EARLY SCIENCE IN OXFORD

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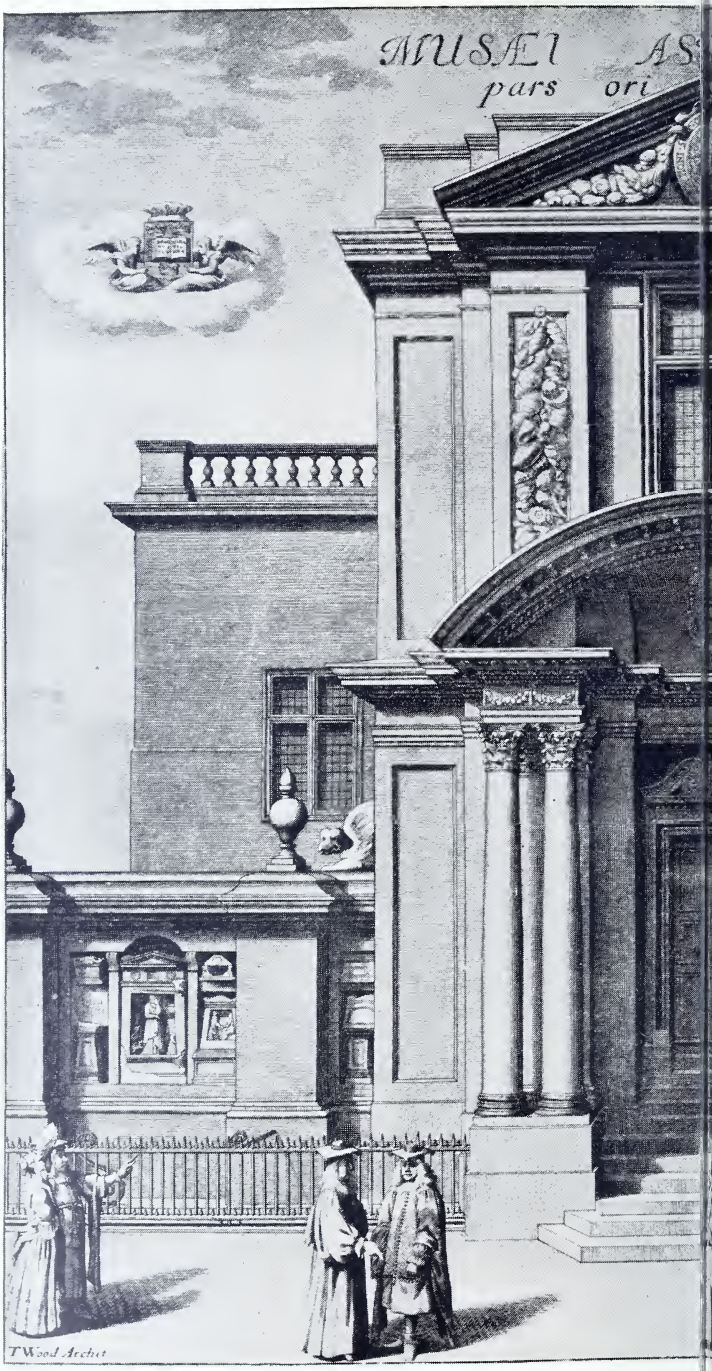

THE ASHMOLEAN MUSEUM FLANKED BY V

After an engraving by Michael Burghers, probably from

EN'S WALL WITH THE HOWARD MARBLES

wings lent to him by T. Wood, the stone-mason and carver

EARLY SCIENCE IN OXFORD

BY

R. T. GUNTHER

VOL. IV

THE PHILOSOPHICAL SOCIETY

OXFORD
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PREFACE

MEN are always attracted by an account of beginnings ; there may well be something to be learned from them as to the causes of success and of failure, and at any rate there is always a charm in reading the story of early days. It is therefore surprising that some of the most important records of the scientific movement which was strong in Oxford in the latter half of the seventeenth century, have never been published ; the reason probably is that the movement which the Oxford scientists helped to start attained such rapid and complete success elsewhere, that it eclipsed completely the scene of their early labours.

It may well be thought that the meetings of the Oxford Philosophical Society, which was formed in October, 1651, by Dr. Wilkins of Wadham and his friends, have sufficient glory, in that out of them, about ten years later, grew the Royal Society ; the Committee that organized that great institution had Wilkins for its Secretary, and at least two other Wadham men were among its twelve members. The connexion was acknowledged by the Royal Society when, at their fifth jubilee in 1912, they made a formal pilgrimage to Oxford and to Wadham. It is at least probable that some of the early communications, published in the " Philosophical Transactions " of the London Society, really belong to Oxford ; it will be seen that of the notes of this volume, some are from the Transactions of the Royal Society, but many are from the Transactions of the Oxford Society, which have never been printed before. Hence it is likely that some of the discoveries first printed in the London Philosophical Transactions had first been published in Oxford.

At any rate the claim of Oxford to be "one of the cradles of the Royal Society" was officially acknowledged by contemporaries. The Secretary in the fourth volume of the Transactions speaks of the "Oxonian sparkles," "which may be called the Embryo of the Royal Society"; the passage is quoted on page 4 of the introductory chapter.

