Half; and now about Two Thirds.

2. Before the Restauration of Monarchy in *England*, Anno 1660, the People of *Paris* were more than those of *London* and *Dublin* put together, whereas now, the People of *London* are more than
G 3 those

those of *Paris* and *Rome*, or of *Paris* and *Rouen*.

3. *Anno* 1665, One Fifth Part of the then People of *London*, or Ninety Seven Thousand died of the Plague, and in the next Year, 1666, Thirteen Thousand Houses, or One Fifth part of all the Housing of *London* were burnt also.

4. At the Birth of *Christ*, Old *Rome* was the greatest City of the World, and *London* the greatest at the Coronation of King *James* the Second, and near Six times as great as the present *Rome*, wherein are One Hundred and Nineteen Thousand Souls, besides *Jews*.

5. In the Years of King *Charles* the Second his Death, and King *James* the Second his Coronation (which were neither of them remarkable for extraordinary Sickliness or Healthfulness) the Burials did wonderfully agree, viz. *Anno* 1684, they were Twenty Three Thousand Two Hundred and Two, and *Anno* 1685, they were Twenty Three Thousand Two Hundred and Twenty Two, the *Medium* whereof is Twenty Three Thousand Two Hundred and Twelve. And the Christnings did very wonderfully agree also, having been *Anno* 1684, Fourteen

Fourteen Thousand Seven Hundred and Two, and *Anno* 1685, Fourteen Thousand Seven Hundred and Thirty Two, the *Medium* whereof is Fourteen Thousand Seven Hundred and Sixteen, which consistence was never seen before; the said Number of Twenty Three Thousand Two Hundred and Twelve Burials making the People of *London* to be Six Hundred Ninety Six Thousand Three Hundred and Sixty, at the rate of One dying *per Annum* out of Thirty.

6. Since the great Fire of *London*, *Anno* 1666, about Seven Parts of Fifteen of the present vast City hath been new built, and is with its People increased near One Half, and become equal to *Paris* and *Rome* put together, the one being the Seat of the great *French* Monarchy, and the other of the Papacy.

F I N I S.

CINQ ESSAYS

SUR

L'Arithmetique Politique.

- I. Ou Répond aux Objections tirées de la Ville de Rey en Perse, & à celles de Mr. Auzout contre les deux premiers Essays, & l'on fait voir qu'il y-a autant de monde à Londres qu'à Paris, Rome & Rouen pris ensemble.
- II. Comparaison entre Londres & Paris en 14 choses particuliers.
- III. Preuves qu'il demeure dans les 134 paroisses de Londres marquées dans les billets de mortalité, environ 696 mille personnes.
- IV. Combien l'on estime qu'il y-a de monde à Londres, Paris, Amsterdam, Venice, Rome, Dublin, Bristol & Rouen, avec plusieurs remarques sur ce sujet.
- V. Touchant la Hollande & les autres VII Provinces Unies.

Par le Chevalier PETTY de la
Société Royale.

Invidiam augendo ulciscar.

A L O N D R E,

Imprimé pour R. Clavel & H. Mortlock. 1699.

FIVE ESSAYS

I N

Political Arithmetick.

V I Z.

- I. Objections from the City of Rey in Persia, and from Monsr. Auzout, against Two former Essays, answered, and that London hath as many People as Paris, Rome and Rouen put together.
- II. A Comparison between London and Paris in 14 Particulars.
- III. Proofs that at London, within its 134 Parishes named in the Bills of Mortality, there live about 696 Thousand People.
- IV. An Estimate of the People in London, Paris, Amsterdam, Venice, Rome, Dublin, Bristol and Rouen, with several Observations upon the same.
- V. Concerning Holland and the rest of the Seven United Provinces.

By Sir WILLIAM PETTY,
late Fellow of the Royal-Society.

Invidiam augendo ulciscar.

L O N D O N, Printed for Robert Clavel and
Henry Mortlock, 1699.

Au ROY.

SIRE,

Vostre Majesté ayant bien voulu recevoir favorablement mes deux derniers Essays sur les Villes & Hopitaux de Londres & de Paris, & mes Observations sur Rome & Rouen, je prens la liberté (apres avoir attendu pendant six mois ce que pourroient dire les Scavants de L'Europe contre ce que j'y avance) de

TO THE KING'S

Most Excellent MAJESTY.

SIR,

Your Majesty having Graciously accepted my two late Essays, about the Cities and Hospitals of London and Paris, as also my Observations on Rome and Rouen; I do (after six Months waiting for what may be said against my several Doctrines, by the able Men of Europe) humbly

de luy presenter quelques autres
écrits sur ce même sujet pour
confirmer, éclaircir, & étendre,
les premiers, croiant loüer beaucoup
mieux vostre Majesté par ces
sortes d'arguments réels, que par
les discours les plus étudiés
& les éloges les plus éclatans
que pourroit imaginer celui qui
est

De vostre Majesté

Le tres-humble, tres-fidèle

& tres-obéissant Sujet,

P E T T Y.

P R E

humbly présent Your Ma-
jesty with a few other Pa-
pers upon the same Subject,
to strengthen, explain and
enlarge the former ; hoping
by such real Arguments,
better to praise and mag-
nifie Your Majesty, than by
any other the most specious
Words and Elogies that can
be imagined by

Your Majesty's

Most humble, loyal,

and obedient Subject,

William Petty.

The

PREMIER ESSAY.

ON devoit bien s'attendre qu'une assertion que *Londres* est plus grand que *Paris & Rouen*, ou que *Paris & Rome* pris ensemble, ou même plus qu'aucune ville du monde, ne manqueroit pas d'estre contredite, & l'on a dû s'attendre aussi que (si je continuois dans le même sentiment,) je ne manquerois pas de répliquer à ces contradictions. Dans ce dessein,

Je commence par l'ingenieux Auteur de la Republique des Lettres, qui dit que *Rey en Perse* est beaucoup plus grand que *Londres*, parce que dans la 6^e centurie du Christianisme (je suppose l'an 550, le milieu de ce siècle) il y avoit 15000, ou plutôt 44000 mosquées ou temples Mahometans; à quoy je répons que ce ne peut estre qu'une raillerie de l'auteur, puisque

The FIRST ESSAY.

IT could not be expected that an assertion of London's being bigger than Paris and Rouen, or than Paris and Rome put together, and bigger than any City of the World, should scape uncontradicted; and 'tis also expected, that I (if continuing in the same persuasion) should make some reply to those Contradictions. In order whereunto,

I begin with the ingenious Author of the Republique des Lettres, who saith that *Rey in Persia* is far bigger than London, for that in the sixth Century of Christianity (I suppose Anno 550, the middle of that Century) it had 15 Thousand, or rather 44 Thousand Moschees, or Mahometan Temples; to which I reply, that I hope this Objector is but in jest, for

puisque Mahomet n'est venu au monde que vers l'an 570 & n'a eu des mosquées qu'environ 50 ans apres.

Ensuite je repons aux lettres que l'excellent Mr. Auzout écrit de Rome. Lequel veut bien demeurer d'accord que Londres, Westminster & Southwark, ont autant d'habitans qu'il y en a dans Paris & ses fauxbourgs, & ne nie que foiblement qu'il ne puisse y avoir presque autant de monde dans tout ce qu'il y-a de maisons comprises dans les billets de mortalité qu'à Paris & a Rouen, mais il dit que plusieurs paroisses inserées dans ces billets, sont assés éloignées de Londres, & n'y sont pas contigues, & que c'est ainsi que l'entend Grant.

A quoy (comme estant sa capitale, pour ne pas dire sa seule objection) nous répondons, 1. Qu'il paroît par le livre de Grant que les billets de Londres ont toujours esté depuis l'an 1636. comme ils sont maintenant. 2. Que depuis environ 50 ans, 3 ou 4 paroisses qui estoient autrefois un peu éloignées, ont esté jointes par le moyen des batimens qui ont esté faits entre deux aut corps de la ville & c'est ce qui les a fait inserer dans les billets. 3. Que depuis 50 ans le total des batimens

for that Mahomet was not born till about the year 570, and had no Moschees till about 50 years after.

In the next place I reply to the excellent Monsieur Auzout's Letters from Rome, who is content that London, Westminster and Southwark, may have as many People as Paris and its Suburbs; and but faintly denieth, that all the Housing within the Bills, may have almost as many People as Paris and Rouen, but saith that several Parishes inserted into these Bills, are distant from, and not contiguous with London, and that Grant so understood it.

To which (as his main, if not his only Objection) we answer: 1. That the London Bills appear in Grant's Book, to have been always since the Year One Thousand Six Hundred Thirty Six, as they now are. 2. That about Fifty Tears since, Three or Four Parishes, formerly somewhat distant were joyned by interposed Buildings, to the Bulk of the City, and therefore then inserted into the Bills. 3. That since Fifty Tears, the whole

H Buildings

batimens estant augmenté au double à achevé cette union de belle maniere qu'il n'y à maintenant aucune des maisons comprises dans ces billets qui ne soit à la portée de la voix d'une autre maison. 4. Tout cecy est confirmé par l'autorité du Roy & de la ville & une coutume de 50 ans. 5. Qu'il n'y à que 3 paroisses pour lesquelles on puisse former cette difficulté avec quelque sorte de couleur, ce qui fait à peine $\frac{1}{2}$ partie du tout.

Sur le tout, à la premiere lecture de cette lettre fortamplé de Mr. Auzout, datée de Rome du 19 Nov. 1686, je fis des remarques sur chaque paragraphe, mais je les ay supprimées, parce que cela paroïssoit comme une espee de guerre avec une personne de merite, avec qui je n'en voulois point avoir, quoy que ce ne fut dans le fonds qu'un éclaircissement de quelques doutes, & j'ay choisi un moyen plus court & plus doux pour répondre à Mr. Auzout comme nous allons faire.

Du

Buildings being more than double; have perfected that Union, so as there is no House within the said Bills, from which one may not call to some other House. 4. All this is confirmed by Authority of the King and City, and the Custom of Fifty Years. 5. That there are but Three Parishes under any colour of this Exception, which are scarce $\frac{1}{2}$ part of the whole.

Upon the whole matter, upon sight of Monsieur Auzout's large Letter, dated the 19th. of November from Rome, I made Remarks upon every Paragraph thereof; but suppressing it (because it lookt like a War against a worthy Person with whom I intended none, whereas in truth, it was but a reconciling explication of some doubts) I have chosen the shorter and softer way of answering Monsieur Auzout as followeth, viz.

H 2

Cott-

*Du nombre des habitans de Londres,
comme aussi de ceux de Paris,
Rouen & Rome.*

M^{R.} *Auzout* cite un registre authentique qui porte qu'il-y-a 23223 maisons dans *Paris* ou il demeure plus de 80 mille familles, ainsi supposant qu'il demeure dans chacune de ces maisons $3\frac{1}{2}$ familles l' > 487,680 une portant l'autre, le nombre des familles sera 81280, & *Mr. Auzout* mettant 6 têtes par famille, le plus grand nombre ou l'on puisse faire monter les habitans de *Paris* selon son opinion sera

Mr.

*Concerning the Number of People
in London, as also in Paris, Rouen
and Rome, viz.*

M^{Onsieur} *Auzout* alledgeth an authentick Account, that there are 23223 Houses in *Paris*, wherein do live about Eighty Thousand Families, and therefore supposing $3\frac{1}{2}$ Families to live in every of the said Houses, one > 487,680 with another, the number of Families will be 81280; and *Monf. Auzout* also allowing Six Heads to each Family, the utmost number of People in *Paris* according to that Opinion will be

H 3

The

Mr. Auzout ne nie pas que le medium des enterremens de Paris ne soit 19887; ny qu'il n'en meure 3506 sans necessité à L'Hotel-Dieu, ainsi en deduisant ce dernier nombre du premier la meilleure regle pour les enterremens de Paris sera 16381, tellement que le nombre des habitans, supposant qu'il n'en meurt qu'un de 30 (ce qui est plus avantageux pour Paris que l'opinion de Mr. Auzout qu'il en meurt un de 25) le nombre des habitans de Paris sera 491, 430, plus qu'il ne s'en trouve par le dernier conte rapporté par Mr. Auzout même.

Le medium de ces 2 comptes Paris est } 488,055

Le

The Medium of the Paris Burials was not denied by Monsieur Auzout to be Nineteen Thousand Eight Hundred and Eighty Seven, nor that there died Three Thousand Five Hundred and Six unnecessarily out of L'Hotel-Dieu; wherefore deducting the said last Number out of the former, the neat standard for Burials at Paris, will be Sixteen Thousand Three Hundred and Eighty One, so as the number of People there, allowing but One to die out of Thirty (which is more advantageous to Paris than Monsieur Auzout's Opinion of One to die out of Twenty Five) the number of People at Paris will be 491, 430, more than by Monsieur Auzout's own last mentioned Account.

And the Medium of the said two Paris Accounts is } 488,055

H 4

The

Le medium des enterre-
ments de *Londres* est réele-
ment 23212, qui estant mul-
tipliez par 30 (comme on
à fait pour *Paris*) le nombre
des habitans fera } 596,360

Il paroît par le registres
des maisons de *Londres* qu'il
y en à 105315; à quoy a-
joutant $\frac{1}{10}$ partie de ce même
nombre, comme le moindre
nombre de familles doubles
que l'on puisse supposer qu'il-
y-a à *Londres*, le total des
familles fera 115840; & en
mettant 6 personnes pour
chaque famille comme on
fait pour *Paris*, le total
des habitans de *Londres*
fera } 695,076

Le medium de ces 2
derniers contes de *Londres*
est } 695,718

Telle-

*The Medium of the Lon-
don Burials is really 23212,
which multiplied by Thirty (as
hath been done for Paris) the
number of the People there will
be* } 696,360

*The Number of Houses at
London appears by the Regi-
ster to be 105,315, where-
unto adding $\frac{1}{10}$ part of the
same, or 10331, as the least
Number of double Families
that can be supposed in Lon-
don, the total of Families
will be 115,840; and allow-
ing six Heads for each Fa-
mily as was done for Paris,
the total of the People at Lon-
don will be* } 695,076

*The Medium of the two last
London Accounts is* } 695,718

So

Tellement que
le nombre des
habitans de *Paris* } 488,055
suivant le conte
cy dessus est }

De *Rouen* sui-
vant le plus que
Mr. *Auzout* y en
mette } 80,000 } 693,055

De *Rome* selon
ce qu'il en rap-
porte luy même } 25,000 }
dans sa lettre pre-
cedente }

Si bien qu'il-y-à plus de
monde a *Londres* qu'a *Paris*, } 2,663
Rouen & *Rome* de }

Il faut observer que les pa-
roisses de *Islington*, *New-
ington* & *Hackney*, qui
sont les seules que l'on
pourroit pretendre avec
quelque sorte de couleur
n'estre pas contigues, ne }

font

So as the Peo-
ple of *Paris* accor- } 488,055
ding to the above
account is }

Of *Rouen* ac-
cording to Mon-
sieur *Auzout's* ut- } 80,000 } 693,055
most demands }

Of *Rome* ac-
cording to his own
report thereof in a
former Letter. } 25,000 }

So as there are more People
at *London* than at *Paris*, } 2,663
Rouen and *Rome* by }

Memorandum, That the Pa-
rishes of *Islington*, *Newing-
ton* and *Hackney*, for
which only there is any
colour of Non-contiguity, is }

not

font pas $\frac{1}{2}$ partie de ce qui
est compris dans les billets
de mortalité, & que par
consequent il-y-a encore
sans ces 3 paroisses plus
de monde à Londres qu'à
Paris & à Rouen pris en-
semble de

Le quel nombre de 114, 284 est pro-
bablement plus qu'aucune autre ville de
France ne contient de monde.

SECOND

not $\frac{1}{2}$ part of what is con-
tained in the Bills of Mor-
tality, and consequently Lon-
don, without the said Three
Parishes, hath more People
than Paris and Rouen put
together by

Which Number of 114, 284 is probably
more People than any other City of France
contains.

The

SECOND ESSAY.

Pour ce qui est des autres comparaisons de *Londres* avec *Paris*, nous repetons encor & nous étendons ce qui a esté dit autrefois sur ce sujet de la maniere qui suit,

1. Qu'il en meurt 40 de cent dans les hopitaux de *Paris*, ou il en meurt un si grand nombre sans necessité, & à peine $\frac{1}{2}$ de la même proportion dans les hopitaux de *Londres* que l'on a fait voir estre meilleurs que le meilleur de *Paris*.

2. Qu'il-y-a à *Paris* 81280 familles ou cuisines dans moins de 24000 maisons ou portes sur la rue, ce qui rend leur maniere de vivre moins propre & moins commode qu'à *Londres*.

3. Là ou le nombre des batémies approche fort ou va même au de la des enterremens, le monde y est plus pauvre n'ayant que peu de serviteurs & qu'un petit equipage.

4. La

The SECOND ESSAY.

AS for other Comparisons of London with Paris, we farther repeat and enlarge what hath been formerly said upon those matters as followeth, viz.

1. That Forty per Cent. die out of the Hospitals at Paris where so many die unnecessarily, and scarce $\frac{1}{2}$ of that proportion out of the Hospitals of London, which have been shewn to be better than the best of Paris.

2. That at Paris 81280 Kitchens, are within less than 24000 Street-doors, which makes a less cleanly and convenient way of living than at London.

3. Where the Number of Christnings are near unto, or exceed the Burials, the People are poorer, having few Servants and little Equipage.

4. The

4. La rivière de la *Tamise* est plus agreable & plus navigable que la *Seine* ses caües sont meilleures & plus saines & le pont de *Londres* est le plus considerable de toute l'*Europe*.

5. Les vaisseaux & le commerce étranger de *Londres*, sont incomparablement plus grands qu'à *Paris* & à *Rouen*.

6. Les chambres des gens de Loy à *Londres* contiennent 2772 cheminées & valent 240 mille livres sterlin ou 3 millions de livres de *France*, outre les logements de leurs familles en d'autres lieux.

7. L'air y est plus sain, car à *Londres* à peine en meurt il 2 de 16 dans les plus méchants hopiteaux, au lieu qu'à *Paris* il en meurt 2 de 15 dans les meilleurs, de plus les enterremens de *Paris* sont partie au dessus & au dessous du medium, au lieu qu'à *Londres* ce n'est pas plus de $\frac{1}{16}$, d'oü il s'ensuit que l'air est bien moins temperé à *Paris* qu'à *Londres*.

8. Le chauffage y est à meilleur marché & tient moins de place, Le charbon estant un bitume sulfuré qui est assez sain.

9. Les vivres les plus nécessaires & les poissons y sont aussi à meilleur marché & on y trouve de toutes sortes de boissons en plus grande abondance qu'en aucun autre lieu.

10. Pour

4. The River of *Thames* is more pleasant and navigable than the *Seine*, and its Waters better and more wholesome; and the Bridge of *London*, is the most considerable of all *Europe*.

5. The Shipping and Foreign Trade of *London* is incomparably greater than that at *Paris* and *Rouen*.

6. The Lawyers Chambers at *London* have 2772 Chimnies in them, and are worth 140 Thousand Pounds sterling, or Three Millions of French Livres, besides the dwellings of their Families elsewhere.

7. The Air is more wholesome, for that at *London* scarce Two of Sixteen die out of the worst Hospitals, but at *Paris* above Two of Fifteen out of the best. Moreover, the Burials of *Paris* are $\frac{1}{16}$ part above and below the Medium, but at *London*, not above $\frac{1}{16}$, so as the intemperies of the Air at *Paris* is far greater than at *London*.

8. The Fuel cheaper, and lies in less room, the Coals being an wholesome sulphurous Bitumen.

9. All the most necessary sorts of Victuals, and of Fish, are cheaper, and Drinks of all sorts in greater variety and plenty.

1

10. The

10. Pour ce qui est des églises, nous en rapportons au jugement des yeux de chacun, croiant qu'il n'y-a rien à *Paris* de si grand qu'estoit & que sera *St. Paul*, ny de si beau que la chapelle de *Henry VII.*

11. D'un autre coté il est probable qu'il y-a plus d'argent à *Paris* qu'à *Londres*, si l'on y trouve le revenu public qui pour en parler grossièrement, est quatre fois plus grand que celui d'*Angleterre*.

12. *Paris* n'a pas esté si fort incommodé de la peste que *Londres* ces 50 dernières années. Cependant la peste (qui a recommencé 5 fois à *Londres* entre les années 1591 & 1666, c'est à dire tous les 15 ans dans un medium & qui a chaque fois emporté $\frac{1}{3}$ des habitans, n'y-a point esté connue pendant les 21 ans derniers passez, & l'on croit avoir trouvé un moyen visible, avec l'assistance ordinaire de Dieu, de la diminuer des $\frac{1}{3}$ la premiere fois qu'elle reviendra.

13. Quand au terrain sur lequel *Paris* est bati par rapport à *Londres*, nous disons que si les maisons de *Paris* sont à 5 étages contre celles de *Londres* à 4 ou à semblable proportion, les 82 mille familles de *Paris* sont donc sur un terrain equivalent à 65 mille assietes

10. *The Churches of London we leave to be judg'd by thinking that nothing at Paris is so great as St. Paul's was, and is like to be, nor so beautiful as Henry the Seventh's Chappel.*

11. *On the other hand, 'tis probable, that there is more Money in Paris than London, if the publick Revenue (grossly speaking, quadruple to that of England) be lodged there.*

12. *Paris hath not been for these last Fifty Years so much infested with the Plague as London; now that at London the Plague (which between the Year 1591 and 1666, made Five returns, viz. every Fifteen Tears, at a Medium, and at each time carried away $\frac{1}{3}$ of the People) hath not been known for the One and Twenty Tears last past, and there is a visible way by God's ordinary Blessing to lessen the same by $\frac{1}{3}$ when it next appeareth.*

13. *As to the Ground upon which Paris stands in respect of London, we say, that if there be five Stories or Floors of Housing at Paris, for Four at London, or in that proportion, then the Eighty Two Thousand Families of Paris stand upon the equivalent of Sixty Five Thousand London*

affiées de maisons de *Londres*; & s'il y a 115 mille familles à *Londres* & seulement 82 mille à *Paris*, la proportion du terrain de *Londres* à celui de *Paris* est comme 115 à 65, ou comme 23 à 13.

