

An ESSAY
Towards a
REAL CHARACTER,
And a
PHILOSOPHICAL
LANGUAGE.

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Monday 13th of April 1668.

**At a meeting of the Council of the
ROYAL SOCIETY**

Ordered,

That the Discourse presented to the Royall
Society, Entitled, An Essay towards a Real
Character, and Philosophical Language, be
printed by the Printer to the Royal Society.

BROUNCKER Prest.

Of MEASURE.

§, III.
MEASURE

Those several relations of Quantity, whereby men use to judge of the Multitude or Greatness of things, are styled by the name of MEASURE, Dimension, mete, survey, Rule; to which the relative term of PROPORTION, Portion, Rate, Tax, Size, Scantling, Pittance, Share, Dose, Mess, Symetry, Analogy, commensurate, dispense, allot, adapt, is of some Affinity) signifying an equality or similitude of the respects that several things or quantities have to one another. They are distinguishable into such as respect either

MULTITUDE. I.
MAGNITUDE. II.
GRAVITY. III.
VALOR. IV.
Duration.

More GENERALLY CONSIDERED. V.

As RESTRAINED TO LIVING CREATURES. VI.

I. MULTI
TUDE

I. To the Measure whereby we judge of the MULTITUDE of things may be annexed NUMBER, enumerate, reckon, compute, muster, count, re-count, Tally, tell, Arithmetic, Cyphering. If the way of Numeration were now to be stated, it would seem more convenient to determine the first Period or Stand at the number Eight, and not at Ten; because the way of Dichotomy or Bipartition being the most natural and easy kind of Division, that Number is capable of this down to a Unit, and according to this should be the several denominations of all other kinds of Measures, whether of Capacity, Gravity, Valor, Duration. So eight Farthings would make a Penny, eight Pence a Shilling, eight Shillings an Angel, eight Angels a Pound. So eight Grains would make a Scruple, eight Scruples a Dram, eight Drams an Ounce, eight Ounces a Pound, &c. But because general custom hath already agreed upon the decimal way, therefore I shall not insist upon the change of it.

The different degrees of Number generally received, are these.

- 1 ONE, *Ace, Unity, Once, First, Imprimis, Single.*
- 2 TWO, *a Couple, a Brace, a Pair, a Yoke, Second-Iy, Twice, Double, Twofold, Bipartite*
- 3 THREE, *a Leash, Ternary, Trey, Third-Iy, Tertian, Thrice, Treble, Threefold, Tripartite, Trine-ity.*
- 4 FOUR, *Fourth-Iy, Quartan, Quaternion, Fourfold, Quadruple, Quadrupartite Quartile.*
- 5 FIVE, *Fifth-Iy, Quintuple, Fivefold.*
- 6 SIX, *Sixth-Iy, Sixfold, Sextuple, Sextile, Senary.*
- 7 SEVEN, *Seventh-Iy, Septuple, Sevenfold.*
- 8 EIGHT, *Eighth-Iy, Octuple, Eightfold. NINE, Ninth-Iy, Ninefold.*

How other numbers besides these here enumerated may be expressed both in writing and speech, see hereafter, Chap.

II. Measures

II. Measures of Magnitude do comprehend both those of Length, and of Superficies or Area, together with those of Solidity; both comprehended in that which is adjoined, viz. the word CAPACITY, hold, contain. The several Nations of the World do not more differ in their Languages, than in the various kinds and proportions of these Measures. And it is not without great difficulty, that the Measures observed by all those different Nations who traffick together, are reduced to that which is commonly known and received by anyone of them; which labour would be much abbreviated, if they were all of them fixed to anyone certain Standard. To which purpose, it were most desirable to find out some natural Standard, or universal Measure, which hath been esteemed by Learned men as one of the desiderata in Philosophy. If this could be done in Longitude, the other Measures might be easily fixed from thence.

This was heretofore aimed at and endeavoured after, in all those various Measures derived from natural things, though none of them do sufficiently answer this end. As for that of a Barley corn, which is made the common ground and original of the rest, the magnitude and weight of it may be so various in several times and places, as will render it incapable of serving for this purpose; which is true likewise of those other Measures, an Inch, Palm, Span, Cubit, Fathom, a Foot, Pace; &c. none of which can be determined to any sufficient certainty.