An Oxford man may well be glad that the interesting minutes of the Oxford Philosophical Society, which have remained in manuscript till our own day, should at last be printed: the Minute-book in which they are recorded was long preserved in the Ashmolean Museum, to which the Society migrated in October, 1683; the building had been opened in May of that year. It is very fitting that they should now be edited by Mr. R. T. Gunther, of Magdalen, to whose researches the early history of Science, and especially of Science in Oxford, owes so much, and that they should appear in the very year when, thanks to the generosity and the learning of Mr. Lewis Evans, a worthy member of a family to whose researches knowledge of many kinds owes such wonderful advances, Oxford can boast a new and unique museum, a collection of old scientific instruments, housed, as is fitting, in the Old Ashmolean Building, which is now once more, at any rate in part, reclaimed for the purpose for which it was originally built.

J. WELLS,
Vice-Chancellor

The Warden's Lodgings,
Wadham College

5 *May*, 1925

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ADDENDA AND CORRIGENDA

Vol. I.

P. 18. For "new star" *read* "comet."

P. 217, l. 2 from end. *Delete* from "but owing" to "verified" on p. 218.

P. 218. *Delete* last ten lines and first two of p. 219.

P. 236. On the back of Green's *Advertisement* in the High St. was written—

> "*Here sons of Science and the Muses friend*
> *May find a younger brother and attend*
> *Who humbly hopes he may their watches mend.*"
> *Jackson's Oxford Journal*, 15 May, 1756.

P. 288, note [2]. Only Sir F. Crisp's more modern microscopes were sold as stated. The antique series were sold at Stevens's on 17 February, 1925.

P. 307. *Add* **236a. Lodestone.** All Souls College.

P. 325. *Add* E. Leigh, M.A., of Magdalen Hall. *Discourse of Measuring the Distance betwixt Place and Place.* London, 1671.

P. 366, l. 7. For "or" *read* "and."

,, l. 8. For "horizontal" *read* "vertical." *Delete* l. 9–12.

P. 394. For "Astronomer Royal" *read* "Dr. Hornsby."

Vol. II.

P. 2, l. 14 from end. For "sixteenth" *read* "seventeenth."

P. 70, l. 26. For "8 ft." *read* "5 foot 3 in."

P. 124. *Add* that the Nativity of Absolom Leach, London, 5 March, 1607, at Minstead, Hants, is given by Ashmole in his MS. Ashmole 240.

P. 243. *Add* that the epicyclic volvelles in MS. Savile 100 are based on those of Franciscus Sarzosus Cellanus of Aragon *In aequatorem planetarum.* Lib. i. Fabrica Aequatoris; ii. Veri motus ac passiones planetarum aequatoris ministeris investigare docens. Printed by Simon Colinaeus. Paris, 1526, for the years 1540, 60, 80.

P. 297, l. 14. For "was the first to observe" *read* "observed."

,, l. 5 from end. W. Ball did *not* discover that Saturn's ring is double.

P. 314, l. 7. Read *Promota.*

,, l. 25. James Gregory's nephew David was the Savilian Professor.

,, last line. *Add* "at the Radcliffe Observatory."

P. 326, l. 21. For "5 feet" *read* "5′" i.e. minutes.

EARLY SCIENCE IN OXFORD

Vol. IV.—THE PHILOSOPHICAL SOCIETY

INTRODUCTORY

THE rise of the premier scientific societies in the British Islands has been traced by a long line of historians beginning with Dr. Sprat in 1667, continuing with Thomas Birch in 1756, Dr. Thomson in 1812, Charles Weld in 1848, and ending with Sir William Huggins in 1906. The Society which is the subject of this book, known as The Philosophical Society of Oxford, took its rise about 1648 or 1649, soon after the appointment of Dr. John Wilkins as Warden of Wadham College on the 13th of April, 1648.

Dr. Wilkins, according to the account of Dr. John Wallis, had previously been living in London and had agreed with several other worthy persons to meet once a week to discuss the New Philosophy, as natural and experimental science was then called. His London circle included Dr. Wallis, Dr. Jonathan Goddard, Dr. George Ent, Dr. Francis Glisson, Dr. Christopher Merret, Professor Samuel Foster, and Theodore Haak. And their assembly was sometimes known by the name of the Invisible or Philosophical College.[1]

[1] *Life of the Honourable Robert Boyle*, pp. 20 and 24 in the 1744 edition of his collected *Works*, vol. i.

In June 1649, Dr. Wallis, on being appointed Savilian Professor of Geometry, followed Dr. Wilkins to Oxford. The latter appears to have been the leading spirit in convening " an experimental philosophicall clubbe " once a week, of which the chief members were Professor Seth Ward, Dr. Ralph Bathurst, afterwards President of Trinity College, Dr. William Petty, Dr. Thomas Willis, and divers others.