14. De plus on dit que *Paris* est un ovale long de 3 milles d'*Angleterre* & large de $2\frac{1}{2}$ dont le plan ne contient que 5 milles & demy quarrez; aulieu que *Londres* a 7 milles de long & $1\frac{1}{4}$ de large dans un medium, ce qui fait un plan de pres de 9 milles quarrez, laquelle proportion de $5\frac{1}{2}$ à 9 est peu differente de celle de 13 à 23.

15. Il est à remarquer qu'au temps de *Neron* (comme le rapporte *Mr. Chevreau*) il mourut dans la vieille *Rome* 300 mille personnes de la peste, que s'il y en mourut alors 3 de 10, à cause que le pays est plus chaud, comme il en meurt à *Londres* 2 de 10, le nombre des habitans n'estoit en ce temps là qu'un million, aulieu qu'à *Londres* il y en à present environ 700 mille, de plus le terrain enfermé dans les murailles de la vieille *Rome* n'estoit qu'une cercle de 3 milles de diametre, dont le plan est environ 7 milles quarrez & les fauxbourgs à peine une fois autant, en tout environ 13 milles quarrez, aulieu que ce qu'il y a de terrain

don Housteds, and if there be 115 Thousand Families at London, and but 82 Thousand at Paris, then the proportion of the London Ground to that of Paris is as 115 to 65, or as 23 to 13.

14. Moreover Paris is said to be an Oval of Three English Miles long, and Two and a half broad, the Area whereof contains but Five and a half square Miles; but London is Seven Miles long, and One and a third broad at a Medium, which makes an Area of near Nine square Miles, which proportion of Five and a half to Nine differs little from that of Thirteen to Twenty Three.

15. Memorandum, That in Nero's time, as Monsieur Chevreau reporteth, there died Three Hundred Thousand People of the Plague in Old Rome; now if there died Three of Ten then, and there, being a hotter Country, as there dies Two of Ten at London, the number of People at that time, was but a Million, whereas at London they are now about Seven Hundred Thousand. Moreover the Ground within the Walls of Old Rome was a Circle but of Three Miles diameter, whose Area is about Seven square Miles, and the Suburbs scarce as much more, in all about Thirteen square Miles, whereas the built

terrain occupé par les batimens de *Londres* est environ 9 miles quarréz comme nous l'avons dit, & ces 2 fortes de proportions s'accordant l'une avec l'autre il semble par consequent que la vieille *Rome* n'estoit que de la moitié plus grande que *Londres* d'aujourd'hui ; ce que nous laissons à examiner aux antiquaires.

TROIS

Ground at London is about Nine square Miles as aforesaid; which two sorts of proportions, agree with each other, and consequently Old Rome seems but to have been half as big again as the present London, which we offer to Antiquaries.

14

The

TROISIEME ESSAY.

PReuves que le nombre des habitans qui sont dans les 134 paroisses comprises dans les billets de mortalité de Londres, sans rapport aux autres villes, est 696 m.

Je ne connois que trois manieres de le faire.

1. Par les maisons, les familles, & les personnes qui les composent.

2. Par le nombre des enterrements dans les années qui ont esté saines & par la proportion des vivants aux mourants.

3. Par le nombre de ceux qui meurent de la peste dans les années de peste, à proportion de ceux qui en échappent.

Premiere maniere.

Pour scavoir le nombre des maisons je me suis servi de 3 methodes.

1. Du

The THIRD ESSAY.

PRoofs that the number of People in the 134 Parishes of the London Bills of Mortality, without reference to other Cities, is about 696 thousand, viz.

I know but three ways of finding the same.

1. By the Houses, and Families and Heads living in each.

2. By the number of Burials in healthful times, and by the proportion of those that live, to those that die.

3. By the number of those who die of the Plague in Pestilential years, in proportion to those that scape.

The First way

To know the number of Houses I used three methods, viz.

1. The

1. Du nombre des maisons qui furent brûlées l'an 1666, qui fut, par le rapport authentique qui en a esté fait, 13200, ensuite de la proportion de ceux qui sont morts dans ces maisons avec le tout, que je trouve n'avoir esté l'année 1686 que $\frac{1}{4}$ partie aulieu que l'année 1666 ils faisoient presque $\frac{1}{4}$ d'où j'inferé que toutes les maisons de Londres l'année 1666 étoient 66 mille, aupres quoy trouvant que les enterrements l'année 1666 estoient par rapport à ceux de 1686 comme 3 à 4, je m'arrête à 88 m. comme estant le nombre des maisons l'an 1686.

2. Ceux qui ont esté employez à faire la carte generale de Londres publiée l'année 1682, m'ont assuré que cette année là ils avoient trouvé qu'il y avoit à Londres plus de 84 m. maisons, ainsi l'année 1686, ou en 4 années davantage il peut y avoir $1\frac{1}{2}$ ou 8400 maisons de plus (Londres croissant au double en 40 ans) tellement que l'année 1686 le tout peut estre 92400.

3. Je trouve que l'année 1685 il y avoit 29325 cheminées à Dublin & 6400 maisons, & à Londres 388 m. cheminées & selon cette proportion il faudroit qu'il y eut 87 m. maisons à Londres, d'ailleurs j'ay

1. *The number of Houses which were burnt Anno 1666, which by authentick Report was 13200; next, what proportion the People who dyed out of those Houses, bore to the whole; which I find Anno 1686, to be but $\frac{1}{4}$ part, but Anno 1666 to be almost $\frac{1}{4}$, from whence I infer the whole Housing of London, Anno 1666, to have been 66 thousand, then finding the Burials Anno 1666 to be to those of 1686 as 3 to 4, I pitch upon 88 thousand to be the number of Housing Anno 1686.*

2. *Those who have been employed in making the general Map of London, set forth in the year 1682, told me that in that year, they had found above 84 thousand Houses to be in London, wherefore Anno 1686, or in four years more, there might be $1\frac{1}{2}$ or 8400 Houses more (London doubling in 40 years) so as the whole, Anno 1686 might be 92400.*

3. *I found that Anno 1685, there were 29325 Hearths in Dublin, and 6400 Houses, and in London 388 thousand Hearths, whereby there must have been at that rate 87000 Houses in London. Moreover I found*

j'ay trouvé qu'il y avoit à *Bristol* cette même année 16752 cheminées & 5307 maisons & à *Londres* 388 m. cheminées, comme nous venons de dire, & selon cette proportion il faudroit qu'il y eut à *Londres* 123 m. maisons, & dans un medium entre ces 2 proportions de *Dublin* & de *Bristol* 105 mille maisons.

Enfin par un certificat du greffe des cheminées je trouve que les maisons comprises dans les billers de mortalité sont 105315.

Après avoir ainsi trouvé le nombre des maisons, je viens au nombre des familles qui y demeurent, & d'abord j'ay pensé que s'il y avoit 3 ou 4 familles ou cuisines dans chaque maison de *Paris*, il pourroit bien y avoir deux familles dans $\frac{1}{2}$ des maisons de *Londres*, & en sela le sentiment commun de plusieurs de mes amis se trouve conforme à mes conjectures particulieres pour cette supposition.

Quant au nombre des têtes pour chaque familles je m'attache à l'observation de *Grant* dans la p. de sa 5 edition, que dans les familles de gens de metier de *Londres* il-y-a 8 tetes l'une portant l'autre, dans les familles d'un rang plus élevé, plus de 10, & dans les plus pauvres plus de

I found that in Bristol there were in the same year 16752 Hearths, and 5307 Houses, and in London 388 thousand Hearths as aforesaid; at which rate there must have been 123 thousand Houses in London, and at a Medium between Dublin and Bristol proportions 105 thousand Houses.

Lastly, By Certificate from the Hearth-Office, I find the Houses within the Bills of Mortality to be 105,315.

Having thus found the Houses, I proceed next to the number of Families in them, and first I thought that if there were three or 4 Families or Kitchens in every House of Paris, there might be 2 Families in $\frac{1}{2}$ of the Housing of London; unto which supposition, the common opinion of several Friends, doth concur with my own conjectures.

As to the number of Heads in each Family, I stick to Grant's observation in Page of his fifth Edition, That in Tradesmen of London's Families, there be 8 Heads one with another, in Families of higher Ranks, above 10, and in the poorest near

de 5, suivant lesquelles proportions je m'étois arrêté dans une autre occasion à $6\frac{1}{2}$ pour le medium des têtes qui sont dans toutes les familles d'Angleterre, mais en ce cas cy quittant la fraction j'aime mieux m'accorder avec Mr. Auzout pour 6.

Pour conclure y ayant à Londres 105315 maisons, & l'addition des familles doubles estant 10531 davantage, en tout 115846, je les ay multipliez par 6 ce qui a produit 695076 pour le nombre des habitans.

Seconde maniere.

J'ay trouvé que les années 1684 & 1685 se suivant l'une l'autre, & toutes deux saines, se sont merveilleusement rapportées dans leurs enterrements, y en ayant eu 23202 l'an 1684 & 23222 l'an 1685, dont le medium est 23212. De plus que les batêmes l'an 1684 estoient 14702 & ceux d'année 1685 estoient 14730, ainsi j'ay multiplié le medium des enterrements 23212 par 30 supposant qu'il en meurt un de 30 à Londres & cela a produit pour le nombre des habitans 696360 ames.

Maintenant pour prouver qu'il en meurt un de 30 à Londres ou environ, je dis.

I. Que

near 5, according to which proportions, I had upon another occasion pitch'd the medium of Heads in all the Families of England to be $6\frac{1}{2}$, but quitting the Fraction in this Case, I agree with Monsieur Auzout for 6.

To conclude, the Houses of London being 105315, and the addition of double Families to 531 more, in all 115846; I multiplied the same by 6, which produced 695076 for the number of People.

The Second way.

I found that the years 1684 and 1685, being next each other, and both healthful, did wonderfully agree in their Burials, viz. 1684 they were 23202, and Anno 1685 23222, the Medium whereof is 23212; Moreover that the Christnings 1684 were 14702, and those Anno 1685 were 14730, wherefore I multiplied the Medium of Burials 23212 by 30, supposing that one dies out of 30 at London, which made the number of People 696360 Souls.

Now to prove that one dies out of 30 at London, or thereabouts, I say,

I. That

1. Que Grant dans la page de la 5^e édition assure sur observation qu'il en mouroit 3 de 88 par an ce qui est à peus près la même proportion.

2. J'ay trouvé que dans les lieux sains & d'entre les adultes il en meurt beaucoup moins, & particulièrement d'entre les membres du Parlement environ un de 50 seulement, & que les roys d'Angleterre ayant regné 24 ans l'un portant l'autre ils ont vécu probablement chacun plus de 30 ans.

3. Grant dans la p. à fait voir que de 20 jeunes enfans au dessous de 10 ans il n'en meurt qu'un par an & Mr. Auzout croit qu'à Rome il n'en meurt qu'un de 40 du grand nombre de personnes adultes qu'il-y-a là c'est ce qui fait que je m'attache au nombre de 30 comme à un medium.

4. Je trouve que dans 9 paroisses de la campagne situées en differens endroits d'Angleterre il n'en est mort qu'un de 37 par an, ou 311 de 11507, c'est pourquoy jusques à ce que je voie un autre nombre rond fondé sur plusieurs observations plus près que 30 je crois avoir assés bien fait de multiplier nos enterremens par 30 pour trouver le nombre du peuple dont

le

1. That Grant in the page of his fifth Edition, affirmeth from observation, that 3 died of 88 per ann. which is near the same proportion.

2. I found that out of healthful places, and out of adult Persons, there dies much fewer, as but 1 out of 50 among our Parliament men; and that the Kings of England having reigned 24 years one with another, probably lived above 30 years each.

3. Grant, page hath shewn that but about 1 of 20 die per ann. out of young Children under 10 years old, and Monsieur Auzout thinks that but 1 of 40 die at Rome, out of the greater proportion of adult Persons there, wherefore we still stick at a Medium to the number 30.

4. In 9 Country Parishes, lying in several parts of England, I find that but one of 37 hath died per ann. or 311 out of 11507, wherefore till I see another round number, grounded upon many observations, nearer than 30, I hope to have done pretty well in multiplying our Burials by 30, to find the number of the People,

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le produit est 696360, & par les familles nous en trouvons 695076 comme nous avons dit.

Troisième maniere.

Grant à prouvé qu'il mouroit $\frac{1}{3}$ des habitans de la peste, or l'année 1665 il en mourut de la peste près de 98 mille dont le quintuple est 490 m. comme le nombre des habitans dans l'année 1665, à quoy ajoutant plus d'un tiers comme l'augmentation entre les années 1665 & 1686; le total est 653 mille ce qui s'accorde assés bien avec les deux autres contes cy dessus.

Ainsi tenons nous en à la proportion d'un à 30 jusqu'à ce qu'on puisse en établir une meilleure.

Il est à remarquer que 2 ou 3 cent maisons nouvelles feroient une contiguité de 2 ou 3 autres grandes paroisses avec les 134 qui de ja comprises dans les billets de mortalité, & qu'une muraille ovale d'environ 20 mille de tour enfermeroit tout cela & tous les vaisseaux qui sont à Deptford & à Blackwall & comprendroit aussi dans cette même enceinte 20 mille acres de terre, & jetteroient

the product being 696,360, and what we find by the Families they are 695,076, as aforesaid.

The Third way.

It was prov'd by Grant, that $\frac{1}{3}$ of the People died of the Plague, but Anno 1665 there died of the Plague near 98 thousand Persons, the Quintuple whereof is 490 thousand, as the number of People in the year 1665, whereunto adding above $\frac{1}{3}$, as the increase between 1665 and 1686, the total is 653 thousand, agreeing well enough with the other two Computations above-mentioned.

Wherefore let the proportion of 1 to 30 continue till a better be put in its place.

Memorandum, That 2 or 3 hundred new Houses would make a Contiguity of 2 or 3 other great Parishes, with the 134 already mentioned in the Bills of Mortality; and that an oval Wall of about 20 Miles in compass would enclose the same, and all the Shipping at Deptford and Black-wall, and would also fence in 20 thousand Acres of Land, and

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lay

teroient le fondement de plusieurs avantages tres considerables pour les proprietaires & les habitans de ce terrain aussi bien que pour toute la nation & le gouvernement.

QUA

lay the foundation or designation of several vast advantages to the Owners and Inhabitants of that Ground, as also to the whole Nation and Government.

K 3

The

QUATRIEME ESSAY.

De la proportion des habitans des huit plus considerables Villes de la Chrestienté.

1. **P**AR le nombre des enterremens dans les années pui ont esté saines, par la proportion des vivans à ceux qui meurent tous les ans, comme aussi par le nombre des maisons & des familles qui se trouvent dans les 134 paroisses appellées *Londres* & par le nombre des têtes que l'on estime qu'il-y-a dans chacune, nous nous sommes arrétez à 695718 comme au medium du nombre des habitans de cette ville.

2. En demeurant d'accord qu'il-y-a à *Paris* plus de 80 mille familles à sçavoir 81280 qui demeurent en 23223 maisons 32 hotels & 38 colleges, ou qu'il-y-a 81280 cuisines dans moins de 24 mille portes

The FOURTH ESSAY.

Concerning the proportions of People in the 8 eminent Cities of Christendom undernamed, viz.

1. **W**E have by the number of Burials in healthful years, and by the proportion of the living to those who die yearly, as also by the number of Houses and Families within the 134 Parishes, called London, and the estimate of the Heads in each, pitch'd upon the number of People in that City to be at a Medium 695718.

2. We have, by allowing that at Paris above 80 thousand Families (viz. 81280) do live in 23223 Houses, 32 Palaces, and 38 Colleges, or that there are 81280 Kitchens within less than 24 thousand
K 4 Street-

portes sur la rue, en mettant aussi 30 têtes pour chacune de ceux qui y meurent par nécessité nous avons pris pour medium des habitans qui s'y trouvent 488055, & nous ne les avons pas restraînt à 300 m. en mettant avec Mr. Auzout 6 têtes pour chacune des 50 m. maisons ou familles de *Moreri*.

3. A *Amsterdam* nous mettons 187350 ames à sçavoir 30 fois le nombre de leurs enterremens qui estoient 6245 l'année 1685.

4. Nous mettons à *Venise* 134 mille ames selon que cela se trouva par un conte special fait par autorité il-y-a environ 10 ans lorsque cette ville se trouvoit pleine de gens qui retournoient de *Candie* qui venoit de se rendre aux *Tures*.

5. Nous mettons à *Rome* 119 m. chrétiens & 6000 juifs en tout 125 m. ames suivant le conte qu'en a envoyé icy Mr. Auzout.

6. Nous mettons à *Dublin* comme à *Amsterdam* 30 fois ses enterremens dont le medium pour les 2 dernieres années est 2303 c'est à dire 69090 ames.

7. A

Street-doers; as also by allowing 30 Heads for every one that died necessarily there; we have pitch'd upon the number of People there at a Medium to be 488055, nor have we restrained them to 300 thousand, by allowing with Monsieur Auzout 6 Heads for each of Morery's 50 thousand Houses or Families.

3. To *Amsterdam* we allow 187350 Souls, viz. 30 times the number of their Burials, which were 6245 in the year 1685.

4. To *Venice* we allow 134 thousand Souls, as found there in a special account taken by authority, about 10 years since, when the City abounded with such as returned from *Candia*, then surrendered to the *Turks*.

5. To *Rome* we allow 119 thousand Christians and 6000 Jews in all 125 thousand Souls, according to an account sent hither of the same by Monsieur Auzout.

6. To *Dublin* we allow (as to *Amsterdam*) 30 times its Burials, the Medium whereof for the last 2 years is 2303, viz. 69090 Souls.

7. As

7. A L'égard de *Bristol* nous disons que si les 6400 maisons de *Dublin* donnent 69090 ames, il faut que les 5307 maisons de *Bristol* donnent plus de 56 m. habitans. Dailleurs si les 29325 cheminées de *Dublin* donnent 69090 habitans les 16752 cheminées de *Bristol* en donneront environ 40 mille mais le medium de 56 mille & 40 mille est 48 mille.

8. Pour ce qui est de *Rouen* nous ne scaurions nous en rapporter qu'à la pensée de Mr. Anzout qu'il-y-a dans cette ville là 80 m. ames & à la conjecture d'habiles gens que *Rouen* est entre $\frac{4}{7}$ & $\frac{1}{2}$ partie de *Paris*, & qu'il est d'un tiers plus grand que *Bristol*, par toutes lesquelles choses nous estimons, jus qu'à ce que vous ayous de nouvelles lumieres, qu'il-y-a à *Rouen* au plus 66 m. habitans.

On pourroit maintenant s'étonner pourquoy ayant si peu de connoissance de *Rouen* nous en avous fait aucune mention, à quoy nous répondons, que nous n'avons pas crû qu'il fut juste de comparer *Londres* avec *Paris* pour ce qui regarde les vaisseaux & le commerce étranger sans y ajouter *Rouen*, *Rouen* estant à l'égard de *Paris* ce que cette partie de *Londres* qui est au dessous du pont est à l'égard de celle qui est au dessus

Tou-

7. As to *Bristol*, we say that if the 6400 Houses of *Dublin*, give 69,090 People, that the 5307 Houses of *Bristol*, must give above 56 thousand People; Moreover, if the 29,325 Hearths of *Dublin*, give 69,090 People, the 16,752 Hearths of *Bristol*, must give about 40 thousand; but the Medium of 56 thousand and 40 thousand is 48 thousand.

8. As for *Rouen*, we have no help, but Monsieur Anzout's fancy of 80 thousand Souls to be in that City, and the conjecture of knowing Men, that *Rouen* is between the $\frac{4}{7}$ and $\frac{1}{2}$ part of *Paris*, and also that it is by a third bigger than *Bristol*; By all which, we estimate (till farther light) that *Rouen* hath at most but 66 thousand People in it.

Now it may be wondred why we mentioned *Rouen* at all, having had so little knowledge of it; whereunto we answer, that we did not think it just to compare *London* with *Paris*, as to Shipping and Foreign Trade, without adding *Rouen* thereunto; *Rouen* being to *Paris* as that part of *London* which is below the Bridge, is to what is above it.

All

Toutes les quelles choses nous fouterons de bon coeur à la correction des personnes curieuses & sinceres, faisant cependant nos observations selon les nombres grossiers que nous allons marquer.

	m.
Londrez	696
Paris	488
Amsterdam	187
Venise	134
Rome	125
Dublin	69
Bristol	48
Rouen	66

Obfer.

All which we heartily submit to the correction of the Curious and Candid, in the mean time observing according to the Gross numbers undermentioned.

	m. thousands
London	696
Paris	488
Amsterdam	187
Venice	134
Rome	125
Dublin	69
Bristol	48
Rouen	66

Obfer-

Observations sur ces 8 Villes.

1. Ques les habit. de Paris estant	m. 488
ceux de Rome	125
ceux de Rouen	66

ne font en tout que 741
mille ou 17 mille moins que les 696 mille
de Londres seul.

2. Que les habitans des 2 Villes ou
Emporiums d' Angleterre à sçavoir les 696
mille de Londres & les 48 m. de Bristol
font 744 m. ou plus.

qu'a Paris	m. 488
Amsterdam	187
Rouen	66
faisant	741

3. Que

Observations on the said 8 Cities.

1. That the People of Paris being	m. 488
of Rome	125
of Rouen	66

do make in all but 679
thousand, or 17 thousand less than the 696
thousand of London alone.