Some have conceived that this might be better done by subdividing a Degree upon the Earth: But there would be so much difficulty and uncertainty in this way as would render it unpracticable. Others have thought, it might be derived from the Quicksilver experiment: But the unequal gravity and thickness of the Atmosphere, together with the various tempers of Air in several places and seasons, would expose that also to much uncertainty.

The most probable way for the effecting of this, is that which was first suggested by Doctor Christopher Wren, namely, by Vibration of a Pendulum: Time it self being a natural Measure, depending upon a revolution of the Heaven or the Earth, which is supposed to be every-where equal and uniform. If any way could be found out to make Longitude commensurable to Time, this might be the foundation of a natural Standard.

In order to which,

Let there be a solid ball exactly round, of some of the heaviest metals: Let there be a String to hang it upon, the smallest, limberest, and least subject to retch: Let this Ball be suspended by this String, being extended to such a length, that the space of every Vibration may be equal to a second Minute of time, the String being, by frequent trials, either lengthened or shortened, till it attain to this equality: These Vibrations should be the smallest, that can last a sufficient space of time, to afford a considerable number of them, either 6, or 500 at least; for which end, its passing an arch of five or six degrees at the first, may be sufficient. The Pendulum being so ordered as to have everyone of its Vibrations equal to a second minute of time, which is to be adjusted with much care and exactness; then measure the length of this String, from its place of suspension to the Centre of the Ball; which Measure must be taken as it hangs free in its perpendicular posture, and not otherwise, because of stretching: which being done, there are given these two Lengths, viz. of the String, and of the Radius of the Ball, to which a third Proportional must be found out;

which

which must be as the length of the String from the point of Suspension to the Centre of the Ball is to the Radius of the Ball, so must the said Radius be to this third: which being so found, let two fifths of this third Proportional be set off from the Centre downwards, and that will give the Measure desired. And this (according to the discovery and observation of those two excellent persons, the Lord Viscount Brouncker, President of the Royal Society, and Mon. Huygens, a worthy Member of it) will prove to be 38 Rhinland Inches, or (which is all one) 39 inches and a quarter, according to our London Standard.

Let this Length therefore be called the Standard; let one Tenth of it be called a Foot; one Tenth of a Foot an Inch; one Tenth of an Inch a Line. And so upward, Ten Standards should be a Pearch; Ten Pearches, a Furlong; Ten Furlongs, a Mile; Ten Miles, a League, &c.

And so for Measures of Capacity: The cubical content of this Standard may be called the Bushel: the Tenth part of the Bushel, the Peck; the Tenth part of a Peck, a Quart; and the Tenth of that, a Pint, &c. And so for as many other Measures upwards as shall be thought expedient for use.

As for Measures of Weight; Let this cubical content of distilled Rainwater be the Hundred; the Tenth part of that a Stone; the Tenth part of a Stone, a Pound; the Tenth of a Pound, an ounce; the Tenth of an Ounce, a Dram; the Tenth of a Dram a scruple; the Tenth of a Scruple, a Grain, &c. And so upwards; Ten of these cubical Measures may be called a Thousand, and Ten of these Thousand may be called a Tun, &c.

As for the Measures of Mony, 'tis requisite that they should be determined by the different Quantities of those two natural Metals which are the most usual materials of it, viz. Gold and Silver, considered in their Purity without any alloy. A Cube of this Standard of either of these Metals may be styled a Thousand or a Talent of each; the Tenth part of this weight, a Hundred; the Tenth of a Hundred, a Pound; the Tenth of a Pound, an Angel; the Tenth of an Angel, a Shilling; the Tenth of a Shilling, a Penny; the Tenth of a Penny, a Farthing.

I mention these particulars, not out of any hope or expectation that the World will ever make use of them, but only to show the possibility of reducing all Measures to one determined certainty.

These measures of MAGNITUDE (to which may be annexed the Notion of CONTENT) may be reduced to these Heads.

1 Line.	6 FURLONG.
2 INCH.	7 MILE.
3 FOOT.	8 LEAGUE.
4 STANDARD.	9 DEGREE.
5 PEARCH.	

Each of which is applicable either to Longitude, Area or Bulk: the last of which comprehends the Measures of Capacity.

III. GRAVITY Measures of GRAVITY (to which may be annexed for affinity the thing by which Gravity is measured, styled WEIGHT, Poise, Counter-poise, Plummet,) may be distributed into these kinds.