The meetings of the Oxford Philosophical Society were governed by a code of eight orders, an original copy of which is inserted in the first Minute book, long preserved in the Ashmolean Museum.[1]

" October 23, 1651. Ordered,

" 1. That no man be admitted, but with the consent of the major part of the company.

" 2. That the votes for admission (to the intent they may be free, and without prejudice,) be given in secret ; affirmatives by blanks, negatives by printed papers put into the box.

" 3. That every man's admission be concluded the next day after it is proposed ; so as at the passing of it there be at the least eleven present.

" 4. That every one pay for his admission an equal share to the money in stock, and two-third parts of it for the instruments in stock, answerable to the number of the Company.

" 5. If any of the Company (being resident in the University) do willingly absent himself from the weekly meeting, without speciall occasion, by the space of six weeks together, he shall be reputed to have left the Company, his name from thenceforth to be left out of the catalogue.

" 6. That if any man doe not duly upon the day appoynted performe such exercise, or bring in such experiment as shall be appoynted for that day, or in case of necessary absence provide that the course be supplyed by another, he shall forfeit to the use of the company for his default 2*s.* 6*d.*, and shall performe his task notwithstanding, within such reasonable time as the company shall appoint.

" 7. That one man's fault shall not (as formerly) be any excuse for him that was to succeed the next day, but the course shall goe on.

[1] Ashmolean MS. No. 1810.

" 8. That the time of meeting be every Thursday, before two of the clock."

In the following year the Oxford Society was strengthened still further by the arrival of Dr. Goddard, who had been appointed Warden of Merton on December 9th, 1651. Until September, 1652, they met in Dr. Petty's lodgings in the house of an apothecary, for the convenience of inspecting drugs, etc., as there was occasion. After Dr. Petty's departure to Ireland they met, though not so constantly, in Dr. Wilkins's apartments in Wadham College. The young Society evidently suffered greatly from the distractions of the times, but by the winter of 1657–8 it was " restored," [1] only to be unsettled again by the departure of Dr. Wilkins on being made Master of Trinity College in Cambridge, whither he removed in September, 1659. On the other hand, with the arrival of Robert Boyle in Oxford in the summer of 1654, additional interest was imparted to many of the meetings, and later on Crosse's lodgings on the site of University College in the High Street, where Boyle lodged, became the occasional meeting-place of the Society.

After the restoration the Society divided. Several of the most prominent members withdrew to London, where they joined the professors at Gresham College, meeting there with other inquisitive persons after the astronomy and geometry lectures on Wednesdays and Thursdays in term time. Determined to keep their company select, the members of the London branch limited their numbers to fifty-five, " except such as were of, or above, the degree of Baron." The King was understood to approve of their meeting, and Boyle, Wren and Ashmole were all in the first list of members. On July 15, 1662 they received

[1] " I have not heard better news, than that the club is restored at Oxford." Letter of Dr. Petty to Boyle, dated Dublin, Feb. 17, 1657/8.

a charter incorporating them under the title of The Royal Society.

Aubrey's account, which is confirmed by Sprat's *History of the Royal Society*,[1] makes the Oxford club play a more prominent part in originating the Royal Society, than Dr. Wallis assigns to it. This is further confirmed by the facts that Wilkins was the chairman of the company which met on November 28, 1660 to organize the Royal Society, and that at least two others of the twelve were members of the Philosophical Club of Wadham College. An official acknowledgement of the relationship of the Royal Society to the older Oxford Society is contained in the early pages of those printed *Transactions* of the Royal Society, whose very name—*Philosophical*—is an enduring memorial to the name which had long before been adopted by our first scientific Society in Oxford. The Secretary of the Royal Society, in dedicating the fourth volume of the *Philosophical Transactions* to Bishop Ward of Salisbury, and previously of John Wilkins's College in Oxford, explicitly states :

" You added Life to the Oxonian Sparkles, I mean, that Meeting, which may be called the Embryo or First Conception of the Royal Society,"

and as a matter of fact the members of Boyle's Invisible College were sometimes known as members of the " Oxonian Society."

The dispersal of so many of her leading men of science naturally resulted in the abandonment of meetings; and while Oxford still retained some of the best researchers of the time, we have more information as to their work for science, than as to their reading of papers to each other. The Great Plague, however, put a new complexion on things. On 28th of June, 1665, the weekly

[1] Aubrey's *Brief Lives*, ii, 301, was begun in 1680, and Sprat's *History* is even earlier, 1667.

meetings of the daughter Society in London were discontinued, and not only did the Oxford members wisely remain at home, but they were joined by several Fellows of the Royal Society who deemed it prudent to leave London. Oldenburg, who was brave enough to stay at his house in Pall Mall during the Plague year, received an interesting letter from Boyle to the effect that the Oxford Society was renewing its youth in his rooms.

" *Oxford, Sept.* 30, 1665.