2. That the People of the 2 English Cities
and Emporiums, viz. of London 696 thou-
sand, and Bristol 48 thousand, do make 744
thousand, or more than

In Paris	m. 488
Amsterdam	187
Rouen	66
being in all	741

3. That

3. Que ces 2 mêmes villes d'Angleterre
semblent equivalentes

à Paris quia	488 mille ames.
à Rouen	66
à Lyon	100
à Thoulouſe	90
<hr/>	
en tout	744 m.

S'il-y-a quelque erreur dans ces contes
des villes de France nous esperons estre
redressez par ceux que nous apprenous
qui travaillent sur ce sujet.

4. Que les trois villes du Roy d'Angle-
terre à sçavoit

	m.		m.
Londres	696	} <i>excedent</i> {	Paris 488
Dublin	69		Amsterdam 187
Bristol	48		Venise 134
<hr/>			<hr/>
813		ni faisant que	809

5. Que

3. That the same 2 English Cities seem
equivalent

To Paris which hath	488 thous. Souls.
To Rouen	66
To Lyons	100
To Tholouse	90
<hr/>	
In all	744

If there be any Error in these Conjectures
concerning these Cities of France, we hope
they will be mended by those whom we bear
to be now at work upon that matter.

4. That the King of England's 3 Cities, viz.

	m.		m.
London	696	} <i>exceed</i> {	Paris 488
Dublin	69		Amsterdam 187
Bristol	48		Venice 134
<hr/>			<hr/>
in all	813	being but	809

L

5. That

5. Que des 4 grands Emporiums *Londres, Amsterdam, Venise & Rouen*, *Londres* seul est presque le double des 3 autres à sçavoir plus que 7 à 4.

	<i>m.</i>			
<i>Amsterdam</i>	187	}	<i>m.</i>	
<i>Venise</i>	134			
<i>Rouen</i>	66			
				<i>m.</i>
	774		<i>London</i>	696

6. Que *Londres*, par ce qui paroît, est la plus grande & la plus considérable ville du monde, mais manifestement le plus grand Emporium.

Quand ces assertions auront essuyé la critique, l'on fera voir par un autre essay quel usage on pourra faire de ces veritez pour L'honneur & le profit du Roy & du Royaume d'Angleterre.

CIN.

5. That of the 4 great Emporiums, *London, Amsterdam, Venice and Rouen*, *London alone is near double to the other 3, viz. above 7 to 4,*

	<i>m.</i>			
<i>Amsterdam</i>	187	}	<i>m.</i>	
<i>Venice</i>	134			
<i>Rouen</i>	66			
				<i>m.</i>
	774		<i>Lond.</i>	696

6. That *London (for ought appears) is the greatest and most considerable City of the World, but manifestly the greatest Emporium.*

When these Assertions have past the Examen of the Criticks, we shall make another Essay, shewing how to apply those Truths to the Honour and Profit of the King and Kingdom of England.

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CINQUIEME ESSAY.

Touchant la Hollande & le reste
des Provinces Unies.

DEpuis que cet écrit à esté achevé on à objecté de *Hollande* qu'il n'y-a pas d'apparence que ce que nous avons dit du nombre des maisons & des habitans de *Londres* soit vray car s'il l'estoit *Londres* seroit donc les $\frac{2}{3}$ de toute la province de *Hollande*. A quoy on répond que *Londres* est les $\frac{1}{3}$ de toute la *Hollande* & plus, cette Province n'ayant pas un million 44 m. habitans dont 696 m. font les $\frac{2}{3}$, ny pas plus de 800 m. comme nous l'avons souvent ouï dire de fort bonne part, car supposé qu' *Amsterdam* comme nous l'avons remarqué ailleurs ait 187 m. les 7 grandes villes suivantes, à 30 l'une portant l'autre, 210 m. les 10 suivantes à 15 m. chacune, 150 m. les 10 plus petites à 6 m. chacune, 60 mille, dans

The FIFTH ESSAY.

Concerning *Holland* and the rest
of the United Provinces.

SINCE the close of this Paper, it hath been objected from *Holland*, That what hath been said of the number of Houses and People in *London* is not like to be true; for that if it were, then *London* would be the $\frac{2}{3}$ of the whole Province of *Holland*. To which is answered, That *London* is the $\frac{1}{3}$ of all *Holland* and more, that Province having not a Million and 44 thousand Inhabitants (whereof 696 m. is the $\frac{2}{3}$) nor above 800 thousand, as we have credibly and often heard; for suppose *Amsterdam* hath, as we have elsewhere noted 187 thousand, the seven next great Cities at 30 thousand each one with another 210 thousand, the 10 next at 15 thousand each 150 thousand, the 10 smallest at 6 thousand each 60 thousand,

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dans toutes les 28 villes fermées de *Hollande* 607 m. dans les bourgs & les villages 193 m. ce qui est environ une tête pour 4 acres de terre au lieu qu'en *Angleterre* il-y-a 8 acres pour chaque tête hors des villes.

Maintenant supposé que *Londres* ayant 116 m. familles il y eut 5 têtes dans chacune, ce qui est le medium entre le conte de Mr. *Auzout* & celui de *Grant*, le total des habitans seroit 812 m. ou bien si nous contons qu'il en meurt un de 34, le medium entre 30 & 37, comme nous avons dit cy dessus, le total des habitans sera 34 fois 23212, c'est adire 789208, le medium entre ce nombre & les 812 m. susdits est 800604 excédant de quelque peu 800 m. que l'on suppose estre le nombre de la *Hollande*.

Je dis de plus qu'ayant fait autrefois plusieurs recherches touchant le peuplement du monde, je n'ay jamais trouvé qu'il y eut en aucun pays, non pas même dans la chine plus d'un homme pour chaque acre de terre mesure d'*Angleterre* plusieurs pays passant pour bien peuplez ou il-n'y-a qu'un homme pour 10 de ces acres j'ay trouvé en mesurant la *Hollande* & la *West-Frise* autrement
North-Holland

in all the 28 walled Cities and Towns of Holland 607 thousand, in the Dorps and Villages 193 thousand, which is about one Head for every 4 Acres of Land; whereas in England there is 8 Acres for every Head, without the Cities and Market-Towns.

Now suppose London having 116 thousand Families, should have 7 Heads in each, the medium between Monsieur Auzout and Grant's reckonings, the total of the People would be 812 thousand, or if we reckon that there dies one out of 34 (the Medium between 30 and 37 abovementioned) the total of the People would be 34 times 23212, viz. 789208, the Medium between which number, and the above 812 thousand is 800604, somewhat exceeding 800 thousand, the supposed number of Holland.

Farthermore, I say, that upon former searches into the Peopling of the World, I never found that in any Country, (not in China it self) there was more than one Man to every English Acre of Land (many Territories passing for well-peopled, where there is but one Man for ten such Acres) I found by measuring Holland and West-Frizia, aliàs
L 4 North-

North-Holland sur les milleures cartes qu'elle ne contient qu'autant de ces acres qu'il-y-a de monde à *Londres*, c'est à dire environ 696 m. acres cest pourquoy je ne feray point de difficulté d'avancer, jusques à ce que je sois mieux informé, qu'il-y-a autant de monde à *Londres* qu'en *Hollande*, ou du moins plus des des $\frac{1}{2}$, ce qui suffit pou rendre vaine l'objection cy dessus, sans qu'il soit nécessaire de se mettre en peine de faire monter le nombre des habitans de *Londres* de 696 m. à 800 m. quoy qu'on eut des raisons suffisantes pour le faire, & que l'auteur de l'excellente carte de *Londres* publiée l'an 1682, conte (comme on le peut voir par cette carte) qu'il-y-a dans cette ville 1200 m. habitans, lors même qu'il n'y avoit que 85 mille maisons.

La personne qui fait cette objection dit aussi dans la même Lettre.

1. Qu'il-y-a autant de monde dans la Province de *Hollande* que dans les 6 autres Provinces unies ensemble, & en toute l'*Angleterre* & le double de *Paris* & de ses fauxbourgs, c'est à dire 2 millions d'ames. 2. Il dit qu'à *Londres*, *Amsterdam* & autres villes marchandes il-y-a 10 têtes par famille & qu'à *Amsterdam* il-n'y-a pas

22 m.

North-Holland, upon the best Maps, that it contained but as many such Acres as London doth of People, viz, about 696 thousand Acres; I therefore venture to pronounce (till better informed) that the People of London are as many as those of Holland, or at least above $\frac{2}{3}$ of the same; which is enough to disable the Objection abovementioned; nor is there any need to strain up London from 696 thousand to 800 thousand, though competent reasons have been given to that purpose, and though the Author of the excellent Map of London, set forth Anno 1682, reckoned the People thereof (as by the said Map appears) to be 1200 thousand, even when he thought the Houses of the same to be but 85 thousand.

1. The worthy person who makes this objection in the same Letter also saith.

1. That the Province of Holland, hath as many People as the other 6 United Provinces together, and as the whole Kingdom of England, and double to the City of Paris and its Suburbs, that is to say, 2 millions of Souls. 2. He says that in London and Amsterdam, and other trading Cities there are 10 Heads to every Family, and that in Amsterdam there are not

22 thou-

22 m. familles. 3. Il fait difficulté d'admettre le registre allégué par Mr. Auzout qui met 23223 maisons & plus de 80 mille familles à Paris, comme aussi le registre allégué par Mr. Petty qui met 105315 maisons à Londres avec la dixième partie de familles plus qu'il n'y a de maisons, & probablement il fera la même difficulté contre le registre de 1163 m. maisons en toute l'Angleterre, qui font à 6 têtes & un tiers par famille, environ 7 millions d'habitans. Sur toutes les quelles choses nous faisons les remarques suivantes.

1. Que s'il n'y a dans Paris que 488 m. âmes, il n'y a donc dans toute la Hollande que le double de ce nombre ou 976 m. ainsi y ayant à Londres 696 m. âmes, il s'y trouve 46 m. personnes plus que les $\frac{2}{3}$ de toute la Hollande.

2. Si Paris contient la moitié de ce qu'il y a de monde en Angleterre, il faut qu'il contienne 3 millions & demy d'âmes ou plus de 7 fois 488 m. & parce qu'il n'en meure pas 20 mille par an à Paris, il faut qu'il n'y en meure qu'un de 175, là ou Mr. Auzout croit qu'il en meurt un de 25, & il faut qu'il demeure 149 personnes

22 thousand Families. 3. He excepteth against the Register alledged to Monsieur Auzout, which makes 23223 Houses, and above 80 thousand Families to be in Paris, as also against the Register alledged by Petty, making 105315 Houses to be in London, with a tenth part of the same to be of Families more than Houses, and probably will except against the Register of 1163 m. Houses to be in all England, that number giving at 6 $\frac{2}{3}$ Heads to each Family, about 7 millions of People, upon all which we remark as followeth, viz.

1. That if Paris doth contain but 488 thousand Souls, that then all Holland containeth but the double of that number, or 976 thousand, wherefore London containing 696 thousand Souls, hath above $\frac{2}{3}$ of all Holland by 46 thousand.

2. If Paris containeth half as many People as there are in all England, it must contain 3 millions and a half of Souls, or above 7 times 488 thousand, and because there do not die 20 thousand per an. out of Paris, there must die but one out of 175, whereas Monsieur Auzout thinks that there dies one out of 25, and there must live 149 Heads

sonnes dans chacune des maisons de *Paris* mentionné dans le registre, & qu'il demeure à peine deux personnes dans chaque maison d' *Angleterre*, toutes les quelles choses meritent bien à ce que nous croions d'estre considérées de nouveau.

Je ne puis m'empêcher, étant *Anglois*, de faire encore une remarque, c'est que ces assertions réfléchissent sur l'empire d' *Angleterre* en ce qu'il y est dit que l' *Angleterre* n'a que 2 millions d'habitans, on pourroit aussi bien avoir ajouté que l' *Ecosse*, l' *Irlande* avec les Isles de *Man*, *Jersey* & *Gernsey* n'ont que $\frac{1}{3}$ de ce même nombre ou 800 m. d'avantage, ou que tous les sujets du Roy d' *Angleterre* en *Europe* ne sont que 2 millions 800 m. ames, au lieu qu'il nous assure que les sujets des 7 Provinces unies sont 4 millions, à quoy nous répondons qu'au sentiment même de celui qui fait ces objections les sujets des 7 Provinces ne sont que le quadruple de *Paris* ou 1932 m. ames, n'y en ayant à *Paris* que 488 m. comme on a fait voir cy devant, & nous soutenons icy qu'il y a en *Angleterre* 7 millions d'habitans & que l' *Ecosse*, l' *Irlande* avec les Isles de *Man* de *Jersey* & *Gernsey* ont $\frac{1}{3}$ dudit nombre, ou deux millions 800 m. ames, au lieu que par sa doctrine si les 7 Provinces ont

1932

Heads in every House of Paris mentioned in the Register, but there must be scarce 2 Heads in every House of England, all which we think fit to be reconsidered

I must as an English Man take notice of one point more, which is, that these Assertions do reflect upon the Empire of England, for that it is said, that England hath but two millions of Inhabitants, and it might as well have been added, that Scotland and Ireland, with the Island of Man, Jersey and Gernsey have but $\frac{1}{3}$ of the same number, or 800 thousand more, or that all the King of England's Subjects in Europe are but two millions and 800 thousand Souls; whereas he saith, that the Subjects of the 7 United Provinces are four Millions. To which we answer, That the Subjects of the said 7 Provinces, are by this Objector's own shewing, but the Quadruple of Paris, or 1932 thousand Souls, Paris containing but 488000 as afore hath been prov'd, and we do here affirm, that England hath 7 millions of People, and that Scotland, Ireland, with the Islands of Man, Jersey and Gernsey, hath $\frac{1}{3}$ of the said number, or two millions 800 thousand more, in all 9 millions 800 thousand: whereas by the Objector's Doctrine, if the 7 Provinces have

1932

1932 m. habitans, le Roy d'Angleterre n'auroit dans tous ses états que $\frac{2}{3}$ de ce même nombre asçavoir 1351 m. au lieu que nous disons 9800 m. mille comme nous avons dit Laquelle difference est si considerable qu'elle merite bieu qu'on y fasse reflection.

Pour conclure nous attendons des critiques interessez en cecy qu'ils nous provent.

1. Qu'il-y-a en Hollande & en West-Frise & dans leurs 28 villes plus de monde qu'à Londres seul.

2. Que 3 des meilleures villes de France, ou deux de toute la Chrétienté, ou une de toute la terre, ont autant de monde, ou de meilleurs logements, ou un plus grand commerce, que Londres même que le l'année Roy Jaques second est venu à la couronne.

La Fin.

1932 thousand People, the King of England's Territories should have but $\frac{2}{3}$ of the same number, viz. 1351 thousand whereas we say 9800 thousand, as aforesaid, which difference is so gross as that it deserves to be thus reflected upon.

To Conclude, we expect from the concerned Criticks of the World, that they would prove,

1. That Holland and West-Frizia, and the 28 Towns and Cities thereof, hath more People than London alone.

2. That any 3 the best Cities of France, any 2 of all Christendom, or any one of the World, hath the same, or better Housing, and more Foreign Trade than London, even in the year that King James the Second came to the Empire thereof.

THE END.

Political Arithmetick,

OR A

DISCOURSE

Concerning

The Extent and Value of Lands,
People, Buildings; Husbandry, Manu-
facture, Commerce, Fishery, Artizans,
Seamen, Soldiers; Publick Revenues,
Interest, Taxes, Superlucration, Regi-
stries, Banks; Valuation of Men, In-
creasing of Seamen, of Militia's, Har-
bours, Situation, Shipping, Power at
Sea, &c. As the same relates to every
Country in general, but more particu-
larly to the Territories of His Majesty
of *Great Britain*, and his Neighbours
of *Holland*, *Zealand*, and *France*.

By Sir *WILLIAM PETTY*,
Late Fellow of the *Royal Society*.

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Henry Mortlock. 1699.

TO THE
KING'S

Most EXCELLENT
MAJESTY.

SIR,

W *Hilst every one
meditates some fit
Offering for Your
Majesty, such as may best a-
gree with your happy Exalta-
tion to this Throne; I pre-
sume to offer, what my Father*
M 2 *long*

Dedication.

long since writ, to shew the weight and importance of the English Crown.

It was by him stiled Political Arithmetick, in as much as things of Government, and of no less concern and extent, than the Glory of the Prince, and the happiness and greatness of the People, are by the Ordinary Rules of Arithmetick, brought into a sort of Demonstration. He was allowed by all, to be the Inventor of this Method of Instruction; where the perplexed and intricate ways of the World, are explain'd by
a ve-

Dedication:

a very mean piece of Science; and had not the Doctrines of this Essay offended France, they had long since seen the light, and had found Followers, as well as improvements before this time, to the advantage perhaps of Mankind.

But this has been reserved to the felicity of Your Majesty's Reign, and to the expectation which the Learned have therein; and if while in this, I do some honor to the Memory of a good Father, I can also pay Service, and some Testimony of my Zeal and Re-
M 3 verence

Dedication.

*verence to so great a King,
it will be the utmost Ambi-
tion of*

SIR,

Your Majesty's most Dutiful
and most Obedient Subject,

Shelborne.

PRE-

P R E F A C E.

FOrasmuch as Men, who are in a decaying condition, or who have but an ill opinion of their own Concernments, instead of being (as some think) the more industrious to resist the Evils they apprehend, do contrariwise become the more languid and ineffectual in all their Endeavours, neither caring to attempt or prosecute even the probable means of their relief. Upon this Consideration, as a Member of the Commonwealth, next to knowing the precise Truth in what condition the common Interest stands, I would in all doubtful Cases think the best, and consequently not despair, with-

M 4 out

Preface.

out strong and manifest Reasons, carefully examining whatever tends to lessen my hopes of the Publick Welfare,

I have therefore thought fit to examin the following Persuasions, which I find too currant in the World, and too much to have affected the Minds of some, to the prejudice of all, viz.

*The fears
of many
concern-
ing the
Welfare of
England.*

That the Rents of Lands are generally faln; therefore, and for many other Reasons, the whole Kingdom grows every day poorer and poorer; that formerly it abounded with Gold, but now there is a great scarcity both of Gold and Silver; that there is no Trade nor Employment for the People, and yet that the Land is under-peopled; that Taxes have been many and great

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great; that *Ireland* and the Plantations in *America*, and other Additions to the Crown, are a Burthen to *England*; that *Scotland* is of no Advantage; that Trade in general doth lamentably decay; that the *Hollanders* are at our Heels, in the Race of Naval Power; the *French* grow too fast upon both, and appear so rich and potent, that it is but their Clemency that they do not devour their Neighbours; and finally, that the Church and State of *England*, are in the same danger with the Trade of *England*; with many other dismal Suggestions, which I had rather stifle than repeat.

'Tis true, the Expence of Foreign Commodities hath of late been too great; much of our Plate, had it remain'd Money, would have better served Trade; too many Mat-
ters

*The real
Preju-
dices of
England.*

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ters have been regulated by Laws, which Nature, long Custom, and general Consent, ought only to have governed; the Slaughter and Destruction of Men by the late Civil Wars and Plague have been great; the Fire at *London*, and Disaster at *Chatham*, have begotten Opinions in the *Vulgus* of the World to our Prejudice; the Nonconformists increase; the People of *Ireland* think long of their Settlement; the *English* there apprehend themselves to be Aliens, and are forced to seek a Trade with Foreigners, which they might as well maintain with their own Relations in *England*. But notwithstanding all this (the like whereof was always in all Places,) the Buildings of *London* grow great and glorious; the *American* Plantations employ four Hundred Sail of Ships; Actions in the

The Improvements of England.

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the *East-India* Company are near double the principal Money; those who can give good Security, may have Money under the Statute-Interest; Materials for building (even *Oaken-Timber*) are little the dearer, some cheaper for the rebuilding of *London*; the *Exchange* seems as full of Merchants as formerly; no more Beggars in the Street, nor Executed for Thieves, than heretofore; the Number of Coaches, and Splendor of Equipage exceeding former Times; the Publick Theatres very magnificent; the King has a greater Navy, and stronger Guards than before our Calamities; the Clergy rich, and the Cathedrals in repair; much Land has been improved, and the Price of Food so reasonable, as that Men refuse to have it cheaper, by admitting of *Irish* Cattle; And in brief, no Man needs

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needs to want that will take moderate pains. That some are poorer than others, ever was and ever will be: And that many are naturally querulous and envious, is an Evil as old as the World.

These general Observations, and that Men eat, and drink, and laugh as they use to do, have encouraged me to try if I could also comfort others, being satisfied myself, that the Interest and Affairs of *England* are in no deplorable Condition.

The Author's Method and Manner of Arguing.

The Method I take to do this, is not yet very usual; for instead of using only comparative and superlative Words, - and intellectual Arguments, I have taken the course (as a Specimen of the Political Arithmetick I have long aimed at)

to

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to express my self in Terms of *Number, Weight, or Measure*; to use only Arguments of Sense, and to consider only such Causes, as have visible Foundations in Nature; leaving those that depend upon the mutable Minds, Opinions, Appetites, and Passions of particular Men, to the Consideration of others: Really professing my self as unable to speak satisfactorily upon those Grounds (if they may be call'd Grounds,) as to foretel the cast of a Dye; to play well at Tennis, Billiards, or Bowls, (without long practice,) by virtue of the most elaborate Conceptions that ever have been written *De Projectilibus & Missilibus*, or of the Angles of Incidence and Reflection.

Now the Observations or Propositions expressed by *Number, Weight, and Measure*

The Nature of his Propositions and Suppositions.

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Measure, upon which I bottom the ensuing Discourses, are either true, or not apparently false, and which if they are not already true, certain, and evident, yet may be made so by the Sovereign Power, *Nam id certum est quod certum reddi potest*, and if they are false, not so false as to destroy the Argument they are brought for; but at worst are sufficient as Suppositions to shew the way to that Knowledge I aim at. And I have withal for the present confined my self to the Ten principal Conclusions hereafter particularly handled, which if they shall be judged material, and worthy of a better Discussion, I hope all ingenious and candid Persons will rectifie the Errors, Defects, and Imperfections, which probably may be found in any of the Positions, upon which these Ratiocinations

Preface.

ons were grounded. Nor would it misbecome Authority it self, to clear the Truth of those Matters which private Endeavours cannot reach to.