1 GRAIN.	6 STONE
2 SCRUPLE.	7 HUNDRED.
3 DRAM.	8 THOUSAND.
4 OUNCE.	9 TUN.
5 POUND	

IV. The

IV. The Gradual differences of that common Measure or the VALUATION or worth of all IV. Valor vendible things (to which may be adjoined that which is used as this common Measure, styled MONEY, Cash, Coin, Bank, Treasure, pecuniary, Mint, Stamp, Medal, Counter, Purse,) may be distinguished into

- | | |
|----------------------------|-------------|
| 1 FARTHING, <i>Dodkin.</i> | 5 POUND. |
| 2 PENNY | 6 HUNDRED. |
| 3 SHILLING. | 7 THOUSAND. |
| 4 ANGEL. | |

V. Unto the Measure or TIME may be adjoined for its affinity the word which signifies V. Time the Permanency of any thing in its existence, from its beginning to its end, DURATION, abide, continue, persist, endure, hold out, last long, persevere, everlasting, survive.

Time is usually distributed by the Revolution of the heavenly Bodies, or rather of the Earth and Moon, into such Spaces as are required to a revolution of the

Earth in its Orb; according to the

| Whole

1. YEAR, *Twelvemonth, Anniversary, Annual, Biennial, &c.*

| Parts; considerable as being the proper seasons for the

| Growth and ripening of Vegetables.

2. | SPRING, *Vernal.*
| SUMMER.

| Decaying of Vegetables, according to a lesser: or greater degree.

3. | AUTUMN, *Fall of the Leaf, Harvest.*
| WINTER, *Hybernal hyemal.*

Moon in it's own proper course about the Earth: to which may be adjoined the usual name given to the fourth part of this.

4. MONTH, *Menstrual.*
WEEK, *sennight, Fortnight.*

Earth about its Axis; according to the

| Whole

5. DAY NATURAL, *Quotidian.*

| Parts;

| Greater;

| Time while the Sun continues above: or below the Horizon.

6. DAY ARTIFICIAL, *Diurnal.*
NIGHT, *Nocturnal. Pernoctation, lodge.*

| Part of the day artificial, former: or later.

7. | MORNING, *Mattins, early, dawning, betimes.*
| AFTERNOON, *Evening.*

| Lesser parts of time; being each of them the 24th part of a natural day, called an Hour: or the 60th part of an hour.

8. | HOUR, *Horary,*
| MINUTE.

VI. AGE

YOUTH

VI. Life-time, or the AGE' of LIVING Creatures, (as particularly applied to Men, to which there is something answerable in other Animals; to which maybe adjoined the word SECULUM, *Age, Estate, Generation,*) is, according to common use, distinguished by such Terms as do denote the gradual differences of it.

The first and most imperfect State, when destitute of the use of reason: or having but little use of it, comprehending the two first ten years.

1 | INFANCY, *Babe, Child, Cub*
| CHILDHOOD, *Boy, Girl, Wench, green years.*

The less imperfect Age, subject to the sway of Passions; either more, or less, containing the third and fourth ten years.

2 | ADOLESCENCE, *adult, Lad, Springal, Stripling, Youth, Lass, Damosel,*
| *wench*
| *juvenile, Younker.*

*The perfect Age as to the Body: or the declining Age of the Body, but most perfect for the Mind, styled *vergens aetas*, or the Age of Wisdom; the former comprehending the space betwixt the 40th and the 50th and the latter containing the space betwixt the 50th and the 60th year.*

3 | MANHOOD, *virile, middle age.*
| DECLINING AGE, *elderly.*

The last and most imperfect Age, by reason of the decay of Vigor, which commonly happens both in Body and Mind, either according to the first and better part of it: or the last and worst part of this State, reaching from the 60th to the 70th and from thence for the time after.

4 | OLDAGE.
| DECREPIDNESS, *Crone.*

My thanks to Mark Dominus who alerted me to the work of John Wilkins when I read his web page at <http://blog.plover.com/physics/meter.html> Subsequently, I was able to visit the libraries of Wadham College, Oxford; Trinity College, Cambridge, The Royal Society, London; and the Library of Congress, Washington DC, where I was able to confirm Mark Dominus' observations and to research related materials. I have also had the opportunity to discuss John Wilkins and the metric system with members of the United Kingdom Metric Association, the Canadian Metric Association, and the United States Metric Association.

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