" To do any thing that is philosophical, I see I must withdraw from this place, where the making and receiving of visits takes up almost all my time. Yet I had the honour of one that made me amends for all the rest, which you will easily believe when I tell you that it was made me by Sir Robert Moray, Sir Paul Neile, Sir William Petty, Dr. Wallis, Dr. Coxe, Cap. Graunt, Mr. Williamson (and afterwards Mr. Secretary Morris, who yet knew nothing of the company he found). These gentlemen I had put in mind, that there being now at Oxford no inconsiderable number of the Royal Society, insomuch that the King seeing Sir Robert Moray and me with some others was pleased to take notice of it; I did not know why we might not, though not as a Society, yet as a company of virtuosi, renew our Meetings; and being put upon naming the day and place, I proposed Wednesday as an auspicious day, being, as you know, that of our former assemblies, and for the place till they could be better accommodated, I offered them my lodging, where over a dish of fruit we had a great deal of pleasing discourse and some experiments that I shew'd them, particularly one, which was thought odd enough, of turning a liquor like fair water in a moment into an inky substance, and presently changing that, first into a clear liquor, and then into a white one almost like milk. That Mr. Oldenburg was mentioned and drunk to by some of us, I have scarce time and paper to inform you, and that you were wish'd here, you will, I hope, easily believe, if you remember that there was in this company, besides Sir Robert Moray, Sir William Petty and Dr. Wallis,

" Your very affectionate friend,
" Robert Boyle."

During this period several numbers of the *Philosophical Transactions* were printed at Oxford. Like the preceding four numbers, Number 5 dated Munday July

3 1665 was "printed by T.N. for John Martyn and James Allestry, Printers to the Royal Society." But at the end, on page 94, occurs this ominous note:

The Reader is hereby advertised, that by reason of the present Contagion in London, which may unhappily cause an interruption as wel of Correspondences, as of Publick Meetings, the Printing of these Philosophical Transactions may possibly for a while be intermitted; though endeavours shall be used to continue them, if it may be.

No. 6, dated Monday November 6, 1665 bears the imprimatur of *Rob. Say, Vice-Cancel. Oxon.* It is marked "Oxford, Printed by Leonard Lichfield: for Richard Davis 1665."

No. 7, dated Monday December 4, 1665 was "*Published with License*, Oxford, Printed by W. Hall for Ric: Davis 1665."

No. 8, dated Monday January 8, 1665/6 was "*Published with License*, Oxford, Printed by W. Hall for Ric: Davis 1669" (*sic*).

No. 9, dated Munday February 12, 1665/6 is again marked "London, Printed for *John Martyn* and James Allestry, Printers to the Royal Society 1666."

Incidentally it may be noted that while the Oxford printers published on "Mondays," the London printers preferred "Mundays."

Oxford men residing in Oxford not infrequently wrote letters to the London Society. For instance, Austin in December, 1664 sent a paper of proposals about the planting of fruit and timber trees.

On February 12, 1679–80 certain observations on the Generation of Moths and Oysters,[1] which had been made by Mr. Hyde of Oxford, were communicated to the London Society.

"In the first place I present to you the little inclosed paper, which contains three or four embrios of moths: for every one

[1] *Royal Society Letter-book*, viii, p. 89.

of those little things hath a worm in it. If you observe upon hangings in chambers, you shall see in some places the nap or wool sheared off, that the place is left bare the breadth of about half a crown piece ; and very near that bare place you shall see one of these things sticking upon the cloth, like a little roll of lint or flock, which is always of the same colour with the cloth or hangings, from whence it was sheared off. These, which I have sent, are partly red and blue, because I took them off from a Turky carpet, which had such colours in it. I suppose, that at the end of summer the old moth lays her worm or seed, and gives it this artificial covering to preserve it against the cold winter. As also the green beetle, which we call a rose-fly (because they love to be upon roses) doth not only earth itself half a foot deep in the spongy ground of beds in gardens, but those, which do not happen upon that convenience, do find out another shift : for example, of the house of a man, who made baskets and other things of twigs, the floor of his house being hard earth, was covered with the shreds and refuse matter of small twigs as if it had been strewed with rushes, under which lay many of these rose-flies, each of them being inclosed in a case of earth, which covered his whole body totally. These cases, when broken, are perfectly smooth within, but the outside was rugged. My wonder is, by what art the fly could cement this earth so as to make it stick together, and secondly how it could close itself within, so that the case should be perfectly shut up on all parts. These things I did, some years agon, present to Dr. Compton, bishop of London, for his friend Mr. Marshal of Winchester, who hath been the most curious observator of insects, and hath often spoke of printing a large volume about them.

" Concerning the generation of oisters, I lately observed sticking upon some of their shells little knobs of matter between white and yellow, which, if you mark it well, are so many knots or clusters of young oisters, which I have viewed in a magnifying glass, and found one side convex and rugged, and the other inclining to concave, as is the figure of an oister. Within each little particle of the cluster was water mixed, with some more fat and unctuous matter. I suppose, that about December the oister spawns, and that by the sides of her shell issues out the matter, which is for generation of the young brood : which being issued out sticks upon her shell, and is there nourished up for a time, till either nature or the tossing of the sea separate them. I suppose them to begin breeding about December, because at the beginning of this present January I found these clusters so far grown, as to be perfectly formed to their shape outwardly, with fluid matter within them without form ; there being also

sticking to the same shell some of perhaps the former year's breed, as big as six-pences, whose shells were perfectly hard, and some pretty little meat within them, whose shape was perfect within, in all points. If you please to mind it, doubtless you may find many of them in any parcel of oisters.