The

THE
Principal CONCLUSIONS
OF THIS
TREATISE
ARE,

CHAP. I. *That a small Country, and few People, may by their Situation, Trade, and Policy, be equivalent in Wealth and Strength, to a far greater People, and Territory. And particularly, How conveniencies for Shipping, and Water Carriage, do most Eminent-ly, and Fundamentally, conduce thereunto,*

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N *diminish*

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N 2

CHAP.

C H A P. I.

That a small Countrey and few People, by its Situation, Trade and Policy, may be equivalent in Wealth and Strength, to a far greater People and Territory: And particularly that conveniences for Shipping and Water-Carriage, do most Eminently and Fundamentally conduce thereunto.

THIS first principal Conclusion by reason of its length, I consider in three Parts; whereof the first is, *That a small Countrey and few People, may be equivalent in Wealth and Strength to a far greater People and Territory.* How one Man by Art, and one Acre of Land by improvement may be equivalent to many!

This part of the first principal Conclusion needs little Proof, forasmuch as one Acre of Land, may bear as much Corn, and feed as many Cattle, as Twenty, by the difference of the Soil; some parcel of Ground is naturally so defensible, as that an Hundred Men being pos-

nessed thereof, can resist the Invasion of Five Hundred ; and bad Land may be improved and made good ; Bog may by draining be made Meadow ; Heathland may (as in *Flanders*) be made to bear Flax and Clover-Grass, so as to advance in value from One to an Hundred : The same Land being built upon, may centuple the Rent which it yielded as Pasture ; one Man is more nimble, or strong, and more patient of labor than another ; one Man by Art may do as much work, as many without it ; viz. one Man with a Mill can grind as much Corn, as twenty can pound in a Mortar ; one Printer can make as many Copies, as an Hundred Men can write by hand ; one Horse can carry upon Wheels, as much as five upon their Backs ; and in a Boat, or upon Ice, as twenty : So that I say again, this first point of this general Position, needs little or no Proof. But the second and more material part of this Conclusion is, that this difference in Land and People, arises principally from *Situation, Trade, and Policy.*

To

To clear this, I shall compare *Holland and Zeeland*, with the Kingdom of *France*. viz. *Holland* and *Zeeland* do not contain above one Million of *English* Acres, whereas the Kingdom of *France* contains above Eighty.

A Comparison of Holland and Zeeland with France

Now the original and primitive Difference, holds proportion as Land to Land : for it is hard to say, that when these places were first planted, whether an Acre in *France* was better than the like quantity in *Holland* and *Zeeland* : Nor is there any reason to suppose, but that therefore upon the first Plantation, the number of Planters was in proportion to the quantity of Land : wherefore, if the People are not in the same proportion as the Land, the same must be attributed to the *Situation* of the Land, and to the *Trade* and *Policy* of the People superstructed thereupon.

The next thing to be shewn is, that *Holland* and *Zeeland* at this day, is not only an eightieth part as rich and strong as *France*, but that it hath advanced to one third or thereabouts : which I think will appear upon the Balance of the following particulars, viz.

N 4

As

That the Lands of France are to the Lands of Holland and Zealand, as eight to one in value.

As to the Wealth of *France*, a certain Map of that Kingdom, set forth *Anno* 1647. represents it to be fifteen Millions, whereof six did belong to the Church: The Author thereof (as I suppose meaning the Rents of the Lands only. And the Author of a most judicious Discourse of Husbandry (supposed to be *Sir Richard Weston*,) doth from Reason and Experience shew, that Lands in the *Netherlands*, by bearing *Flax*, *Turneps*, *Clover-grass*, *Madder*, &c. will easily yield 10 *l.* per Acre; so as the Territories of *Holland* and *Zealand*, should by this Account yield at least Ten Millions *per Annum*. Yet I do not believe the same to be so much, nor *France* so little as above said, but rather that one bears to the other as about seven, or eight to one.

The Buildings of Amsterdam are about half in value to those at Paris.

The People of *Amsterdam*, are one third of those in *Paris* or *London*: Which two Cities differ not in People a twentieth part from each other, as hath appeared by the Bills of Burials and Christnings for each. But the value of the Buildings in *Amsterdam*, may well be half that of *Paris*, by reason of the *Foundation*, *Grafts*, and *Bridges*, which in

in *Amsterdam* are more numerous and chargeable than at *Paris*. Moreover the Habitations of the poorest People in *Holland* and *Zealand* are twice or thrice as good as those of *France*: But the People of the one to the People of the other, being but as thirteen to one, the value of the Housing must be as about five to one.

The value of the Shipping of *Europe* being about Two Millions of Tuns, I suppose the *English* have Five Hundred Thousand, the *Dutch* Nine Hundred Thousand, the *French* an Hundred Thousand, the *Hamburgers* and the Subjects of *Denmark*, *Sweden*, and the Town of *Dantzick* Two Hundred and Fifty Thousand, and *Spain*, *Portugal*, *Italy*, &c. Two Hundred and Fifty Thousand: So as the Shipping in our case of *France* to that of *Holland* and *Zealand*, is about One to Nine; which reckoned as great and small, new and old, one with another at 8 *l.* per Tun, makes the worth to be as Eight Hundred Thousand Pounds, to Seven Millions, and Two Hundred Thousand Pounds. The *Hollanders* Capital in the *East-India* Company, is worth above Three Millions;

The Housing in France above five times the value of those in Holland and Zealand.

The Shipping of Holland ninetimes that of France.

The Comparison of Holland & France in the Indies.

Millions; where the *French* as yet have little or nothing.

The exportations of France and Holland is as 5 to 21. The value of the Goods exported out of *France* into all Parts, are supposed Quadruple to what is sent to *England* alone; and consequently in all about Five Millions: But what is exported out of *Holland* into *England* is worth Three Millions; and what is exported thence into all the World besides, is Sextuple to the same.

The Revenues of France. The Monies yearly raised by the King of *France*, as the same appears by the Book entitled (*The State of France*) dedicated to the King, printed Anno 1669. and set forth several times by Authority, is Eighty Two Millions of *French* Livers, which is about Six Millions and a half Pounds *Sterl.* Of which summ the Author says, that one fifth part was abated for *non-valuers* or *Insolvencies*; so (as I suppose) not above Five Millions were effectually raised: But whereas some say, that the King of *France* raised Eleven Millions as the one fifth of the Effects of *France*; I humbly affirm, that all the Land and Sea Forces, all the Building and Entertainments, which we have heard by common Fame, to have been
set

set forth and made in any of these seven last Years, needed not to have cost six Millions *Sterling*. Wherefore, I suppose he hath not raised more, especially since there were one fifth *Insolvencies*, when the Tax was at that pitch. But *Holland* and *Zealand*, paying 67 of the 100 paid by all the United Provinces; and the City of *Amsterdam* paying 27 of the said 67. It follows that if *Amsterdam* hath paid 4000 *l.* *Flemish* per Diem, or about 1400000 *l.* per Annum, or 800000 *l.* *Sterling*; that all *Holland* and *Zealand*, have paid 2100000 *l.* per Annum: Now the Reasons why I think they pay so much, are these, viz.

The Taxes paid by Holland and Zealand.

1. The Author of the State of the *Netherlands* saith so.

2. Excise of Victual at *Amsterdam*, seems above half the original Value of the same, viz.

Ground-Corn pays 20 Stivers the Bushel, or 63 Gilders the Last; Beer 113 Stivers the Barrel, Housing $\frac{1}{8}$ of the Rent, Fruit $\frac{1}{8}$ of what it cost; other Commodities $\frac{1}{8}$, $\frac{1}{8}$, $\frac{1}{8}$, $\frac{1}{8}$; Salt *ad libitum*. All weighed Goods pay besides the Pre-misses a vast summ. Now if the Expence of the People of *Amsterdam* at a medi-
dium

dium, and without Excise were 8. *l.* *per Annum*, whereas in *England*, 'tis 7 *l.* then if all the several Imposts above-named, raise it Five Pound more, there being 1600000 Souls in *Amsterdam*, the summ of 800000 *l.* Sterling *per Annum* will thereby be raised.

3. Though the Expence of each Head, should be 13 *l.* *per Annum*; 'tis well known that there be few in *Amsterdam*, who do not earn much more than the said Expence.

4. If *Holland* and *Zealand* pay *per Annum* 2100000 *l.* then all the Provinces together, must pay about Three Millions: Less than which summ *per Annum*, perhaps is not sufficient to have maintained the Naval War with *England*, 72000 Land-Forces, besides all other the ordinary Charges of their Government, whereof the Church is there a part. To conclude, it seems from the Premises, that all *France* doth not raise above thrice as much from the publick Charge, as *Holland* and *Zealand* alone do.

The difference of Interest between *Holland* & *France*.

5. Interest of Money in *France*, is 7 *l.* *per Cent.* but in *Holland* scarce half so much.

6. The

6. The Countries of *Holland* and *Zealand* consisting as it were of Islands guarded with the Sea, Shipping, and Marshes: is defensible at one fourth of the charge, that a plain open Country is; and where the seat of War may be both Winter and Summer: whereas in the others, little can be done but in the Summer only.

7. But above all the particulars hitherto considered, that of *superlucration* ought chiefly to be taken in: For if a Prince have never so many Subjects, and his Country be never so good, yet if either through sloth, or extravagant expences, or Oppression and Injustice, whatever is gained shall be spent as fast as gotten, that State must be accounted poor. Wherefore let it be considered, how much or how many times rather, *Holland* and *Zealand* are now above what they were 100 years ago: which we must also do of *France*: Now if *France* hath scarce doubled its Wealth and Power, and that the other have decupled theirs; I shall give the preference to the latter, even although the $\frac{1}{2}$ increased by the one, should not exceed the one half gained by the other; because one has

The *superlucration* between *France* and *Holland*.

has a store for Nine Years, the other but for one.

To Conclude, upon the whole it seems, that though *France* be in People to *Holland* and *Zealand* as 13 to 1, and in quantity of good Land, as 80 to one; yet it is not 13 times richer and stronger, much less 80 times, nor much above thrice, which was to be proved.

*The causes
of the difference
between
France
and Hol-
land.*

Having thus dispatched the two first Branches of the first principal Conclusion, it follows, to shew that this difference of Improvement in *Wealth* and *Strength*, arises from the *Situation*, *Trade*, and *Policy* of the places respectively; and in particular from Conveniencies for Shipping and Water-Carriage.

Many Writing on this Subject, do so magnifie the *Hollanders*, as if they were more, and all other Nations less than Men; (as to the matters of Trade and Policy,) making them Angels, and others Fools, Brutes, and Sots, as to those particulars: whereas I take the Foundation of their Atchievements to lie originally in the Situation of the Country, whereby they do things inimitable by others, and have advantages whereof others are incapable.

First

Fist, The Soil of *Holland* and *Zealand* is low Land, Rich and Fertile; whereby it is able to feed many Men, and so as that Men may live near each other, for their mutual assistance in Trade. I say, that a Thousand Acres, that can feed 1000 Souls, is better than 10000 Acres of no more effect, for the following reasons, viz.

*The Reasons why
rich Land
is better
than
coarse
Land, tho
of the
same
Rent, and
consequently
why Holl.
is better
than Fran.*

1. Suppose some great Fabrick were in Building by a Thousand Men, shall not much more time be spared if they lived all upon a Thousand Acres, than if they were forced to live upon ten times as large a Scope of Land?

2. The charge of the cure of their Souls, and the Ministry would be far greater in one case than in the other; as also of mutual defence in case of Invasion, and even of Thieves and Robbers: Moreover the charge of the administration of Justice would be much easier, where Witnesses and Parties may be easily Summoned; Attendance less expensive, when Mens Actions would be better known; when Wrongs and Injuries could not be covered, as in thin peopled places they are.

Lastly,

Lastly, those who live in Solitary places, must be their own Soldiers, Divines, Physicians, and Lawyers; and must have their Houses stored with necessary Provisions (like a Ship going upon a long Voyage,) to the great wast, and needless expence of such Provisions. The value of this first Convenience to the *Dutch*, I reckon or estimate to be about 100000 *l.* per annum.

The Advantages from the Level and Wind-Mills of Holland.

The Advantages from Holland of Manufactory and Commerce. The Situation of Holland and Zealand upon the Mouths of three great Rivers.

2ly. *Holland* is a Level Country, so as in any part thereof, a Wind-Mill may be set up, and by its being moist and vaporous, there is always Wind stirring over it, by which advantage the Labour of many thousand Hands is saved; forasmuch as a Mill made by one Man, in half a year, will do as much Labour, as four Men for Five Years together. This advantage is greater or less, where employment or ease of Labour is so; but in *Holland* 'tis eminently great, and the worth of this conveniency is near an Hundred and fifty thousand Pounds.

3ly. There is much more to be gained by *Manufactory* than *Husbandry*; and by *Merchandize* than *Manufactory*: but *Holland* and *Zealand*, being seated at the Mouths of three long great Rivers, and

passing

passing through Rich Countries, do keep all the Inhabitants upon the sides of those Rivers but as Husbandmen, whilst themselves are the Manufacturers of their Commodities, and do disperse them into all Parts of the World; making returns for the same, at what Prizes almost they please themselves: And in short, they keep the Keys of Trade of those Countries, through which the said Rivers pass. The value of this third Conveniency, I suppose to be 200000 *l.*

4ly. In *Holland* and *Zealand*, there is scarce any place of Work or Business, one Mile distant from a Navigable Water: And the charge of Water-carriage is generally but $\frac{1}{3}$ or $\frac{1}{2}$ part of Land-carriage. Wherefore if there be as much Trade there as in *France*, then the *Hollanders* can out-sell the *French* $\frac{1}{3}$ of the Expence, of all Travelling, Postage, and all Carriage whatsoever: Which even in *England* I take to be 300000 *l.* per annum, where the very Postage of Letters, costs the People perhaps 50000 *l.* per annum; (though Farmed at much less :) And all other Labour of Horses, and Porters, at least six times much. The value of this

Nearness to navigable Waters.

this Conveniency I estimate to be above Three hundred thousand pounds *per annum*.

The defensibility of Holland.

5. The defensibility of the Country, by reason of its Situation in the Sea upon *Islands*; and in the *Marshes*, *Impassible ground Diked and Trenched*; especially considering how that place is aimed at for its Wealth: I say the charge of defending that Country, is easier than if it were a plain Champion, at least 200000 *l. per annum*.

Harbouring of Shipping at small Expence.

6. *Holland* is so considerable for keeping Ships in Harbour with small Expence of Men, and ground Tackle; that it saves *per annum* 200000 *l.* of what must be spent in *France*. Now if all these natural advantages do amount to above one Million *per annum* Profits; and that the Trade of all *Europe*, nay of the whole World, with which our *Europeans* do Trade, is not above Forty five Millions *per annum*, and if $\frac{1}{2}$ of the value be of the Profit, it is plain that the *Hollander* may Command and Govern the whole Trade.

Advantages from Fishing.

7. Those who have their Situation thus towards the *Sea*, and abound with *Fish* at home, and having also the command

mand of *Shipping*; have by Consequence the *Fishing Trade*; whereof, that of *Herring* alone, brings more yearly Profit to the *Hollanders* than the Trade of the *West-Indies* to *Spain*; or of the *East* to themselves: As many have affirmed: Being as the same say, *viis & modis*, of above three Millions *per Annum* Profit.

8. It is not to be doubted, but those who have the Trade of *Shipping* and *Fishing*, will secure themselves of the Trade of *Timber* for *Ships*, *Boats*, *Masts*, and *Cask*; of *Hemp* for *Cordage*, *Sails*, and *Nets*; of *Salt*, of *Iron*; as also of *Pitch*, *Tar*, *Rosin*, *Brimstone*, *Oil*, and *Tallow*, as necessary Appurtenances to *Shipping* and *Fishing*.

Advantages by Naval Provisions.

9. Those who predominate in *Shipping*, and *Fishing*, have more occasions than others to frequent all parts of the World, and to observe what is wanting or redundant every where; and what each People can do, and what they desire; and consequently to be the *Factors* and *Carriers*, for the whole World of Trade. Upon which ground they bring all Native Commodities to be Manufactured at home; and carry the same back, even to that Country

Fitness for Universal Trade.

in which they grew: All which we see.

For do they not work the *Sugars* of the *West-Indies*? the *Timber* and *Iron* of the *Baltick*? the *Hemp* of *Russia*? the *Lead*, *Tin*, and *Wooll* of *England*? the *Quick-silver* and *Silk* of *Italy*? the *Tarns*, and *Dying-Stuffs* of *Turkey*? &c. To be short, in all the ancient States, and Empires, those who had the *Shipping*, had the *Wealth*: And if 2 *per Cent.* in the *Price* of *Commodities*, be perhaps 20 *per Cent.* in the *Gain*; it is manifest that they who can in *forty five Millions*, undersell others by *one Million*, (upon account of natural, and intrinsic advantages only;) may easily have the *Trade* of the *World*: Without such Angelical Wits and Judgments, as some attribute to the *Hollanders*.

Having thus done with their *Situation*, I come now to their *Trade*.

Artificial
Advantages
of
Trade.

It is commonly seen, that each Country flourisheth in the Manufacture of its own Native Commodities, *viz.* *England* for Woollen Manufacture, *France* for Paper, *Luic-Land* for Iron-Ware, *Portugal* for Confectures, *Italy* for Silks: Upon which Principle it follows, that *Holland* and *Zealand* must flourish most in

in the *Trade* of *Shipping*, and so become *Carriers* and *Factors* of the whole *World* of *Trade*. Now the advantages of the *Shipping Trade* are as followeth, *viz.*

Husbandmen, Seamen, Soldiers, Artizans and Merchants, are the very Pillars of any Common-Wealth; all the other great Professions, do rise out of the infirmities and miscarriages of these; now the Seaman is three of these four. For every Seaman of Industry and Ingenuity, is not only a Navigator, but a Merchant, and also a Soldier; not because he hath often occasion to fight, and handle Arms; but because he is familiarized with hardship and hazards, extending to Life and Limbs; for Training and Drilling is a small part of Soldierly, in respect of this last mentioned Qualification; the one being quickly and presently learned, the other not without many years most painful experience: wherefore to have the occasion of abounding in Seamen, is a vast convenience.

2. The Husbandman of *England* earns but about 4 *s.* *per Week*, but the Seamen have as good as 12 *s.* in Wages,

O 3

Victu-

Husbandmen, Seamen, Soldiers, Artizans, and Merchants, are the very Pillars of a Commonwealth, and a Seaman is three of them.

*A Seaman
equiv-
alent to
three Hus-
bandmen.*

Victuals (and as it were housing) with other accommodations, so as a Seaman is in effect three Husbandmen; wherefore there is little Ploughing, and Sowing of Corn in *Holland* and *Zealand*, or breeding of young Cattle: but their Land is improved by building of Houses, Ships, Engines, Dikes, Wharfs, Gardens of Pleasure, extraordinary Flowers and Fruits; for Dairy and feeding of Cattle, for Rape, Flax, Madder, &c. The Foundations of several advantageous Manufactures.

3. Whereas the Employment of other Men is confined to their own Country, that of Seamen is free to the whole World; so as where Trade may (as they call it) be dead here or there, now and then, it is certain that some where or other in the World, Trade is always quick enough, and Provisions are always plentiful, the benefit whereof, those who command the Shipping enjoy, and they only.

*Silver,
Gold, and
Jewels,
are Uni-
versal
Wealth.*

4. The great and ultimate effect of Trade is not Wealth at large, but particularly abundance of Silver, Gold, and Jewels, which are not perishable, nor so mutable as other Commodities, but are Wealth

Wealth at all times, and in all places: Whereas abundance of Wine, Corn, Fowls, Flesh, &c. are Riches but *hic & nunc*, so as the raising of such Commodities, and the following of such Trade, which does store the Country with Gold, Silver, Jewels, &c. is profitable before others. But the Labour of Seamen, and Freight of Ships, is always of the nature of an Exported Commodity, the overplus whereof, above what is Imported, brings home Money, &c.

5. Those who have the command of the Sea-Trade, may Work at easier Freight with more profit, than others at greater: for as Cloth must be cheaper made, when one Cards, another Spins, another Weaves, another Draws, another Dresses, another Presses and Packs; than when all the Operations abovementioned, were clumsily performed by the same hand; so those who command the Trade of Shipping, can build long slight Ships for carrying Masts, Fir-Timber, Boards, Balks, &c. And short ones for Lead, Iron, Stones, &c. One sort of Vessels to Trade at Ports where they need never lie a ground, others where they must jump upon the

*Reasons
why the
Hollan-
ders Sail
for 1/3
Freight.*

Sand twice every twelve hours; One sort of Vessels, and way of manning in time of Peace, and for cheap gross Goods, another for War and precious Commodities; One sort of Vessels for the turbulent Sea, another for Inland Waters and Rivers; One sort of Vessels, and Rigging, where haste is requisite for the Maidenhead of a Market, another where one fifth or one fourth part of the time makes no matter. One sort of Mastling and Rigging for long Voyages, another for Coasting. One sort of Vessels for Fishing, another for Trade. One sort for War for this or that Country, another for Burthen only. Some for Oars, some for Poles, some for Sails, and some for draught by Men or Horses, some for the Northern Navigations amongst Ice, and some for the South against Worms, &c. And this I take to be the chief of several Reasons, why the *Hollanders* can go at less Freight than their Neighbours, *viz.* because they can afford a particular sort of Vessels for each particular Trade.

I have shewn how Situation hath given them Shipping, and how Shipping hath given them in effect all other Trade,
and

and how Foreign Traffick must give them as much Manufacture as they can manage themselves, and as for the overplus, make the rest of the World but as Workmen to their Shops. It now remains to shew the effects of their Policy, superstructed upon these natural advantages, and not as some think upon the excess of their Understandings.