" Those things, which we call crabs-eyes (which, for want of true ones, the apothecaries sometimes make into that form out of powder of egg-shells) are found in the little prauns or crafish at the time of spawning: for I found them when they had the little round particles of their seed or young ones sticking in their posteriors. But those things called crabs-eyes are only in the male fish, such whereof hath two of them in his head, standing on the edge, like a couple of millstones or wheels. Hitherto you have my own experience. But I have been informed concerning the little fishes called bleaks, that the reason, why they leap above water at Midsummer, is not to catch flies, but because they are at that time of the year troubled with a little worm in their guts: which may be inquired into better at summer. I have been also told, that the butter-flies are bred of the caterpillar, which in summer is green upon the leaves, and at winter grows hairy and hirsute, bodying themselves (as I have seen) all the winter in a strong cobweb of their spinning, hanging within a bush in any hedge: but whether at spring these hirsute creatures come to be butter-flies, may be easily found: for my part I doubt it, &c."

But Mr. Henshaw was of opinion, that mr. Hyde was mistaken in his notion, that the oister by some means conveys its young so, as to make them stick on the outside of its shell; for that those young shell-fish, that stick upon the backs of oisters, were for the most part of another kind, as the couter-fishes and the aurismarina, &c. and that when many oisters chance to cleave to the shell, he conceived them to be cast there from some other spawning oister.

Dr. Plot sent frequent communications. One on January 31, 1682–3 concerned

" an unsuccessful trial made at Oxford, of making an infusion of rhubarb, injected into the guts of a live dog, pass coloured into the lacteæ; as also some doubts, whether the holes found in the body of the broad worm were mouths, and not air-vessels.* To which Dr. Tyson answered, that it would be difficult to have a worm of eight yards long nourished by so small a part as that

* *Letter-book*, vol. viii, p. 257.

supposed to be the head, where also he could find no hole with a microscope; that the worm was full of chyle, when he put it into spirit of wine; and that it presently muddied the wine, and became more empty: that he found one joint of the worm separated, and at a good distance from the rest; and yet that joint was alive and full of chyle: that the holes on the body of the worm were not so regular on each side, as the air-vessels of the silk-worm.

A cursory glance at the early minute books of the Royal Society shows how numerous the scientific contributions from the Oxford members of the Society were, and every now and again we meet with notes that show that scientific gatherings of a more or less formal nature continued to be held in Oxford after the departure of the visiting Fellows of the Royal Society in 1666.

While the building of the Ashmolean Museum was in progress, we read of "an ingenious assembly" meeting in Oxford to discuss several philosophical matters.[1] Plot wrote a letter to the Royal Society, dated at Oxford 5 Feb. 1682/3, to the effect that "the company met as usually" and discussed experiments relating to glass-making, to the pores of a tapeworm, to the weights of bodies supported on a spiral wire *in vacuo* and *in aere*, to the demonstration of lacteals in a live dog, and, as if this programme was not sufficient,

"To fill up the time of this meeting, one of the company gave us an account of some strange effluviums from the body of a master of arts of his own college, which both he and some others of our company had frequently seen. This gentleman is now about 21 years of age, who, whenever he puts off his clothes in the dark, there appear sparks of fire between his shirt and his waistcoat; whence they issue so violently, that they may be plainly heard to crackle, as sparks do sometimes from wood, and this without any frication, or other violence used.

"There was also a problem started, viz. why the arterial blood is not conveyed by a direct passage to the liver, but first through the vessels belonging to the intestines: whereas to all other

[1] Birch, *Hist. Royal Society*, iv, p. 180.

secretory viscera it is conveyed directly out of the aorta. The arteria hepatica seeming to be to the liver as the arteria bronchialis is to the lungs, only for the use of the particular part.

"Mr. GOULD of Wadham College brought in the draught of a prodigious polypus found in a man's heart here at Oxford, which I have sent you here inclosed with his account of it.

"The POLYPUS.

"The person, in whom we found this polypus, was a poor labouring man, a mere stranger to the town, so that there cannot be given so particular account of the symptoms he laboured under as the thing requires. He died above a year and a half ago, no relations then or since inquiring after him. If there be much heed to be given to the usual outward medical signs, he seemed to be of a melancholic constitution. As far as we could learn from the vulgar, who conversed with him in his illness, for he consulted no physician at all, the distemper he was infested with, was some fits of the falling sickness; an obstinate quartan of above a year's continuance; a deep jaundice to that degree, which is called the black, with its usual consequent, an universal settled cachexy; a sense of much pressure at his stomach (as he termed it), very great shortness of breath, with grievous involuntary sighings, prodigious palpitations of his heart, frequent swoonings. He died, according to the judgment of his attendants, in a shivering fit of his ague, with convulsions like those of the epilepsy, not without foaming at the mouth. Our design, upon this fair occasion of a body wholly at our own disposal, was to make a muscular dissection; so that a nice particular scrutiny was not made in every part affected: what appeared obvious is this, viz. a liver upon deep incisions appearing bloodless, stuft throughout with a yellow gritty sandy substance, supposed to be gall concreted by a morbid acid. The like substance of a darker hue being also in the vesicula bilis, his spleen only large, and of too soft loose a texture. His omentum all rotten, his stomach black with membranes extremely flaccid and thin, appearing mortified; and upon cutting of it out, though tied close, it sent forth an intolerable sourish rancid scent beyond that of aqua fortis: his lungs were distended, and full of a purulent froth; his veins of an extraordinary bigness, particularly the jugulars, where the polypus past, were $\frac{3}{4}$ of an inch diameter; an argument sufficient to demonstrate polypus's to be of a long growth, and not extemporary concretions made in vessels, after death, as some fancy.

"The draught of the polypus I thought to have taken off by

the new way, and afterward with a pen to have perfected it something fairer than now I send it; but the attempt did not succeed: so I hope, Sir, you will pardon the sending of it thus defaced with those blots in correcting the description of it; but hereafter, if it be worth publishing, the draught may be amended. What I have written is all that occurred to my mind at the short warning I had for this description; so I hope you will excuse all faults, &c." [1]

A letter from Dr. Plot, dated at Oxford 12 February 1682/3 gave an account of what had passed at another philosophical assembly there:

"The company being met, the method and success of the experiment on Friday upon the spring of a watch in a well exhausted receiver of an air-pump, was first discoursed of. The trial whereof was made in this manner: we took a watch and a pendulum clock both of the best reputation amongst us for going well, and set them exactly together on Thursday in the evening, and locked them up in a room for fifteen hours, that we might first know what difference there would be between them in all that time, so that allowance might be made when we come to trial of the experiment. In the morning we found them differ a minute and a half: however we proceeded to the trial, and hung the watch up in the top of a tall receiver, which being well evacuated, we locked the watch and clock up again for four hours; then returning again, we found the watch had lost in that little time near three minutes. Then locking them up again, we returned not after till twelve hours were expired, when we found the watch had lost near nine minutes; whence making some abatement for what the watch lost of the clock the night before, we concluded, that the watch had lost seven minutes at least. But some objections being made, upon a little bubble or two that appeared upon the hole under the bottom of the receiver, through which the air is exhausted, and the gages being sunk a little, that possibly some moisture might be gotten into the receiver (upon some defect of the stop-cock) which might affect the spring of the watch, and occasion this difference; it was desired, that further time might be allowed for frequent trial of this experiment, hasty determinations in such nice matters being looked upon amongst us as very pernicious.

"The same day we also tried Mr. Lister's experiment for tinging the lacteæ, with an infusion of indigo, which upon filtra-

[1] Birch, iv, p. 182.

tion being found to be no true tincture, the liquor being transmitted clear, it was ordered, that Mr. LISTER should be wrote to, to know how he made his tincture; and that for this time a tincture of Venus should rather be used: but whether by reason of the astringency of the injected liquor, or because we waited for the event not long enough (though the dog was kept empty and fasting above two days, and 12 ounces of liquor were injected at least) there was not the least appearance of any tincture in the lacteals. However, we are not discouraged by these many disappointments, but many other tinctures are thought of, and frequent trials will be made, some whereof were ordered at this meeting.

" Then there was an account given of the dissection of the genitals of a boar made at Christmas, which animal (as they all agreed) has evidently four distinct seminal juices, and as many distinct exits for them: the exit of the prostates, whose juice is extreme clammy, and very like the gluten in the cervix uteri of pregnant cows, being a hand's breadth and more distant from the rest; and all the other exits (but that of the prostates) about the crista gallinaginis. The prostates are covered with very strong muscles to squeeze out the aforesaid clammy juice. The juice brought from the stones by the vasa deferentia was very thick and white, and the epididymides were full of the same. There are two distinct sorts of vesiculæ seminales; the one extreme large, membranous, like the skin containing the spawn of fishes, which discharged a vast quantity of very thin, almost limpid, juice on the jugum of the crista gallinaginis; the other vesiculæ smaller, nearer the urethra, were more thick and glandulous, yielding a thick white juice, just under each side of the crista. . . . There is a valve just behind the exit of the prostates.

" Another of the company gave a strange relation, but a very true one, how a friend of his, a master of arts of this university, who was exceedingly troubled with deafness, had found out a remedy for it, in great measure at least, by going into the bellfry of his college on the 1st of November last, where staying for some time among the bells (which are the biggest in town) he found his hearing so well restored, that it continued with him near two months after; and decaying, he repaired to the same remedy, and recovered it again, as he constantly now does, as often as he finds that sense to fail him. The relations of Mr. BOYLE and Dr. HOLDER concerning persons, that could hear better in London streets upon the ratling of coaches, with the reasons of it, were hereupon discoursed of; but this being more considerable in

divers respects, I was however ordered to acquaint you with it. Your's, &c."