The Policy of Holland.

I have omitted to mention the *Hollanders* were one hundred years since, a poor and oppressed People, living in a Country naturally cold, moist, and unpleasant: and were withal persecuted for their Heterodoxy in Religion.

From hence it necessarily follows, that this People must Labour hard, and set all hands to Work: Rich and Poor, Young and Old, must study the Art of Number, Weight, and Measure; must fare hard, provide for Impotents, and for Orphans, out of hope to make profit by their Labours: must punish the Lazy by Labour, and not by crippling them: I say, all these particulars, said to be the subtle excogitations of the *Hollanders*, seem to me, but what could not almost have been otherwise.

Liber-

Liberty of Conscience, Registry of Conveyances, small Customs, Banks, Lumbards, and Law Merchant, rise all from the same Spring, and tend to the same Sea; as for lowness of Interest, it is also a necessary effect of all the premises, and not the Fruit of their contrivance.

Wherefore we shall only shew in particular the efficacy of each, and first of Liberty of Conscience; but before I enter upon these, I shall mention a Practice almost forgotten, (whether it referreth to Trade or Policy is not material,) which is the *Hollanders* undermasting, and sailing such of their Shipping, as carry cheap and gross Goods, and whose Sale doth not depend much upon Season.

It is to be noted, that of two equal and like Vessels, if one spreads one thousand six hundred Yards of like Canvase, and the other two thousand five hundred, their speed is but as four to five, so as one brings home the same Timber in four days, as the other will in five. Now if we consider that although those Ships be but four or five days under Sail, that they are perhaps thirty upon the

*Under-
masting
of Ships.*

the Voyage; so as the one is but one thirtieth part longer upon the whole Voyage than the other, though one fifth longer under Sail. Now if Masts, Yards, Rigging, Cables, and Anchors, do all depend upon the quantity and extent of the Sails, and consequently Hands also; it follows that the one Vessel, goes at one third less charge, losing but one thirtieth of the time, and of what depends thereupon.

I now come to the first Policy of the *Dutch*, viz. Liberty of Conscience; which I conceive they grant upon these grounds. (But keeping up always a Force to maintain the Common Peace,) 1. They themselves broke with *Spain* to avoid the imposition of the Clergy. 2. Dis-

*Liberty of
Consci-
ence, and
the Rea-
sons there-
of in Hol-
land.*

senters of this kind, are for the most part, thinking, sober, and patient Men, and such as believe that Labour and Industry is their Duty towards God. (How erroneous soever their Opinions be) 3. These People believing the Justice of God, and seeing the most Licentious persons, to enjoy most of the World, and its best things, will never venture to be of the same Religion, and Profession with Voluptuaries, and Men of extreme Wealth

Wealth and Power, who they think have their Portion in this World.

4. They cannot but know, That no Man can believe what himself pleases, and to force Men to say they believe what they do not, is vain, absurd, and without Honor to God.

5. The *Hollanders* knowing themselves not to be an Infallible Church, and that others had the same Scripture for Guides as themselves, and withal the same Interest to save their Souls, did not think fit to make this matter their business; not more than to take Bonds of the Seamen they employ, not to cast away their own Ships and Lives.

6. The *Hollanders* observe that in *France* and *Spain*, (especially the latter) the Churchmen are about one hundred for one, to what they use or need; the principal care of whom is to preserve Uniformity, and this they take to be a superfluous charge.

7. They observe where most endeavours have been used to keep Uniformity, there Heterodoxy hath most abounded.

8. They believe that if one fourth of the People were Heterodox, and that if
that

that whole quarter should by Miracle be removed, that within a small time one fourth of the remainder would again become Heterodox some way or other, it being natural for Men to differ in Opinion in matters about Sense and Reason: and for those who have less Wealth, to think they have the more Wit and Understanding, especially of the things of God, which they think chiefly belong to the Poor.

9. They think the case of the Primitive Christians, as it is represented in the *Acts of the Apostles*, looks like that of the present Dissenters, (I mean externally.) Moreover it is to be observed that Trade doth not (as some think) best flourish under popular Governments, but rather that Trade is most vigorously carried on, in every State and Government, by the Heterodox part of the same, and such as profess Opinions different from what are publicly established: (that is to say) in *India* where the *Mahometan* Religion is Authorized, there the *Banians* are the most considerable Merchants. In the *Turkish* Empire the *Jews*, and Christians. At *Venice*, *Naples*, *Leghorn*, *Genoua*, and *Lisbon*,
Jews,

The Trade of any Country is chiefly managed by the Heterodox Party.

Jews, and Non-Papist Merchant-Strangers: but to be short, in that part of *Europe*, where the *Roman* Catholick Religion, now hath, or lately hath had Establishment; there three Quarters of the whole Trade, is in the hands of such as have separated from the Church (that is to say) the Inhabitants of *England*, *Scotland*, and *Ireland*, as also those of the *United Provinces*, with *Denmark*, *Sweden*, and *Norway*, together with the Subjects of the *German* Protestant Princes, and the *Hans* Towns, do at this day possess three Quarters of the Trade of the World; and even in *France* it self, the *Hugonots* are proportionably far the greater Traders; nor is it to be denied but that in *Ireland*, where the said *Roman* Religion is not authorized, there the Professors thereof have a great part of the Trade. From whence it follows that Trade is not fixt to any Species of Religion as such; but rather as before hath been said to the Heterodox part of the whole, the Truth whereof appears also in all the particular Towns of greatest Trade in *England*; nor do I find reason to believe, that the *Roman* Catholick Sea-men in the whole World,

are

All the
Papists
Sea-men
of Europe
are scarce
sufficient
to Man
the King
of Eng-
land's
Fleet.

are sufficient to Man effectually a Fleet equal to what the King of *England* now hath; but the Non-Papist Sea-men, can do above thrice as much. Wherefore he whom this latter Party doth affectionately own to be their Head, cannot probably be wronged in the Sea-concernments by the other; from whence it follows, that for the advancement of Trade, (if that be a sufficient reason) Indulgence must be granted in Matters of Opinion; though licentious actings as even in *Holland*, be restrained by force.

The second Policy or Help to Trade <sup>Firm Ti-
cles to
Lands &
Houses.</sup> used by the *Hollanders*, is securing the Titles to Lands and Houses; for although Lands and Houses may be called *Terra firma* & *res immobiles*, yet the Title unto them is no more certain, than it pleases the Lawyers and Authority to make them; wherefore the *Hollanders* do by Registries, and other ways of Assurance make the Title as immovable as the Lands, for there can be no encouragement to Industry, where there is no assurance of what shall be gotten by it; and where by fraud and corruption, one Man may take away with ease and by a trick, and in a moment what

what another has gotten by many Years extreme labour and pains.

Of the in-
troducing
Registries
into Eng-
land.

There hath been much Discourse about introducing of Registries into *England*; the Lawyers for the most part object against it, alledging, that Titles of Land in *England* are sufficiently secure already; wherefore omitting the Considerations of small and oblique Reasons *pro & contra*, it were good that enquiry were made from the Officers of several Courts, to what Summ or Value Purchasers have been damnified for this last ten Years, by such fraudulent Conveyances as Registries would have prevented; the tenth part whereof at a *Medium*, is the annual loss which the People sustain for want of them, and then computation is to be made of the annual charge of Registring such extraordinary Conveyances, as would secure the Title of Lands; now by comparing these two Summs, the Question so much agitated may be determined; though some think that though few are actually damnified, yet that all are hindered by fear and deterred from Dealing.

The Banks
of Holland

Their third Policy is their Bank, the use whereof is to encrease Money, or rather to make

make a small Summ equivalent in Trade to a greater, for the effecting whereof these things are to be considered. 1. How much Money will drive the Trade of the Nation. 2. How much current Money there is actually in the Nation. 3. How much Money will serve to make all payments of under Fifty Pounds or any other more convenient Summ throughout the Year. 4. For what Summ the Keepers of the Bank are unquestionable Security: If all these four Particulars be well known, then it may also be known, how much of the ready Money above-mentioned may safely and profitably be lodged in the Bank, and to how much ready current Money the said deposited Money is equivalent. As for Example, suppose a Hundred Thousand Pounds will drive the Trade of the Nation, and suppose there be but Sixty Thousand Pounds of ready Money in the same; suppose also that Twenty Thousand Pounds will drive on, and answer all Payments made of under Fifty Pounds. In this case, Forty of the Sixty being put into the Bank, will be equivalent to Eighty, which Eighty and Twenty kept out of the Bank do make up an Hundred, (that is to say) enough to drive
P the

the Trade as was proposed ; where note that the Bank-keepers must be responsible for double the sum entrusted with them, and must have Power to levy upon the general, what they happen to loose unto particular Men.

Upon which Grounds, the Bank may freely make use of the received Forty Thousand Pounds, whereby the said sum, with the like sum in Credit, makes Eighty Thousand Pounds, and with the Twenty reserved an Hundred.

The Hollanders are seldom Husbandmen or Foot Soldiers.

I might here add many more particulars, but being the same as have already been noted by others, I shall conclude only with adding one Observation which I take to be of consequence, *viz.* That the *Hollanders* do rid their Hands of Two Trades, which are of greatest turmoil and danger, and yet of least profit ; the first whereof is that of a common and private Soldier, for such they can hire from *England*, *Scotland*, and *Germany*, to venture their Lives for Six Pence a Day, whilst themselves safely and quietly follow such Trades, whereby the meanest of them gain six times as much, and withal by this entertaining of Strangers for Soldiers ; their Country

they becomes more and more peopled, forasmuch as the Children of such Strangers, are *Hollanders* and take to Trades, whilst new Strangers are admitted *ad infinitum* ; besides these Soldiers at convenient intervals, do at least as much work as is equivalent to what they spend, and consequently by this way of employing of Strangers for Soldiers, they People the Country and save their own Persons from danger and misery, without any real Expence, effecting by this method, what others have in vain attempted by Laws for Naturalizing of Strangers, as if Men could be charmed to transplant themselves from their own Native, into a Foreign Country merely by words, and for the bare leave of being called by a new Name. In *Ireland*, Laws of Naturalization have had little Effect, to bring in Aliens, and 'tis no wonder, since *English* Men will not go thither without they may have the pay of Soldiers, or some other advantage amounting to maintenance.

Having intimated the way by which the *Hollanders* do increase their People, I shall here digress to set down the way of computing the value of every Head of one People.

P 2

one with another, and that by the instance of People in *England*, viz. Suppose the People of *England* be Six Millions in number, that their Expence at 7 *l.* per Head be Forty Two Millions: suppose also that the Rent of the Lands be Eight Millions, and the yearly profit of all the Personal Estate be Eight Millions more; it must needs follow, that the Labour of the People must have supplied the remaining Twenty Six Millions, the which multiplied by Twenty (the Mass of Mankind being worth Twenty Years purchase as well as Land) makes Five Hundred and Twenty Millions, as the value of the whole People: which number divided by Six Millions, makes above 80 *l.* Sterling, to be the value of each Head of Man, Woman, and Child, and of adult Persons twice as much; from whence we may learn to compute the loss we have sustained by the Plague, by the Slaughter of Men in War, and by the sending them abroad into the Service of Foreign Princes. The other Trade of which the *Hollanders* have rid their Hands, is the old Patriarchal Trade of being Cow-keepers, and in a great Measure of that which concerns Plough-

Ploughing and Sowing of Corn, having put that Employment upon the *Danes* and *Polanders*, from whom they have their young Cattel and Corn. Now here we may take notice, that as Trades and curious Arts increase; so the Trade of Husbandry will decrease, or else the Wages of Husbandmen must rise, and consequently the Rents of Lands must fall.

For proof whereof I dare affirm, that if all the Husbandmen of *England*, who now earn but 8 *d.* a day or thereabouts, could become Tradesmen and earn 16 *d.* a day (which is no great Wages 2 *s.* and 2 *s.* 6 *d.* being usually given) that then it would be the advantage of *England* to throw up their Husbandry, and to make no use of their Lands, but for Grass-Horses, Milch-Cows, Gardens and Orchards, &c. which if it be so, and if Trade and Manufacture have increased in *England* (that is to say) if a greater part of the People, apply themselves to those Faculties, than there did heretofore, and if the price of Corn be no greater now, than when Husbandmen were more numerous, and Tradesmen fewer; it follows from that single

Reasons
why Rents
do fall.

reason (though others may be added) that the Rents of Land must fall: As for Example, suppose the price of Wheat be 5 s. or 60 d. the Bushel; now if the Rent of the Land whereon it grows be the third Sheaf; then of the 60 d. 20 d. is for the Land, and 40 d. for the Husbandman; but if the Husbandman's Wages should rise one eighth part, or from 8 d. to 9 d. *per Diem*, then the Husbandman's share in the Bushel of Wheat, rises from 40 d. to 45 d. and consequently the Rent of the Land must fall from 20 d. to 15 d. for we suppose the price of the Wheat still remains the same; especially since we cannot raise it, for if we did attempt it, Corn would be brought in to us, (as into *Holland*) from Foreign Parts, where the State of Husbandry was not changed.

And thus I have done with the first principal Conclusion, that, *A small Territory, and even a few People, may by Situation, Trade, and Policy, be made equivalent to a greater; and that convenience for Shipping, and Water-carriage, do most eminently and fundamentally conduce thereunto.*

CHAP.

C H A P. II.

That some kind of Taxes and Publick Levies, may rather increase than diminish the Wealth of the Kingdom.

IF the Money or other Effects, levied from the People by way of Tax, were destroyed and annihilated; then 'tis clear that such Levies would diminish the Commonwealth: Or if the same were exported out of the Kingdom without any return at all, then the case would be also the same or worse: But if what is levied as aforesaid, be only transferred from one hand to another, then we are only to consider whether the said Money or Commodities, are taken from an improving hand, and given to an ill Husband, or *vice versa*: As for Example, suppose that Money by way of Tax, be taken from one who spendeth the same in superfluous eating and drinking; and delivered to another

what shifting of Money from hand is preferable or not.

P 4

who

who employeth the same, in improving of *Land*, in *Fishing*, in working of *Mines*, in *Manufacture*, &c. It is manifest, that such Tax is an advantage to the State; whereof the said different Persons are Members: Nay, if Money be taken from him, who spendeth the same as a-fore said upon *eating* and *drinking*, or any other perishing Commodity; and the same transferred to one that bestoweth it on *Cloaths*; I say, that even in this case, the Commonwealth hath some little advantage; because *Cloaths* do not altogether perish so soon as *Meats* and *Drinks*: But if the same be spent in *Furniture of Houses*, the advantage is yet a little more; if in *Building of Houses*, yet more; if in improving of *Lands*; working of *Mines*, *Fishing*, &c. yet more; but most of all, in bringing *Gold* and *Silver* into the Country: Because those things are not only not perishable, but are esteemed for Wealth at all times, in all places, and every where: whereas other Commodities which are perishable, or whose value depends upon the Fashion; or which are contingently scarce and plentiful, are Wealth, but *pro hic & nunc*, as we shall be elsewhere said.

In

In the next place if the People of any Country, who have not already a full Employment, should be enjoined or taxed to work upon such Commodities as are imported from abroad; I say, that such a Tax, also doth improve the Commonwealth.

Taxing of new Works a benefit to the Commonwealth.

Moreover, if Persons who live by begging, cheating, stealing, gaming, borrowing without intention of restoring; who by those ways do get from the credulous and careless, more than is sufficient for the subsistence of such Persons; I say, that although the State should have no present Employment for such Persons, and consequently should be forced to bear the whole charge of their livelihood; yet it were more for the publick profit to give all such Persons, a regular and competent allowance by publick Tax, than to suffer them to spend extravagantly, at the only charge of careless, credulous, and good natured People: And to expose the Commonwealth to the loss of so many able Men, whose Lives are taken away, for the Crimes which ill Discipline doth occasion.

The Taxing of Idlers.

On

On the contrary, If the Stocks of laborious and ingenious Men, who are not only beautifying the Country where they live by elegant *Dyet, Apparel, Furniture, Housing, pleasant Gardens, Orchards, and publick Edifices, &c.* But are also increasing the *Gold, Silver, and Jewels* of the Country by *Trade and Arms*; I say, if the Stock of these Men should be diminished by a Tax, and transferred to such as do nothing at all, but *Eat and Drink, Sing, Play, and Dance*; nay, to such as Study the *Metaphysicks*, or other needless *Speculation*; or else employ themselves in any other way, which produce no material thing, or things of real use and value in the Commonwealth: In this case, the Wealth of the Publick will be diminished: Otherwise than as such Exercises, are Recreations and Refreshments of the mind; and which being moderately used, do qualifie and dispose Men to what in it self is more considerable.

Wherefore upon the whole matter, to know whether a Tax will do good or harm: The State of the People and their Employments, must be well known; (that is to say,) what part of the People

ple are unfit for Labour by their Infancy or Impotency; and also what part are exempt from the same, by reason of their *Wealth, Function, or Dignities*; or by reason of their Charge and Employments; otherwise than in governing, directing and preserving those, who are appointed to Labour and Arts.

2. In the next place Computation must be made, what part of those who are fit for Labour and Arts as aforesaid, are able to perform the Work of the Nation in its present State and Measure.

3. It is to be considered, whether the remainder can make all or any part of those Commodities, which are imported from abroad; which of them, and how much in particular: The remainder of which sort of People (if any be) may safely and without possible prejudice to the Commonwealth, be employed in the Arts and Exercises of Pleasure and Ornament; the greatest whereof is the Improvement of natural Knowledge.

Having thus in general illustrated this Point, which I think needs no other proof but illustration; I come next to intimate that no part of *Europe* hath paid

A judgment of what Taxes are advantageous.

paid so much by way of Tax, and publick Contributions, as *Holland* and *Zealand* for this last 100 Years; and yet no Country hath in the same time, increased their Wealth comparably to them: And it is manifest, they have followed the general Considerations above-mentioned; for they Tax *Meats* and *Drinks* most heavily of all; to restrain the excessive Expence of those things, which Twenty Four Hours doth (as to the use of Man) wholly annihilate; and they are more favourable to Commodities of greater duration.

Nor do they Tax according to what Men gain, but in extraordinary Cases; but always according to what Men spend: And most of all, according to what they spend needlessly, and without prospect of return. Upon which Grounds, their Customs upon Goods imported and exported, are generally low; as if they intended by them, only to keep an account of their Foreign Trade; and to retaliate upon their Neighbour States, the prejudices done them, by their Prohibitions and Impositions.

It is probable that Holland and England are grown richer under Taxes.

It is further to be observed, that since the Year 1636, the Taxes and publick Levies

Levies made in *England*, *Scotland*, and *Ireland*, have been prodigiously greater than at any time heretofore; and yet the said Kingdoms have increased in their Wealth and Strength, for these last Forty Years, as shall hereafter be shewn.

It is said that the King of *France*, at present doth Levy the Fifth Part of his Peoples Wealth; and yet great Ostentation is made of the Present Riches and Strength of that Kingdom. Now great care must be had in distinguishing between the Wealth of the People, and that of an absolute Monarch; who taketh from the People, where, when, and in what proportion he pleaseth. Moreover, the Subjects of two Monarchs may be equally Rich, and yet one Monarch may be double as Rich as the other; viz. If one take the tenth part of the Peoples Substance to his own dispose, and the other but the twentieth, nay the Monarch of a poorer People, may appear more splendid and glorious, than that of a Richer: which perhaps may be somewhat the case of *France*, as hereafter shall be examined. As an instance and application of what hath been said,

The difference of Princes Revenues.

I con-

That Ire-
land may
be more
advanta-
geously
taxed by
a Pole in
Flax,

I conceive that in *Ireland* wherein are about Twelve hundred thousand People, and near Three hundred thousand Smokes or Hearths; It were more tolerable for the People, and more profitable for the King, that each Head paid two Shillings worth of Flax, than that each smoke should pay two Shillings in Silver; And that for the following reasons.

1. *Ireland* being under peopled, and Land, and Cattle being very cheap; there being every where store of Fish and Fowl; the ground yielding excellent Roots (and particularly that bread-like root *Potatoes*) and withal they being able to perform their Husbandry, with such Harnes and Tackling, as each Man can make with his own hands; and living in such Houses as almost every Man can build; and every House-wife being a Spinner and Dyer of Wool and Yarn, they can live and subsist after their present Faskion, without the use of Gold or Silver Money; and can supply themselves with the necessaries above-named, without labouring two Hours *per diem*: Now it hath been found, that by reason of Insolvencies arising, rather from the use

usefulness than want of Money among these poor People; that from Three hundred thousand Hearths, which should have yielded Thirty thousand Pound *per annum*; not Fifteen thousand Pound of Money could be Levied: Whereas it is easily imagined, that four or five People dwelling in that Cottage, which hath but one smoke; could easily have planted a ground-plot of about forty Foot square with Flax; or the fiftieth part of an Acre; for so much ground will bear eight or ten Shillings worth of that Commodity; and the Rent of so much ground, in few places amounts to a penny *per annum*, nor is there any Skill requisite to this Practice, wherewith the Country is not already familiar. Now as for a Market for the Flax; there is Imported into *Holland* it self, over and above what that Country produces; as much Flax, as is there sold for between Eightscore and Two hundred thousand Pound; and into *England* and *Ireland* is Imported as much Linnen Cloth made of Flax, and there spent, as is worth above one half Million of Money. As shall hereafter be shewn.