Upon a discourse about the polypus found in a dissection of a man's heart at Oxford, Dr. KING mentioned his having predicted a polypus in a patient four or five days before he was troubled with it; and that he afterwards cut it out of his heart, being as big as his fist.[1]

Further injection experiments were described by William Musgrave of New College in a letter dated February 20, 1682–3.

Two several experiments made with two tinctures of indigo injected into the duodenum of two dogs, according to Mr. LISTER'S direction; in both which experiments the lacteæ appeared coloured blue in the same proportion as the tinctures themselves were to one another.

This account was ordered to be registered; and, for the greater authority, Mr. MUSGRAVE was to be desired to name the persons, who were present at his making the experiments. His account was as follows:

"I have lately repeated Mr. LISTER'S experiment mentioned in the last transaction, much after his own manner, and with success: I syringed about ℥xii of a moderate tincture of indigo, without any filtration beforehand, into the ileon of a dog, which had had no meat nor water for sixteen, and but little meat for twenty four hours before the experiment, the guts again being put into the abdomen, &c. Three hours after I returned, and upon opening the abdomen of the dog (which had been kept muzzled all this while) I saw several lacteal veins of a bluish colour: they were easily seen, when the mesentery lay loose, but upon stretching it did disappear. Two days after I tried another experiment, in which I syringed ℥xii of tincture of indigo into the ileon of a lusty dog, which had been kept fasting thirty six hours before. Though my experiment did not succeed as I expected, yet I met with this observable; upon putting in the guts after I had injected the tincture, I saw four or five of the lacteals full of a deep azure liquor; which was the happy event of my tarrying longer than ordinary about sewing up the gut. I might urge several arguments from anatomy to prove, that those vessels, that appeared thus more or less blue, were really lacteals; but if I argue only from the colour it may be sufficient. Now the colour of these vessels being (in both the experiments)

[1] Birch, iv, p. 183–4.

differing from that of the blood vessels; and there being the same differences in the deepness of the colour of the vessels that was observed in the deepness of the colour of the tincture, I am apt to think, that I do not impose on myself in this matter. There were two gentlemen of this university, who are no strangers to anatomy, and were pleased to assist me in the experiments before mentioned, and can attest the truth of what I write to you.

" You will have a larger account of the testicles of a boar, as soon as the author of the account, already sent to you, has any opportunity to try over his experiment a second time.

" That some polypuses grow in a very little time may be true, but 'tis hard to think that all do so; for when a polypus is the cause of the palpitation of the heart for several years, and the palpitation increases, we may suppose, that the polypus increases also.

" The great haste, that I am in, does force me to write after an unusual manner to you, and perhaps not express myself clearly to you; but I hope you will excuse, &c. New-college, February 20, 1682/3."

In the same month Dr. Pit of Oxford wrote a letter to Dr. Plot,

giving an account of some trials made with a magnet upon several preparations of crocus martis, some of which applied very well to the magnet, and others not: as also of a child of eight months old having the dura mater in all parts firmly fastened to the cranium. The letter was as follows:

" I communicated your last to the company, who own themselves much obliged to you for the information you gave at the last meeting: but we cannot think we have yet merited so far, as the public notice of the Society, and desire only their pardon, or at most a favourable acceptance of those little things we can hence present you with. Mr. MUSGRAVE and Mr. PACKER, &c. who made the experiment of tincture of indigo, are fully satisfied, that they saw it in very many of the lacteæ, but they intend to make further trials of that kind, and design a more perfect account, than they can at present present you with. We made a few experiments of crocus of steel applying to the magnet, and crocus from the distillation of sal armoniac on filings: the *crocus cum sulphure*, readily applied to the load-stone; but especially *tart. chalybeat.* though the metalline parts had been so far divided by the tartar, as to pass through the paper filtre: but the crocus from the distillation of sal armoniac, after it had

been some time in a strong fire, and the *crocus martis astring.* (calcined in a reverberatory) did not take the least notice of the magnet, and yet we doubt not but these crocuses with fluxing powder may be reduced into steel. These little trials are of some use in medicine, but whether they may be to any advantage compared with Dr. LISTER'S observatory, we refer to you. I am confident there is no black lead found in Dorsetshire; you may have flint and chalk enough there, but nothing like that mineral. I saw the dura mater in a child of eight months old firmly in all parts fastened to the cranium. The impressions frequently seen in the ossa sincipitis of the arterial branches, where the dura mater was, as usually disingaged from the skull, make it probable it had been affixt to it. But of this I desire you to enquire: your answer to it, and a further account of what shall be the next week observed by the Society, will very much oblige us, particularly, &c." [1]

Gould of Wadham College was evidently a keen experimenter. On March 6 1682/3 he wrote

that a tincture of stone-blue appeared fresh not only in the lacteæ, but also in the *receptaculum* and *ductus thoracicus*: that the same tincture with an acid turned into a lively red, but with an alcali the blue was more intended: that a vial filled to the neck with oil of vitriol mixt with a little water continued to run over several days together: and that oil of tartar *per deliquium* falling on a deal shelf was in some time covered with a perfect nitre.[2]

At the meeting of the Royal Society at Gresham College on October 24th, 1683, several members of the Society and others, meeting at Oxford for making experiments,

communicated an observation of the weight of the earth of the Nile about the time of the overflowing of that river, but especially a relenting of a piece of nitroon or nitre, brought from Ægypt, which continually wet the papers, on which it lay, both in rains and dry weather, from the middle of June till about the end of September.