Where-

Wherefore having shewn, that Silver Money is useless to the poor People of *Ireland*, that half the Hearth Money could not be raised by reason thereof; that the People are not a fifth part employed; that the People and Land of *Ireland*, are competently qualified for Flax; that one Penny-worth of Land, will produce Ten Shillings worth of the same; and that there is Market enough and enough, for above an Hundred thousand Pounds worth; I conceive my Proposition sufficiently proved; at least to set forwards and promote a Practice, which both the present Law and Interest of the Countrey doth require: Especially, since if all the Flax so produced should yield nothing, yet there is nothing lost; the same time having been worse spent before. Upon the same grounds, the like Tax of two Shillings *per Head*, may be raised with the like advantage upon the People of *England*; which will amount to Six hundred thousand Pound *per annum*; to be paid in Flax, Manufactured, into all the sorts of *Linnens, Threds, Tapes, and Laces*; which we now receive from *France, Flanders, Holland, and Germany*; the value whereof doth far exceed the.

the sum last mentioned, as hath appeared by the examination of particulars.

It is observed by Clothiers, and others, who employ great numbers of poor people, that when Corn is extremely plentiful, that the Labour of the poor is proportionably dear: And scarce to be had at all (so licentious are they who labour only to eat, or rather to drink.) Wherefore when so many Acres sown with Corn, as do usually produce a sufficient store for the Nation, shall produce perhaps double to what is expected or necessary; it seems not unreasonable that this common blessing of God, should be applied, to the common good of all People, represented by their Sovereign; much rather than the same should be abused, by the vile and brutish part of mankind, to the prejudice of the Common-Wealth: And consequently, that such surplussage of Corn, should be sent to publick Store-Houses; from thence to be disposed of, to the best advantage of the Publick.

Now if the Corn spent in *England*, at five shillings *per Bushel Wheat*, and two shillings six pence *Barley*, be worth ten Millions *Communibus annis*; it follows that in years of great plenty, when the said

Q

Grains

*Duties
put upon
redundant Com-
modities
may be a
harmless
Tax.*

Grains are one third part cheaper; that a vast advantage might accrue to the Common-Wealth, which now is spent in over-feeding of the People, in quantity or quality; and so indisposing them to their usual Labour.

The like may be said of *Sugar, Tobacco, and Pepper*; which Custom hath now made necessary to all sorts of People; and which the over-planting of them, hath made unreasonably cheap: I say it is not absurd, that the Publick should be advantaged by this extraordinary plenty.

That an *Excise* should be laid upon *Corrants* also, is not unreasonable; not only for this, but for other reasons also.

Of a Tax
by a grand
Militia,
and by
two other
sorts of
Armies.

The way of the present Militia or Trained-Bands, is a gentle Tax upon the Country; because it is only a few days Labour in the year, of a few Men in respect of the whole; using their own Goods, that is their own Arms. Now if there be three Millions of Males in *England*, there be above two hundred thousand of them, who are between the age of sixteen and thirty, unmarried Persons; and who live by their Labour and Service; for of so many or thereabouts, the present Militia consists.

Now

Now if an hundred and fifty thousand of these, were Armed, and Trained, as Foot; and fifty thousand as Horse; (Horse being of special advantage in Islands) the said Forces at Land, with thirty thousand Men at Sea; would by Gods ordinary blessing, defend this Nation, being an Island, against any Force in view: But the Charge of Arming, Disciplining, and Rendezvousing all these Men, twice, or thrice a year; would be a very gentle Tax, Levyed by the People themselves, and paid to themselves. Moreover if out of the said number one third part were selected, of such as are more than ordinarily fit and disposed for War, and to be Exercised, and Rendezvoused fourteen or fifteen times *per annum*; the Charge thereof being but a Fortnights Pay in the Year, would be also a very gentle Tax.

Lastly, If out of this last mentioned number, one third again should be selected, making about sixteen thousand Foot, and near six thousand Horse, to be Exercised, and Rendezvoused forty Days in the Year; I say that the Charge of all these three Militias, allowing the latter six Weeks Pay *per annum*; would not cost above one hundred and twenty thousand

Q. 2

Pound

Pound *per annum*; which I take to be an easie burthen, for so great a benefit.

For supplying the Navy, and Merchants with Seamen.

Forasmuch as the present Navy of *England* requires thirty six thousand Men to Man it; and for that the *English* Trade of Shipping, requires about forty eight thousand Men, to manage it also; it follows, that to perform both well, there ought to be about seventy two thousand Men, (and not eighty four thousand) competently qualified for these Services: For want whereof we see, that it is a long while, before a Royal Navy can be manned; which till it be, is of no effectual use, but lies at Charge. And we see likewise upon these occasions, that Merchants are put to great straights, and inconveniences; and do pay excessive rates for the carrying on their Trade. Now if twenty four thousand able bodied Tradesmen, were by six thousand of them *per annum*, brought up and fitted for Sea-Service; and for their encouragement allowed 20 *s. per annum* for every year they had been at Sea, even when they stay at Home, not exceeding 6 *l.* for those who have served six years or upward; it follows, that about 72000 *l.* at the medium of 3 *l. per Man*, would Salariate the whole number of

of twenty four thousand; and so, forasmuch as half the Seamen, which manage the Merchants Trade, are supposed to be always in Harbour, and are about twenty four thousand Men, with the said half together of the Auxiliaries last mentioned, would upon all emergencies, Man out the whole *Royal Navy* with thirty six thousand, and leaving to the Merchants twelve thousand of the abler Auxiliaries, to perform their business in Harbour, till others come Home from Sea; and thus thirty six thousand, twenty four thousand, and twelve thousand, make the seventy two thousand above-mentioned: I say that more than this sum of 72000 *l.* is fruitlessly spent, and over paid by the Merchants, whensoever a great Fleet is to be fitted out. Now those whom I call Auxiliary Seamen, are such as have another Trade besides, wherewith to maintain themselves, when they are not employed at Sea; and the charge of maintaining them, though 72000 *l. per annum*, I take to be little or nothing, for the Reasons above-mentioned, and consequently an easie Tax to the People, because Levied by, and paid to themselves.

Q3

As

*A Her-
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upon Scot-
land.*

As we propounded that *Ireland* should be Taxed with *Flax*, and *England* by *Linnen*, and other *Manufacture* of the same; I conceive that *Scotland* also might be Taxed as much, to be paid in *Herrings*, as *Ireland* in *Flax*: Now the three Taxes, viz. of *Flax*, *Linnen*, and *Herrings*, and the maintenance of the triple *Militia*, and of the *Auxiliary Seamen* above-mentioned, do all five of them together, amount to one Million of Money, the raising whereof is not a Million spent, but gain unto the Common-Wealth, unless it can be made appear, that by reason of all, or any of them, the Exportation of *Wool-len Manufactures*, *Lead* and *Tin*, are lessened; or of such Commodities, as our own *East* and *West-India* Trade do produce, forasmuch as I conceive, that the Exportation of these last mentioned Commodities, is the *Touch-Stone* whereby the Wealth of *England* is tried, and the *Pulse* whereby the Health of the Kingdom may be discerned.

CHAP.

CHAP. III.

That France cannot by reason of natural, and perpetual Impediments, be more powerful at Sea, than the English, or Hollanders now are, or may be.

Power at Sea consists chiefly of Men, ^{The qualities of} *able to fight at Sea*, and that in such ^{Ships fit} Shipping, as is most proper for the Seas ^{for the de-} wherein they serve; and those are in ^{sence of} these Northern Seas, Ships from be- ^{England.} tween three hundred to one thousand three hundred Tuns; and of those such as draw much Water, and have a deep Latch in the Sea, in order to keep a good Wind, and not to fall to Lee-ward, a matter of vast advantage in Sea Service: Wherefore it is to be examined, 1. Whether the King of *France*, hath Ports in the Northern Seas (where he hath most occasion for his Fleets of War, in any contests with *England*)

Q 4 able

able to receive the Vessels above-mentioned, in all Weathers, both in Winter and Summer Season. For if the King of *France*, would bring to Sea an equal number of fighting Men, with the *English* and *Hollanders*, in small floaty Leeward Vessels, he would certainly be of the weaker side. For a Vessel of one thousand Tuns manned with five hundred Men, fighting with five Vessels of two hundred Tuns, each manned with one hundred Men a-piece, shall in common Reason have the better offensively, and defensively; forasmuch as the great Ship can carry such Ordnance, as can reach the small ones at a far greater distance, than those can reach, or at least hurt the other; and can Batter, and sink at a distance, when small ones can scarce pierce.

Moreover it is more difficult for Men out of a small Vessel, to enter a tall Ship, than for Men from a higher place, to leap down into a lower; nor is small Shot so effectual upon a tall Ship, as *vice versa*.

And

And as for Vessels drawing much Water, and consequently keeping a good Wind, they can take or leave Leeward Vessels, at pleasure, and secure themselves from being Boarded by them: Moreover the Windward Ship, has a fairer mark at a Leeward Ship, than *vice versa*; and can place her Shot upon such parts of the Leeward Vessel, as upon the next Tack will be under Water.

Now then the King of *France*, having no Ports able to receive large Windward Vessels, between *Dunkirk* and *Ushant*, what other Ships he can bring into those Seas, will not be considerable. As for the wide Ocean, which his Harbours of *Brest*, and *Charente*, do look into; it affordeth him no advantage upon an Enemy; there being so great a Latitude of engaging or not, even when the Parties are in sight of each other.

Wherefore, although the King of *France* were immensely Rich, and could Build what Ships he pleased, both for number, and quality; yet if he have not Ports to receive, and shelter, that sort and size of Shipping, which is fit for

for his purpose; the said Riches will in this case be fruitless, and a mere expence without any return, or profit. Some will say that other Nations cannot Build so good Ships as the *English*; I do indeed hope they cannot; but because it seems too possible, that they may sooner or later, by Practice and Experience; I shall not make use of that Argument, having bound my self to shew, that the impediments of *France*, (as to this purpose) are natural, and perpetual. Ships and Guns do not fight of themselves, but Men who act and manage them; wherefore it is more material to shew; That the King of *France*, neither hath, nor can have Men sufficient, to Man a Fleet, of equal strength to that of the King of *England*, viz.

The qualifications
of Seamen for
defence.

The King of *England's* Navy, consists of about seventy thousand Tuns of Shipping, which requires thirty six thousand Men to Man it; these Men being supposed to be divided into eight parts, I conceive that one eighth part, must be Persons of great Experience, and Reputation, in Sea Service: another eighth part must be such as have used

used the Sea seven years and upwards; half of them, or four eighth parts more, must be such as have used the Sea above a Twelvemonth, viz. Two, three, four, five, or six years, allowing but one quarter of the whole Complements, to be such as never were at Sea at all, or at most but one Voyage, or upon one Expedition; so that at a *medium* I reckon, that the whole Fleet must be Men of three or four years growth, one with another. *Fournier*, a late judicious Writer, making it his business to persuade the World, how considerable the King of *France* was, or might be at Sea, in the ninety second and ninety third Pages of his *Hydrography*, saith, That there was one place in *Britany*, which had furnished the King with one thousand four hundred Seamen, and that perhaps the whole Sea-Coast of *France*, might have furnished him with fifteen times as many: Now supposing his whole Allegation were true, yet the said number amounts but to twenty one thousand; all which, if the whole Trade of Shipping in *France* were quite and clean abandoned, would not by above a third, Man out a Fleet equivalent, to that of the King of *England*: And if

The Number
of
Seamen
in France.

if the Trade were but barely kept alive, there would not be one third part Men enough, to Man the said Fleet.

But if the Shipping Trade of *France*, be not above a quarter as great as that of *England*, and that one third part of the same, namely the Fishing Trade to the Banks of *Newfoundland*, is not peculiar, nor fixt to the *French*; then I say that if the King of *England* (having power to Press Men) cannot under two or three Months time Man his Fleet; than the King of *France*, with less than a quarter of the same help, can never do it at all; for in *France* (as shall elsewhere be shewn) there are not above one hundred and fifty thousand Tun of Trading Vessels, and consequently no above fifteen thousand Seamen, reckoning a Man to every ten Tun. As it has been shewn that the King of *France*, cannot at present Man such a Fleet, as is above described, we come next to shew that he never can, being under natural, and perpetual Impediments: *viz.* 1. If there be but fifteen thousand Seamen in all *France*, to manage its Trade, it is not to be supposed,

supposed, that the said Trade should be extinguished, nor that it should spare above Five of the said Fifteen Thousand towards manning the Fleet which requires Thirty Five Thousand.

Now the deficient Thirty Thousand must be supplied, one of these four ways, either, first by taking in Land-men, of which sort there must not be above Ten Thousand, since the Sea-men will never be contented, without being the *major* part, nor do they heartily wish well to Land-men at all, or rejoyce even at those Successes, of which the Land-men can claim any share; thinking it hard that themselves, who are bred to miserable, painful, and dangerous Employments, (and yet profitable to the Commonwealth) should at a time when Booty and Purchase is to be gotten, be clogged or hindered by any conjunction with Land-men, or forced to admit those to an equal Share with themselves. 2. The Sea-men which we suppose Twenty Thousand, must be had, that is hired from other Nations, which cannot be without tempting them with so much Wages, as exceeds what is given

The ways whereby the French must increase Sea-men.

Why Sea-men dislike Land-men.

The danger of English Sea-men their serving the French

given by Merchants, and withal to counterpoise the danger of being hanged by their own Prince, and allowed no Quarter if they are taken; the trouble of conveying themselves away, when Restraints and Prohibitions are upon them; and also the infamy of having been Apostates, to their own Countrey and Cause: I say their Wages must be more than double, to what their own Prince gives them, and their assurance must be very great, that they shall not be at long run abused or flighted by those who employed them; (as hating the Traitor, although they love the Treason.) I say moreover, that those who will be thus tempted away, must be of the basest, and lewdest sort of Sea-men, and such as have not enough of Honour and Conscience, to qualifie them for any Trust, or gallant Performance. 3. Another way to increase Sea-men, is to put great Numbers of Land-men upon Ships of War, in order to their being Sea-men; but this course cannot be effectual, not only for the above-mentioned Antipathy, between Land-men and Sea-men; but

How Men learn to be good Sea-men.

but also, because it is seen, that Men at Sea do not apply themselves to Labour and Practice, without more necessity than happens in over-manned Shipping. For where there are Fifty Men in a Vessel, that Ten can sufficiently Navigate, the supernumerary Forty will improve little; but where there shall be of Ten but One or Two supernumeraries, there necessity will often call upon every Man to set his Hand to the Work, which must be well done at the peril of their own Lives. Moreover, Sea-men shifting Vessels almost every Six or Twelve Months, do sometimes sail in small Barks, sometimes in middling Ships, and sometimes in great Vessels of Defence; sometimes in Lighters, sometimes in Hoys, sometimes in Ketches, sometimes in Three-masted Ships, sometimes they go to the Southward, sometimes to the Northward, sometimes they Coast, sometimes they cross the Ocean; by all which variety of Service, they do in time compleat themselves, in every Part, and Circumstance of their Faculty: Whereas those who go out for a Summer,

mer, in a Man of War, have not that variety of Practice, nor a direct necessity of doing any thing at all.

Besides, it is three or four Years at a *medium*, wherein a Sea-man must be made; neither can there be less than Three Sea-men, to make a Fourth of a Land-man: Consequently the Fifteen Thousand Sea-men of *France*, can increase but Five Thousand Sea-men in Three or Four Years, and unless their Trade should increase with their Sea-men in proportion, the King must be forced to bear the Charge of this improvement, out of the publick Stock, which is intolerable. So as the Question which

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crease.

now remains, is, whether the Shipping Trade of *France* is like to increase? Upon which account it is to be considered, 1. That *France* is sufficiently stored with all kind of Necessaries within it self; as with *Corn*, *Cattel*, *Wine*, *Salt*, *Linnen-Cloth*, *Paper*, *Silk*, *Fruits*, &c. So as they need little Shipping, to import more Commodities of Weight or Bulk; neither is there any thing of Bulk exported out of *France*, but *Wines* and *Salt*; the weight where-
of

of is under One Hundred Thousand Tun *per Annum*, yielding not Employment to above Twenty Five Thousand Tun of Shipping, and these are for the most part *Dutch* and *English*, who are not only already in Possession of the said Trade, but also are better fitted to maintain it, than the *French* are, or perhaps ever can be: And that for the following Reasons. (*viz.*) 1. Because the *French* cannot Victual so cheap as the *English* and *Dutch*, nor Sail with so few Hands. 2. The *French* for want of good Coasts and Harbours, cannot keep their Ships in Port, under double the Charge that the *English* and *Hollanders* can. 3. By reason of paucity, and distance of their Ports one from another, their Sea-men and Tradesmen relating to Shipping, cannot Correspond with, and Assist one another so easily, cheaply, and advantageously, as in other places. Wherefore if their Shipping Trade is not likely to increase within themselves, and much less to increase, by their bearing out the *English* and *Hollanders* from being the Carriers of the World, it fol-

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cannot.

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lows, that their Sea-men will not be increased by the increase of their said Trade: Wherefore, and for that they are not like to be increased by any of the several ways above specified, and for that their Ports are not fit to receive Ships of Burthen and Quality, fit for that purpose; and that by reason of the less fitness of their Ports, than that of their Neighbours; I conceive that what was propounded, hath been competently proved.

The aforementioned *Fournier* in the Ninety Second and Ninety Third Pages of his *Hydrography*, hath laboured to prove the contrary of all this, unto which I refer the Reader: Not thinking his Arguments of any weight at all in the present case. Nor indeed doth he make his Comparisons with the *English* or *Hollanders*, but with the *Spaniards*, who, nor the *Grand Seigneur*, (the latter of whom hath greater Advantages, to be powerful at Sea, than the King of *France*) could ever attain to any illustrious Greatness in Naval Power: Having often attempted, but never succeeded in the same.

Nor

Nor is it easie to believe, that the King of *England* should for so many Years, have continued his Title to the *Sovereignty* of the *Narrow Seas*, against his Neighbours (ambitious enough to have gotten it from him) had not their Impediments been natural, and perpetual, and such, as we say, do obstruct the King of *France*.

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CHAP.

CHAP. IV.

That the People and Territories of the King of England, are naturally near as considerable for Wealth and Strength, as those of France.

Of comparison between the Territories of England & France.
THE Author of the State of *England*, among the many useful Truths, and Observations he hath set down; delivers the proportion, between the Territories of *England* and *France*, to be as Thirty to Eighty Two; the which if it be true, then *England*, *Scotland*, and *Ireland*, with the Islands unto them belonging, will, taken all together, be near as big as *France*. Tho' I ought to take all Advantages for proving the Paradox in hand; yet I had rather grant that *England*, *Scotland*, and *Ireland*, with the Islands before-mentioned; together with the planted Parts of *New-foundland*, *New-England*, *New-Netherland*, *Virginia*, *Mary-land*, *Carolina*, *Jamaica*, *Burmoudas*, *Barbadoes*, and all the rest

rest of the *Carribby Islands*, with what the King hath in *Asia* and *Africa*, do not contain so much Territory as *France*, and what planted Land the King of *France* hath also in *America*. And if any Man will be Heterodox in behalf of the *French* Interest; I would be contented against my Knowledge and Judgment, to allow the King of *France's* Territories, to be a seventh, sixth, or even a fifth greater than those of the King of *England*; believing that both Princes have more Land than they do employ to its utmost use.

And here I beg leave, (among the several matters which I intend for serious) to interpose a jocular, and perhaps ridiculous digression, and which I indeed desire Men to look upon, rather as a Dream or Resvery, than a rational Proposition; the which is, that if all the moveables and People of *Ireland*, and of the *Highlands* of *Scotland*, were transported into the rest of *Great Britain*; that then the King and his Subjects would thereby become more Rich and Strong, both *offensively* and *defensively*, than now they are.

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Tis

'Tis true, I have heard many Wise Men say, when they were bewailing the vast Losses of the *English*, in preventing and suppressing Rebellions in *Ireland*, and considering how little Profit hath returned, either to the King or Subjects of *England*, for their Five Hundred Years doing and suffering in that Countrey; I say, I have heard Wise Men (in such their Melancholies) wish, that (the People of *Ireland* being saved) *Island* were sunk under water: Now it troubles me, that the Distemper of my own Mind in this Point, carries me to dream, that the benefit of those Wishes, may practically be obtained, without sinking that vast mountainous Island under Water, which I take to be somewhat difficult; for although *Dutch* Engineers may drain its Bogs; yet I know no Artists that could sink its Mountains. If Ingenious and Learned Men (among whom I reckon Sir *Tho. More*, and *Des Cartes*) have disputed, That we who think our selves awake, are, or may be really in a Dream; and since the greatest absurdities of Dreams, are but a preposterous and tumultuary con-texture of Realities, I will crave the um-brage

brage of these great Men last named, to say something for this wild Conception, with submission to the better Judgment of all those that can prove themselves awake.

If there were but one Man living in *England*, then the Benefit of the whole Territory, could be but the livelihood of that one Man: But if another Man were added, the Rent or Benefit of the same would be double, if Three, triple; and so forward until so many Men were planted in it, as the whole Territory could afford Food unto: For if a Man would know, what any Land is worth, the true and natural Question must be, How many Men will it feed? How many Men are there to be fed? But to speak more practically, Land of the same Quantity and Quality in *England*, is generally worth Four or Five times as much as in *Ireland*; and but one quarter, or third of what it is worth in *Holland*; because *England* is four or five times better peo-pled than *Ireland*, and but a quarter so well as *Holland*. And moreover, where the Rent of Land is advanced by reason of multitude of People; there the number of Years purchase, for which

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the Inheritance may be sold, is also advanced, though perhaps not in the very same Proportion; for 20 s. *per Annum* in *Ireland*, may be worth but 8 l. and in *England* where Titles are very sure, above 20 l. in *Holland* above 30 l.

I suppose, that in *Ireland* and the *Highlands* in *Scotland*, there may be about one Million and Eight Hundred Thousand People, or about a Fifth Part of what is in all the Three Kingdoms: Wherefore the first Question will be, Whether *England*, *Wales*, and the *Low-Lands* of *Scotland*, cannot afford Food, (that is to say) *Corn*, *Fish*, *Flesh*, and *Fowl*, to a Fifth Part more People, than are at the present planted upon it, with the same Labour that the said Fifth Part do now take where they are? For if so, then what is propounded is naturally possible. 2. It is to be enquired, What the *value* of the *immovables* (which upon such removal must be left behind) are worth? For if they be worth less, than the advancement of the Price of Land in *England* will amount unto; then the proposal is to be considered. 3. If the *Relict Lands* and the *immovables* left behind upon them, may be sold

fold for Money; or if no other Nation shall dare meddle with them, without paying well for them; and if the Nation who shall be admitted, shall be less able to prejudice and annoy the Transplantees into *England* than before; then I conceive that the whole proposal will be a pleasant and a profitable Dream indeed.

As to the first Point, whether *England*, and the *Low-lands* of *Scotland*, can maintain a Fifth Part more People than they now do (that is to say) Nine Millions of Souls in all? For answer thereunto, I first say, that the said Territories of *England*, and the *Low-Land* of *Scotland*, contain about Thirty Six Millions of Acres, that is four Acres for every Head, Man, Woman, and Child; but the United Provinces do not allow above One Acre and a Half, and *England* it self rescinding *Wales*, hath but Three Acres to every Head, according to the present State of Tillage and Husbandry. Now if we consider that *England* have but Three Acres to a Head as aforesaid, doth so abound in Victuals, as that it maketh Laws against the Importation of *Cattel*, *Flesh*, *That England and the Low-Lands of Scotland will feed all the People of England, Scotland, and Ireland.*

Flesh, and *Fish* from abroad; and that the draining of *Fens*, improving of *Forests*, inclosing of *Commons*, Sowing of *St. Foyné* and *Clovergrafs*, be grumbled against by *Landlords*, as the way to depress the Price of *Victuals*; then it plainly follows, that less than Three Acres improved as it may be, will serve the turn, and consequently that Four will suffice abundantly. I could here set down the very number of Acres, that would bear *Bread* and *Drink*, *Corn*, together with *Flesh*, *Butter*, and *Cheese*, sufficient to victual Nine Millions of Persons, as they are victualled in Ships, and regular Families; but shall only say in general; that Twelve Millions of Acres, viz. one Third of Thirty Six Millions, will do it, supposing that *Roots*, *Fruits*, *Fowl*, and *Fish*, and the ordinary profit of *Lead*, *Tin*, *Iron-Mines*, and *Woods*, would piece up any defect, that may be feared.

That the value of all the quitted Lands & immovable goods & charge of transplantation are not to the above 17 Millions

As to the second, I say, that the Land and Housing in *Ireland*, and the High-Lands of *Scotland*, at the present Market Rates, are not worth Thirteen Millions of Money; nor would the actual Charge of making the Transplantation proposed, amount to Four Millions more:

So

So then the Question will be, Whether the benefit expected from this transplantation, will exceed Seventeen Millions?

To which I say, that the Advantage will probably be near four times the last mentioned sum, or about Sixty Nine Millions, Three Hundred Thousand Pounds. For if the Rent of all *England* and *Wales*, and the Low-Lands of *Scotland*, be about Nine Millions *per Annum*; and if the Fifth Part of the People be superadded, unto the present Inhabitants of those Countries; then the Rent will amount unto Ten Millions 8000 *l.* and the number of Years purchase, will rise from Seventeen and a half, to a Fifth Part more, which is Twenty One. So as the Land which is now worth but Nine Millions *per Annum*, at Seventeen and a half Years purchase, making 157 Millions and a half, will then be worth Ten Millions Eight Hundred Thousand Pounds, at Twenty One Years purchase; viz. Two Hundred Twenty Six Millions, and Eight Hundred Thousand Pounds, that is Sixty Nine Millions, and Three Hundred Thousand Pounds more than it was before.

And

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And if any Prince willing to enlarge his Territories, will give any thing more than Six and a half Millions or half the present value of the said relinquished Land, which are estimated to be worth Thirteen Millions; then the whole Profit, will be above Seventy Five Millions, and Eight Hundred 600*l.* or above four times the loss, as the same was above computed. But if any Man shall object, that it will be dangerous unto *England*, that *Ireland* should be in the Hands of any other Nation; I answer in short, that that Nation, whoever shall purchase it (being divided by means of the said purchase,) shall not be more able to annoy *England*, than now in its united Condition. Nor is *Ireland* nearer *England*, than *France* and *Flanders*.

Now if any Man shall desire a more clear explanation, how, and by what means, the Rents of Lands shall rise by this closer cohabitation of People above described; I answer, that the advantage will arise in transplanting about Eighteen Hundred Thousand People, from the poor and miserable Trade of Husbandry, to more beneficial Handicrafts: For when the superaddition is made, a ve-

ry little addition of Husbandry to the same Lands will produce a fifth part more of Food, and consequently the additional Hands, earning but 40*s.* *per annum* (as they may very well do, nay to 8 *l.* *per annum*) at some other Trade; the Superlucration will be above Three Millions and Six hundred thousand Pounds *per annum*, which at Twenty Years Purchase is Seventy Millions. Moreover, as the Inhabitants of Cities and Towns, spend more Commodities, and make greater Consumptions, than those who live in wild thin peopled Countries; So when *England* shall be thicker peopled, in the manner before described, the very same People shall then spend more, than when they lived more sordidly and inurbanely, and further asunder, and more out of the sight, observation, and emulation of each other; every Man desiring to put on better Apparel when he appears in Company, than when he has no occasion to be seen.

I further add, that the Charge of the Government, Civil, Military, and Ecclesiastical, would be more cheap, safe, and effectual in this condition of closer Co-habitation than otherwise; as not only Reason, but the Example of the

That the
difference
between
England's
and
France's
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terial.

the United Provinces doth demonstrate.

But to let this whole Digression pass for a mere Dream, I suppose 'twill serve to prove, that in case the King of *England's Territories*, should be a little less than those of the King of *France*, that so far as neither of them are overpeopled, that the difference is not material to the Question in Hand; wherefore supposing the King of *France's* advantages, to be little or nothing in this point of *Territory*; we come next to examine and compare the number of Subjects which each of these Monarchs doth govern.

The Book called the State of *France*, maketh that Kingdom to consist of Twenty seven thousand Parishes; and another Book written by a substantial Author, who professedly inquires into the State of the Church and Church-men of *France*, sets it down as an extraordinary Case, that a *Parish* in *France* should have Six hundred Souls; wherefore I suppose that the said Author (who hath so well examined the matter) is not of Opinion that every Parish, one with another, hath above Five hundred; by which Reckoning the whole People of *France*, are about Thirteen Millions and a half; Now the People

People of *England, Scotland, and Ireland*, with the Islands adjoining, by computation from the numbers of Parishes; which commonly have more People in Protestant Churches, than in Popish Countries; as also from the *Hearth-money, Pole-money, and Excise*, do amount to about Nine Millions and an half.

There are in *New-England*, about Sixteen thousand Men Mustered in Arms; about Twenty four thousand able to bear Arms; and consequently about One hundred and fifty thousand in all: And I see no Reason why in all this and the other Plantations of *Asia, Africa, and America*, there should not be half a Million in all. But this last I leave to every Mans Conjecture; and consequently, I suppose, that the King of *England* hath about Ten Millions of Subjects, *ubivis Terrarum Orbis*; and the King of *France* about Thirteen and an half as aforesaid.

The King
of France
hath in
effect but
Thirteen

Millions of Subjects, and the King of *England* Ten Millions, and the King of *France* hath Twenty seven thousand Church-men, and the King of *England* Twenty thousand. The King of *England* hath Forty thousand Sea-men, and the King of *France* Ten thousand.

Although

Although it be very material to know the number of Subjects belonging to each Prince, yet when the Question is concerning their *Wealth* and *Strength*; It is also material to examin, how many of them do get more than they spend, and how many less.

In order whereunto it is to be considered, that in the King of *England's* Dominions, there are not Twenty thousand Church-men; But in *France*, as the aforementioned Author of theirs doth aver, (who sets down the particular number of each Religious Order) there are about Two hundred and seventy thousand; *viz.* Two hundred and fifty thousand more than we think are necessary, (that is to say) Two hundred and fifty thousand withdrawn out of the World. Now the said number of adult and able bodied Persons, are equivalent to about double the same number, of the promiscuous Mass of Mankind. And the same Author says, that the same Religious Persons, do spend one with another about 18 *d. per diem*, which is triple even to what a labouring Man requires.

Where,

Wherefore the said Two Hundred and Fifty thousand Church-men (living as they do) makes the King of *France's* Thirteen Millions and a half, to be less than Thirteen: Now if Ten Men can defend themselves as well in Islands, as Thirteen can upon the Continent; then the said Ten being not concerned to increase their *Territory* by the Invasion of others, are as effectual as the Thirteen in point of Strength also; wherefore that there are more Superlucrators in the *English*, than the *French* Dominions, we say as followeth.

There be in *England, Scotland, Ireland,* The multitude of Clergy's do lessen the K. of France's People, the multitude of Sea and Naval Men do increase the King of England's Subjects. and the Kings other Territories above Forty Thousand Seamen; in *France* not above a quarter so many; but one Seaman earneth as much as three common Husbandmen; wherefore this difference in Seamen, addeth to the account of the King of *England's* Subjects, and is an advantage equivalent to Sixty Thousand Husbandmen.

There are in *England, Scotland, and Ireland,* and all other the King of *England's* Territories Six Hundred thousand Tun of Shipping, worth about four Millions and an half of Money; and the

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annual Charge of maintaining the Shipping of *England*, by new Buildings and Reparations, is about one third part of the same Sum; which is the Wages of one Hundred and fifty thousand Husbandmen, but is not the Wages of above one third part of so many *Artisans* as are employed, upon Shipping of all sorts, *viz.* *Shipwrights, Calkers, Joyners, Carvers, Painters, Block-makers, Rope-makers, Mast-makers, Smiths* of several sorts; *Flag-makers, Compass-makers, Brewers, Bakers*, and all other sort of *Victualers*; all sorts of *Tradesmen* relating to *Guns* and *Gunnery stores*. Wherefore there being four times more of these *Artisans* in *England*, &c. than in *France*; they further add to the account of the King of *England's* Subjects, the equivalent of Eighty thousand Husbandmen more.

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from Na-
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Water, the
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France's
63.

The Sea-line of *England, Scotland*, and *Ireland*, and the adjacent Islands, is about Three thousand eight hundred Miles; according to which length, and the whole Content of Acres, the said Land would be an Oblong, or Parallelogram Figure of Three thousand eight hundred Miles long, and about Twenty four Miles broad; and consequently, every part of *England*,

England, Scotland, and *Ireland* is, one with another, but Twelve Miles from the Sea: Whereas *France*, containing but about one Thousand Miles of *Sea-line*, is by the like method or computation, about Sixty five Miles from the Sea side; and considering the paucity of Ports, in comparison of what are in the King of *England's* Dominions, as good as Seventy Miles distant from a Port: Upon which grounds it is clear, that *England* can be supplied, with all gross and bulkey Commodities of Foreign Growth and Manufacture, at far cheaper rates than *France* can be, *viz.* at about 4 s. per Cent. cheaper; the Land Carriage for the difference of the distance between *England* and *France* from a Port, being so much or near thereabouts. Now to what advantage this conveniency amounteth, upon the Importation and Exportation of bulkey Commodities, cannot be less than the Labour of one Million of People, &c. meaning by bulkey Commodities all sorts of *Timber, Plank*, and *Staves* for *Cask*; all *Iron, Lead, Stones, Bricks*, and *Tyles* for building; all *Corn, Salt*, and *Drinks*; all *Flesh* and *Fish*, and indeed all other Commodities, wherein the gain and loss of 4 s. per Cent.

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The decay
of Timber
in Eng-
land is no
very for-
midable
matter.

is considerable; where note that the like *Wines* are sold in the inner parts of *France* for four or five Pound a Tun, which near the Ports yield 7 l. Moreover upon this Principal, the decay of *Timber* in *England* is no very formidable thing, as the Rebuilding of *London*, and of the Ships wasted by the *Dutch War* do clearly manifest; nor can there be any want of Corn, or other necessary Provisions in *England*, unless the Weather hath been Universally unseasonable for the growth of the same; which seldom or never happens; for the same causes which make Dearth in one place, do often cause plenty in another; wet Weather being propitious to *Highlands*, which drowneth the Low.

It is observed that the Poor of *France*, have generally less Wages than in *England*; and yet their Victuals are generally dearer there; which being so, there may be more Superlucration in *England* than in *France*.

The K. of
England's
Subjects
spend near
as much
as the
King of
France's.

Lastly, I offer it to the consideration of all those, who have travelled through *England* and *France*; whether the *Plebeians* of *England* (for they constitute the Bulk of any Nation) do not spend a sixth part

part more than the *Plebeians* of *France*? And if so, it is necessary that they must first get it; and consequently that Ten Millions of the King of *England*'s Subjects, are equivalent to Twelve of the King of *France*'s; and upon the whole matter, to the Thirteen Millions, at which the *French Nation* was estimated.

It will here be objected, that the splendor and magnificencies of the King of *France*, appearing greater than those of *England*, that the Wealth of *France* must be proportionably greater, than that of *England*; but that doth not follow, forasmuch as the apparent greatness of the King, doth depend upon the Quota pars of the Peoples Wealth which he Levieeth from them; for supposing of the People to be equally Rich, if one of the Sovereigns Levy a fifth part, and another a fifteenth, the one seems actually thrice as Rich as the other, whereas potentially, they are but equal.

Having thus discoursed of the Territory, People, Superlucration, and Defence-ness of both Dominions, and in some measure of their Trade, so far as we had occasion to mention Ships, Shipping, and nearness to Ports; we come next to in-

S 3 large

large a little further, upon the Trade of each.

Some have estimated, that there are not above Three hundred Millions of People in the whole World. Whether that be so or no, is not very material to be known; but I have fair grounds to conjecture, and would be glad to know it more certainly, that there are not above Eighty Millions, with whom the *English* and *Dutch* have Commerce; no *Europeans* that I know of, Trading directly nor indirectly, where they do not; so as the whole *Commercial World*, or *World of Trade*, consisteth of about Eighty Millions of Souls, as aforesaid.

And I further estimate, that the value of all Commodities yearly exchanged amongst them, doth not exceed the value of Forty five Millions: Now the *Wealth* of every Nation, consisting chiefly, in the share which they have in the Foreign Trade with the whole *Commercial World*, rather than in the Domestick Trade, of ordinary *Meat*, *Drink*, and *Cloaths*, &c. which bringing in little *Gold*, *Silver*, *Jewels*, and other *Universal Wealth*; we are to consider, whether the *Subjects* of the King of *England*, Head for Head, have

have not a greater share, than those of *France*.

To which purpose it hath been considered, that the Manufactures of *Wool*, yearly Exported out of *England*, into several parts of the World, viz. All sorts of *Cloth*, *Serges*, *Stuffs*, *Cottons*, *Bays*, *Says*, *Frize*, *Perpetuanas*; as also *Stockings*, *Caps*, *Rugs*, &c. Exported out of *England*, *Scotland*, and *Ireland*, do amount unto Five Millions per annum.

The value of *Lead*, *Tin*, and *Coals*, to be Five hundred thousand Pounds.

The value of all *Cloaths*, *Household-stuff*, &c. carried into *America*, Two hundred thousand Pounds.

The value of *Silver* and *Gold*, taken from the *Spaniards* Sixty thousand Pounds.

The value of *Sugar*, *Indico*, *Tobacco*, *Cotton*, and *Cacao*, brought from the Southward parts of *America* Six hundred thousand Pounds.

The value of the *Fish*, *Pipe-staves*, *Masts*, *Bever*, &c. brought from *New-England*, and the Northern parts of *America*, Two Hundred Thousand Pounds.

The value of the *Wool, Butter, Hides, Tallow, Beef, Herring, Pilchers, and Salmon*, Exported out of *Ireland*, Eight hundred thousand Pounds.

The value of the *Coals, Salt, Linnen, Tarn, Herrings, Pilchers, Salmon, Linnen-Cloth, and Tarn*, brought out of *Scotland*, and *Ireland*, 500000*l.*

The value of *Saltpetre, Pepper, Callicoes, Diamonds, Drugs, and Silks*, brought out of the *East-Indies*, above what was spent in *England*; Eight hundred thousand Pounds.

The value of the *Slaves*, brought out of *Africa*, to serve in our *American* Plantations Twenty thousand Pounds; which with the *Freight of English Shipping*, Trading into Foreign parts, being above a Million and an half, makes in all Ten Millions one hundred and Eighty thousand Pounds.

Which Computation is sufficiently justified by the Customs of the Three Kingdoms, whose intrinsic value are thought to be near a Million *per annum*, *viz.* Six hundred thousand Pounds, payable to the King; One hundred thousand Pounds, for the Charges of Collecting; &c. Two hundred thousand Pounds
40 smuggled

smuggled by the Merchants, and One hundred thousand Pounds gained by the Farmers; according to common Opinion, and Mens Sayings: And this agrees also with that proportion, or part of the whole Trade of the World, which I have estimated the Subjects of the King of *England* to be possessed of, *viz.* of about Ten of Forty Five Millions.

But the value of the *French* Commodities, brought into *England*, (notwithstanding some currant estimates,) are not above One Million two hundred thousand Pounds *per annum*; and the value of all they Export into all the World besides, not above Three or Four times as much; which Computation also agreeth well enough, with the account we have of the Customs of *France*; so as *France* not Exporting above one half the value of what *England* doth, and for that all the Commodities of *France* (except *Wines, Brandy, Paper, and the first Patterns and Fashions for Cloaths, and Furniture* of which *France* is the Mint) are imitable by the *English*; and having withal more People than *England*; it follows that the People of *England*, &c. have Head for Head, thrice as much Foreign Trade as the People of *France*;

France; and about Two parts of Nine of the Trade of the whole *Commercial World*; and about Two parts in Seven of all the Shipping: Notwithstanding all which it is not to be denied, that the King and some great Men of *France*, appear more Rich and Splendid, than those of the like Quality in *England*; all which arises rather from the nature of their Government, than from the Intrinsick and Natural Causes of Wealth and Power.

CHAP.

CHAP. V.

That the Impediments of Englands greatness, are but contingent and removable.

THE first Impediment of *Englands* greatness is, that the Territories thereunto belonging, are too far asunder, and divided by the Sea into many several Islands and Countries; and I may say, in to so many Kingdoms, and several Governments, (*viz.*) there be Three distinct Legislative Powers in *England*, *Scotland*, and *Ireland*; the which instead of uniting together, do often cross one anothers Interest; putting Bars and Impediments upon one anothers Trades, not only as if they were Foreigners to each other, but sometimes as Enemies.

The different Legi-
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ment.

2. The Islands of *Jersey* and *Gernsey*, and the Isle of *Man*, are under Jurisdictions different from those, either of *England*, *Scotland*, or *Ireland*.

The Colonies be-
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3. The Government of *New-England* (both *Civil* and *Ecclesiastical*) doth so differ from that of His Majesty's other Dominions, that 'tis hard to say what may be the Consequence of it.

And the Government of the other Plantations, doth also differ very much from any of the rest; although there be not naturally substantial Reasons from the Situation, Trade, and Condition of the People, why there should be such differences.

From all which it comes to pass, that small divided remote Governments, being seldom able to defend themselves, the Burthen of protecting of them all, must lye upon the chief Kingdom *England*, and so all the smaller Kingdoms and Dominions, instead of being Additions, are really Diminutions; but the same is remedied by making Two such Grand Councils, as may equally represent the whole Empire, one to be chosen by the King, the other by the People. The Wealth of a King is Threefold, one is the Wealth of his Subjects, the second is the *Quota pars* of his Subjects Wealth, given him for the *publick Defence*, *Honour*, and *Ornament* of

of the *People*, and to manage such undertaking for the Common Good, as no one or a few private Men, are sufficient for.

The third sort are the *Quota*, of the last mention *Quota pars*, which the King may dispose of, as his own personal inclination and discretion shall direct him; without account. Now it is most manifest, that the afore-mentioned distances, and differencies of Kingdoms, and Jurisdictions, are great impediments to all the said several sorts of Wealth, as may be seen in the following particulars. First in case of War with Foreign Nations, *England* commonly beareth the whole Burthen, and Charge, whereby many in *England* are utterly undone.

Secondly, *England* sometimes Prohibiting the Commodities of *Ireland*, and *Scotland*, as of late it did the *Cattel*, *Flesh*, and *Fish* of *Ireland*; did not only make *Food*, and consequently *Labour*, dearer in *England*, but also hath forced the People of *Ireland*, to fetch those Commodities from *France*, *Holland*, and other places, which before was sold them from *England*, to the great

great prejudice of both Nations.

Thirdly, It occasions an unnecessary Trouble, and Charge, in Collecting of Customs, upon Commodities passing between the several Nations.

Fourthly, It is a damage to our *Barbadoes*, and other *American* Trades, that the Goods which might pass thence immediately, to several Parts of the World, and to be sold at moderate Rates, must first come into *England*, and there pay Duties, and afterwards (if at all) pass into those Countries, whither they might have gone immediately.

Fifthly, The Islands of *Jersey* and *Gernsey*, are protected at the Charge of *England*, nevertheless the Labour, and Industry of that People (which is very great) redounds most to the profit of the *French*.

Sixthly, In *New-England*, there are vast Numbers of able bodied *Englishmen*, employed chiefly in Husbandry, and in the meanest Part of it, (which is breeding of Cattel) whereas *Ireland* would have contained all those Persons, and at worst would have afforded them Lands on better terms, than they have

have them in *America*, if not some other better Trade withal, than now they can have.

Seventhly, The Inhabitants of the other Plantations, although they do indeed Plant Commodities, which will not grow so well in *England*; yet grasping at more Land, than will suffice to produce the said *Exotics* in a sufficient quantity to serve the whole World, they do therein but distract, and confound, the effect of their own Endeavours.

Eighthly, There is no doubt that the same People, far and wide dispersed, must spend more upon their Government, and Protection, than the same living compactly, and when they have no occasion to depend upon the Wind, Weather, and all the Accidents of the Sea.

A second Impediment to the greatness of *England*, is the different Understanding of several Material Points, viz. Of the King's Prerogative, Privileges of Parliament, the obscure Differences between Law and Equity; as also between Civil and Ecclesiastical Jurisdiction, The different Understanding of Prerogative and Privileges of Parliament,
Law, and Equity, Civil and Ecclesiastical; the Supream Legislature of *Ireland*, &c.

ons ;

ons ; Doubts whether the Kingdom of *England*, hath Power over the Kingdom of *Ireland*, besides the wonderful Paradox, that *English-men*, lawfully sent to suppress Rebellions in *Ireland*, should after having effected the same, (be as it were) disfranchised, and lose that Interest in the Legislative Power, which they had in *England*, and pay Customs as Foreigners for all they spend in *Ireland*, whither they were sent, for the Honor and Benefit of *England*.

Want of Natural Union for want of mixture and transplantation.

The third Impediments is, That *Ireland* being a Conquered Countrey, and containing not the tenth part as many *Irish* Natives, as there are *English* in both Kingdoms, That natural and firm Union is not made, between the two Peoples, by Transplantations, and proportionable mixture, so as there may be but a tenth part, of the *Irish* in *Ireland*, and the same proportion in *England* ; whereby the necessity of maintaining an Army in *Ireland*, at the expence of a quarter of all the Rents of that Kingdom may be taken away.

The unequal inconvenient method of Taxing.

The fourth Impediment is, That Taxes in *England* are not levied upon the Expence, but upon the whole Estate ;

state ; not upon *Lands, Stock, and Labour*, but chiefly upon Land alone ; and that not by an equal, and indifferent Standard, but the casual predominancy, of *Parties, and Factions* : and moreover, that these Taxes are not levied with the least Trouble and Charge, but let out to Farmers, who also let them from one to another without explicate Knowledge of what they do ; but so as in conclusion, the poor People pay twice as much as the King receives.

The fifth Impediment is the inequality of *Shires, Dioceses, Parishes, Church-Livings*, and other Precincts, as also the Representation of the People in Parliament ; all which do hinder the Operations of Authority in the same manner, as a Wheel irregularly made, and eccentrically hung ; neither moves so easily, nor performs its Work so truly, as if the same were duly framed and poised.

Sixthly, Whether it be an Impediment, that the Power of making War, and raising Money be not in the same Hand, much may be said ; but I leave it to those, who may more properly meddle with Fundamental Laws.

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None

None of these Impediments are Natural, but did arise as the irregularity of Buildings do, by being built, part at one time, and part at another; and by the changing of the state of things, from what they were at the respective times, when the Practices we complain of, were first admitted, and perhaps, are but the warpings of time, from the rectitude of the first Institution.

As these Impediments are contingent, so they are also removeable; for may not the Land of superfluous Territories be sold, and the People with their moveables brought away? May not the *English* in the *American* Plantations (who Plant *Tobacco*, *Sugar*, &c.) compute what Land will serve their turn, and then contract their Habitations to that proportion, both for quantity and quality? as for the People of *New-England*, I can but wish they were Transplanted into *Old-England*, or *Ireland* (according to Proposals of their own, made within this Twenty Years) although they were allowed more Liberty of Conscience, than they allow one another.

May not the three Kingdoms be United into one, and equally represented in Parlia-

Parliament? Might not the several Species of the King's Subjects, be equally mixt in their Habitations? Might not the Parishes, and other Precincts be better equalized? Might not Jurisdictions, and pretences of Power, be determined and ascertained? Might not the *Taxes* be equally apportioned, and directly applied to their ultimate use? Might not Dissenters in Religion be indulged, they paying for a competent Force to keep the Publick Peace? I humbly venture to say, all these things may be done, if it be so thought fit by the Sovereign Power, because the like hath often been done already, at several Places and Times.

C H A P. VI.

*That the Power and Wealth of England
hath increased this last Forty Years.*

Many Territories
have been
added to
England
within a-
bout For-
ty Years,
and many
improve-
ments
made.

IT is not much to be doubted, but that the Territories under the King's Dominions have increased; forasmuch as *New-England, Virginia, Barbadoes, and Jamaica, Tangier, and Bumbay*, have since that time, been either added to His Majesty's Territories, or improved from a *Desart Condition*, to abound with People, Buildings, Shipping, and the Production of many useful Commodities. And as for the Land of *England, Scotland, and Ireland*, as it is not less in quantity, than it was Forty Years since; so it is manifest that by reason of the Dreyning of *Fens*, watering of dry Grounds, improving of *Forests*, and *Commons*, making of *Heathy* and *Barren Grounds*, to bear *Saintfoyne*, and *Clovergrafs*; meliorating, and multiplying several sorts of Fruits, and

and Garden-Stuff, making some Rivers Navigable, &c. I say it is manifest, that the Land in its present Condition, is able to bear more Provision, and Commodities, than it was Forty Years ago.

Secondly, Although the People in *England, Scotland, and Ireland*, which have extraordinarily perished by the Plague, and Sword, within this last Forty Years, do amount to about Three Hundred Thousand, above what have died in the ordinary way; yet the ordinary increase by Generation of Ten Millions, which doubles in Two Hundred Years, as hath been shewn by the Observators upon the Bills of Mortality, may in Forty Years (which is a fifth part of the same time) have increased one fifth part of the whole number, or Two Millions. Where note by the way, that the accession of *Negroes* to the *American Plantations* (being all Men of great Labour and little Expence) is not inconsiderable; besides, it is hoped that *New-England*, where few or no Women are Barren, and most have many Children, and where People live long, and healthfully, hath produced an increase

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of as many People, as were destroyed in the late Tumults in *Ireland*.

The Housing of London doubled in value.

As for *Housing*, the Streets of *London* it self speaks it, I conceive it is double in value in that City, to what it was Forty Years since; and for *Housing* in the Countrey, they have increased, at *New-Castle*, *Tarmouth*, *Norwich*, *Exeter*, *Portsmouth*, *Cowes*, *Dublin*, *Kingsale*, *Londonderry*, and *Coleraine* in *Ireland*, far beyond the proportion of what I can learn have been dilapidated in other places. For in *Ireland* where the ruin was greatest, the *Housing* (taking all together) is now more valuable than Forty Years ago, nor is this to be doubted, since *Housing* is now more splendid, than in those days, and the number of Dwellers is increased, by near one fifth part; as in the last Paragraph is set forth.

The Shipping very much increased with the Reasons thereof.

As for Shipping, His Majesty's Navy is now triple, or quadruple, to what it was Forty Years since, and before the *Sovereign* was Built; the Shipping Trading into *Newcastle*, which are now about Eighty Thousand Tuns, could not be then above a quarter of that quantity. First, Because the City of *London*, is doubled. 2. Because the use of Coals is

is also at least doubled, because they were heretofore seldom used in Chambers, as now they are, nor were there so many Bricks burned with them as of late, nor did the Countrey on both sides the *Thames*, make use of them as now. Besides there are employed in the *Guinny* and *American Trade*, above Forty Thousand Tun of Shipping per Annum; which Trade in those days was inconsiderable. The quantity of Wines Imported was not near so much as now; and to be short, the Customs upon Imported, and Exported Commodities, did not then yield a third part of the present Value; which shews that not only *Shipping*, but *Trade* it self hath increased, somewhat near that proportion.

As to Money, the Interest thereof was within this Fifty Years, at 10 *l. per Cent.* Forty Years ago, at 8 *l.* and now at 6 *l.* no thanks to any Laws which have been made to that purpose, forasmuch as those who can give good security, may now have it at less: But the natural fall of Interest, is the effect of the increase of Money.

Interest of Money abated near half.

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More

Moreover, if *rented Lands*, and *Houses*, have increased ; and if *Trade* hath increased also, it is certain that Money which payeth those *Rents*, and driveth on *Trade*, must have increased also.

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creased.

Lastly, I leave it to the Consideration of all Observers, whether the Number, and splendor of *Coaches*, *Equipage*, and *Household Furniture*, hath not increased, since that time ; to say nothing of the Postage of Letters, which have increased from One to Twenty, which argues the increase of Business, and Negotiation. I might add that His Majesty's Revenue is near tripled, and therefore the means to pay, and bear the same, have increased also.

CHAP.

C H A P. VII.

That one tenth part of the whole Expence, of the King of England's Subjects, is sufficient to maintain Ten Thousand Foot, Forty Thousand Horse, and Forty Thousand Men at Sea ; and defray all other Charges of the Government, both ordinary and extraordinary, if the same were regularly taxed and raised.

TO clear this Point, we are to find *An Estimate of each Head in the King's Dominions, the middle expence of the highest and the lowest ; between the highest and the lowest ; pence of each Head in England.* to which I say, it is not probably less, than the expence of a Labourer, who earneth about 8 *d.* a day ; for the Wages of such a Man is 4 *s.* per Week, without Victuals, or 2 *s.* with it ; wherefore the Value of his Victuals is 2 *s.* per Week, or 5 *l.* 4 *s.* per Annum : Now the value of Clothes cannot be less than the Wages given to the poorest Maid-Servant

Servant in the Countrey, which is 30 *s. per Annum*, nor can the Charge of all other Necessaries, be less than 6 *s. per Annum* more; wherefore the whole Charge is 7 *l.*

It is not likely that this Discourse will fall into the Hands of any that live at 7 *l. per Annum*, and therefore such will wonder at this supposition: But if they consider how much the Number of the Poor, and their Children, is greater than that of the Rich; although the personal Expence of some Rich Men, should be Twenty times more than that of a Labourer; yet the Expence of the Labourer above-mentioned, may well enough stand for the Standard of the Expence of the whole Mass of Mankind.

Now if the Expence of each Man, one with another, be 7 *l. per Annum*, and if the Number of the King's Subjects, be Ten Millions, then the tenth part of the whole Expence, will be Seven Millions; but about Five Millions, or a very little more, will amount to One Year's Pay for One Hundred Thousand Foot, Forty Thousand Horse, and Forty Thousand Men at Sea, Winter and Summer; which can rarely be necessary. And the ordinary

ordinary Charge of the Government, in times of deep, and serene Peace, was not 600000 *l. per Annum*.

Where a People thrive, there the income is greater than the expence, and consequently, the tenth part of the expence is not a tenth part of the income; now for Men to pay a tenth of their expence, in a time of the greatest exigency (for such it must be when so great Forces are requisite) can be no hardship, much less a déplorable condition. for to bear the tenth part, a Man needs spend but a twentieth part less, and labour a twentieth part more, or half an hour *per diem* extraordinary, both which within common Experience are very tolerable; there being very few in *England*, who do not eat by a twentieth part more than does them good; and what misery were it, instead of wearing Cloth of 20 *s. per Yard*, to be contented with that of 19 *s.* few Men having skill enough to discern the difference.

Memorandum, That all this while I suppose, that all of these Ten Millions of People, are obedient to their Sovereign, and within the reach of his Power; for

for as things are otherwise, so the Calculation must be varied.

C H A P. VIII.

That there are spare Hands enough among the King of England's Subjects, to earn Two Millions per Annum more than they now do; and that there are also Employments, ready, proper, and sufficient, for that purpose.

TO prove this Point we must enquire, how much all the People could earn, if they were disposed, or necessitated to Labour, and had Work whereupon to employ themselves; and compare that Summ with that of the total Expence above-mentioned; deducting the Rents, and Profits of their Land, and Stock, which properly speaking, saveth so much Labour. Now the proceed of the said Lands, and Stock in the Countries, is about three parts of Seven, of the whole Expence; so as where the Expence is Seventy Millions, the

the Rent of the Land, and the Profit of all the Personal Estate, Interest of money, &c. must be about Thirty Millions; and consequently the value of the Labour forty Millions, that is 4 *l.* per Head.

But it is to be noted, That about a quarter of the Mass of Mankind, are Children, Males, and Females, under seven years old, from whom little Labour is to be expected. It is also to be noted, That about another tenth part of the whole People, are such as by reason of their great *Estates, Titles, Dignities, Offices, and Professions*, are exempt from that kind of Labour we now speak of; their business being, or ought to be, to *Govern, Regulate, and Direct*, the *Labours, and Actions* of others. So that of ten Millions, there may be about six Millions and an half, which (if need require) might actually Labour: And of these some might earn 3 *s.* per week, some 5 *s.* and some 7 *s.* That is all of them might earn 5 *s.* per week at a *Medium* one with another; or at least 10 *l.* per annum, (allowing for sickness, and other accidents;) whereby the whole might earn sixty five Millions per annum, that is twenty five more than the expence.

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The Author of the State of *England*, says that the *Children* of *Normich*, between six and sixteen years old, do earn 12000 *l. per annum*, more than they spend. Now forasmuch as the People of *Normich*, are a three hundredth part of the People of *England*, as appears by the Accompts of the Hearth-money ; and about a five hundredth part, of all the Kings Subjects throughout the World ; it follows that all his Majesty's Subjects, between six and sixteen years old, might earn five Millions *per annum* more than they spend.

Again, forasmuch as the number of People, above sixteen years old, are double the number, of those between six and sixteen ; and that each of the Men can earn double to each of the Children ; it is plain that if the Men and Children every where did do as they do in *Normich*, they might earn twenty five Millions *per ann.* more than they spend ; which estimate grounded upon matter of Fact and Experience, agrees with the former.

Although as hath been proved, the People of *England* do thrive, and that it is possible they might *Superlucrate* twenty five Millions *per annum* ; yet it is manifest that they do not, nor Twenty three, which

which is less by the Two Millions herein meant ; for if they did *Superlucrate* Twenty three Millions, then in about five or six years time the whole Stock, and Personal Estate of the Nation would be doubled, which I wish were true, but find no manner of reason to believe ; wherefore if they can *Superlucrate* Twenty five, but do not actually *Superlucrate* Twenty three, nor Twenty, nor Ten, nor perhaps Five, I have then proved what was propounded ; *viz.* That there are spare Hands among the Kings Subjects, to earn Two Millions more than they do.

But to speak a little more particularly concerning this matter : It is to be noted that since the Fire of *London*, there was earned in four years by Tradesmen, (relating to Building only) the sum of four Millions ; *viz.* One Million *per annum*, without lessening any other sort of Work, Labour, or Manufacture, which was usually done in any other four years before the said occasion. But if the Tradesmen relating to Building only, and such of them only as wrought in and about *London*, could do one Millions worth of Work extraordinary ; I think that from thence, and from what hath been said before, all the

the rest of the spare Hands, might very well double the same, which is as much as was propounded.

Now if there were spare Hands to *Superlucrate* Millions of Millions, they signifie nothing unless there were Employment for them; and may as well follow their Pleasures, and Speculations, as Labour to no purpose; therefore the more material Point is, to prove that there is Two Millions worth of Work to be done, which at present the King's Subjects do neglect.

For the proof of this there needs little more to be done, than to compute
1. How much money is paid, by the King of *England's* Subjects, to Foreigners for Freights of Shipping. 2. How much the *Hollanders* gain by their Fishing Trade, practised upon our Seas. 3. What the value is of all the Commodities, Imported into, and spent in *England*; which might by diligence be produced, and Manufactured here. To make short of this matter, upon perusal of the most Authentick Accompts, relating to these several particulars, I affirm that the same amounteth to above five Millions, whereas I propounded but two Millions.

For

For a further Proof whereof Mr. *Samuel Fortry* in his ingenious Discourse of Trade, exhibits the particulars, wherein it appears, that the Goods Imported out of *France* only, amount yearly to Two Millions six hundred thousand Pounds. And I affirm, That the *Wine, Paper, Corke, Rozen, Capers*, and a few other Commodities, which *England* cannot produce, do not amount to one fifth part of the said sum. From whence it follows, that (if Mr. *Fortry* hath not erred) the Two Millions here mentioned, may arise from *France* alone; and consequently five or six Millions, from all the three Heads last above specified.

U

CHAP.

C H A P. IX.

*That there is Money sufficient to drive
the Trade of the Nation.*

Since his Majesty's happy *Restoration*, it was thought fit to call in, and new Coin the money, which was made in the times of *Usurpation*. Now it was observed by the general consent of Cashiers, that the said money (being by frequent Revolutions well mixed with old) was about a seventh part thereof; and that the said money being called in, was about 800000 *l.* and consequently the whole five Millions six hundred thousand Pound. Whereby it is probable that (some allowance being given for hoarded money) the whole Cash of *England* was then about six Millions, which I conceive is sufficient to drive the Trade of *England* not doubting but the rest of his Majesties Dominions have the like means to do the same respectively.

If there be six Millions of Souls in *England*, and that each spendeth 7 *l.* *per annum*, then the whole expence is Forty two Millions, or about Eight hundred thousand

thousand Pound *per Week*; and consequently, if every Man did pay his expence weekly, and that the money could Circulate within the compass of a Week, then less than one Million would answer the ends proposed. But forasmuch as the Rents of the Lands in *England* (which are paid half yearly) are Eight Millions *per annum*, there must be Four Millions to pay them. And forasmuch as the Rent of the Housing of *England*, paid quarterly, are worth about four Millions *per ann.* there needs but one Million to pay the said Rents; wherefore six Millions being enough to make good the three sorts of Circulations above-mentioned, I conceive what was proposed, is competently proved, at least till something better be held forth to the contrary.

C H A P. X.

*That the King of England's Subjects, have
Stock competent and convenient, to drive
the Trade of the whole Commercial World.*

NOW for the further incouragement of Trade, as we have shewn that there is money enough in *England* to manage the Affair thereof; so we shall now offer to consideration, whether there be not a competent and convenient Stock to drive the Trade of the whole *Commercial World*. To which purpose it is to be remembred, That all the Commodities, yearly Exported out of every part of the last mentioned World, may be bought for Forty five Millions; and that the Shipping employed in the same World, are not worth above fifteen Millions more, and consequently, that sixty Millions at most, would drive the whole Trade above-mentioned, without any trust at all, but forasmuch as the growers of Commodities, do commonly trust them to such Merchants or Factors, as are worth but such a part of the full value of their Commodities, as may possibly be lost upon the sale

sale of them, whereas Gain is rather to be expected; it follows that less than a Stock of sixty Millions, nay less than half of the same sum, is sufficient to drive the Trade above-mentioned: It being well known that any Tradesman of good Reputation worth 500*l.* will be trusted with above 1000*l.* worth of Commodities: Wherefore less than thirty Millions, will suffice for the said purpose; of which sum, the *Coin, Shipping, and Stock*, already in Trade, do at least make one half.

And it hath been shewn, how by the Policy of a *Bank*, any sum of money may be made equivalent in Trade, unto near double of the same; by all which it seems, that even at present much is not wanting, to perform what is propounded. But suppose Twenty Millions or more were wanting, it is not improbable, that since the generality of Gentlemen, and some Noblemen, do put their younger Sons to Merchandize; they will see it reasonable, as they increase in the number of Merchants, so to increase the magnitude of Trade, and consequently to increase Stock; which may effectually be done, by in-banking Twenty Millions worth of Land, not being above a sixth or seventh of the whole Territory of *England*; (that is to say)

say) by making a *Fund* of such value, to be security for all *Commodities*, Bought and Sold upon the accompt of that *Universal Trade* here mentioned.

And thus it having appeared, that *England* having in it, as much Land, like *Holland* and *Zealand*, as the said two Provinces do themselves contain, with abundance of other Land, not inconvenient for Trade; and that there are *spare Hands* enough, to earn many Millions of money, more than they now do, and that there is also Employment to earn several Millions, (even from the Consumption of *England* it self) it follows from thence, and from what hath been said in the last Paragraph, about enlarging of Stock, both of Money, and Land; that it is not impossible, nay a very feasible matter, for the King of *England's* Subjects, to gain the *Universal Trade* of the whole *Commercial World*.

Nor is it unseasonable to intimate this matter, forasmuch as the younger Brothers, of the good Families of *England*, cannot otherwise be provided for, so as to live according to their Birth and Breeding: For if the Lands of *England* are worth eight Millions *per annum*, then there be at a *medium* about Ten thousand Families,

milies, of about 800 *l. per annum*; in each of which, one with another, we may suppose there is a younger Brother, whom less than two or 300 *l. per annum* will not maintain suitable to his Relations: Now I say that neither the Offices at Court, nor Commands in our ordinary Army and Navy, nor Church Preferments; nor the usual Gains by the Profession of the Law, and Physick; nor the Employments under Noblemen, and Prelates; will, all of thm put together, furnish livelyhoods of above 300 *l. per ann.* to Three thousand of the said Ten thousand younger Brothers: wherefore it remains that Trade alone must supply the rest. But if the said seven thousand Gentlemen, be applied to Trade, without increasing of Trade; or if we hope to increase Trade, without increasing of Stock, which for ought appears is only to be done, by imbanking a due proportion of Lands, and money; we must necessarily be disappointed. Where note, that selling of Lands to Foreigners for Gold and Silver, would enlarge the Stock of the Kingdom: Whereas doing the same between one another, doth effect nothing. For he that turneth all his Land into money, disposes himself for Trade; and he that

that parteth with his money for Land, doth the contrary: But to sell Land to Foreigners, increaseth both money and People, and consequently Trade. Wherefore it is to be thought, that when the Laws denying Strangers to Purchase, and not permitting them to Trade, without paying extraordinary Duties, were made; that then, the publick State of things, and Interest of the Nation, were far different from what they now are.

Having handled these Ten Principal *Conclusions*, I might go on with others, *ad infinitum*; but what hath been already said, I look upon as sufficient, for to shew what I mean by *Political Arithmetick*; and to shew the uses of knowing the true state of the *People, Land, Stock, Trade, &c.* 2. That the King's Subjects are not in so bad a condition, as discontented Men would make them. 3. To shew the great effect of *Unity, Industry, and Obedience*, in order to the Common Safety, and each Man's particular happiness.



F I N I S.