There was also an intimation of fish having lived in a cistern upon rain-water only for half a year, till upon the freezing of the water they died by breaking of the ice.

There was also mention made of a probable way of tinging white marble black, but it was not discovered.[3]

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[1] Birch, iv, p. 189. [2] *Ibid.* p. 190. [3] *Ibid.* p. 220.

The Ashmolean building, finished early in 1683, was opened on May 23 of that year, and The " Royal Society in Oxford," commonly known as " The Oxford Society," lost no time in making use of the premises. Their first formal meeting there was convened for the evening of October 26th, and a report of the proceedings was sent by William Musgrave to Aston for communication to the Royal Society in London. Regular Minutes of subsequent meetings were kept, and it is now our privilege to have the opportunity of presenting these in print for the first time.

TRANSACTIONS OF THE PHILOSOPHICAL SOCIETY OF OXFORD, 1683–85

PRINTED FROM MSS. ASHMOLE, 1810–12

The Minutes of the Oxford Society, beginning October the 26th, 1683.

The Company meeting, in ye Naturall History School, Oct: 26th, 1683, desired Dr. Wallis, to take on him ye trouble of ye Chair; and appointed Mr. Musgrave, to take ye Minutes of their Discourse; after which, Dr. Plot made a learned Discourse on Earths; [1] an Abstract of which is as follows:

[1] At the Royal Society Meeting on Oct. 31, 1683, "A letter of Mr. Musgrave to Mr. Aston, dated at New College Oxford, Oct. 27, 1683" (R.S. Letter-book, ix, p. 35) "was read, mentioning, that the company meeting the night before in the natural history schools there, Dr. Plot made a discourse concerning earths; which, when perfected, would make a table of all kinds of earths, such as the Society had desired of him at his being in London.

"In this letter it was asserted, that hard tempered iron upon striking yields a larger spark, and deeper in colour, than steel will; and that a magnet carried in a pocket attracted unequally at different times.

"It was mentioned in this letter, that in the assembly it had been ordered to try the way of softening and hardening iron; the alteration in the poles of a needle after cutting it in two;

He divides Earths into barren, and fruitfull; 1 the barren are void of salts; and are either, 1 loose, and friable, as Sandy, and gravelly Earths; 2ly tenacious, not ductile; but chopping in ye fire, as all stiff clays: 2ly ye fruitfull are saline, or Metalline; 1 ye Saline, ductile, or inductile; 1 ye ductile (i:e: capable of figure, and not chopping in ye fire) are either, 1 gravelly, as loam for brick, or tile: 2ly not gravelly, as figuline Earth; 3ly not gravelly, but burning white, as tobacco-pipe clay. 2ly ye Inductile (i:e: no matter whether ductile, or no,) are either 1 gravelly, as Marles; 2ly not gravelly, as ffullers earth; 3ly scoring best when dry, as chalks: 2ly ye Metalline are 1 impregnated, but weakly, with minerall, and metalline vapors, and scoring best when wet, as Ochres; 2ly Impregnated strongly, as all Boles.

Upon ye account of the last branch of this Scheme, it was order'd by ye company, that some Person should try, whether Boles burnt will apply to ye magnet? Dr. Plot was pleas'd to take this province on him: This gave occasion to a farther Discourse concerning magnetism; twas deliver'd as an observation, by Mr. Ballard, that a Magnet, carried up, and down, in his pocket, has been found to attract sometimes more, then at other times.

'Twas order'd to be tryed, whether bricks, heated, and afterwards growing cold, in a posture North, and South, will acquire a verticity?

Mr. Ballard promis'd ye Society to try this experiment.

and whether bricks heated and afterwards grown cold, lying north and south, will acquire a verticity.

"It was desired by some present, that if any of the Society had taken the trouble of defining and distinguishing the several sorts of earth in England, they would produce their draught together with Dr. Plot's.

"Mr. Lister promised to bring in a table of sands and clays, such as he had found in the north of England; as also some samples of the things themselves."

After this, an enquiry was made into ye Nature, and reason, of strikeing fire ; 'twas propos'd as a Quære ? how Tobacco-pipes (in which there is not ye least suspition of a Sulphur) come to strike fire ? 'Twas given in as an observation, that hard'ned Iron (such as Horse-shoes are made of) will yeild flakes of fire, larger, and of a deeper red, than steel will ? *This* led ye Company to discourse of hard'ning, and soft'ning, Iron.

Dr. Plot was desired to give an account of ye methods, us'd by ye Smiths at Wolverhampton in these cases : 'Twas observ'd, that an ingenious Smith of Oxford, us'd to soften his Iron, by heating it moderately, then dawbing it over with Tallow, and afterwards heating it red hot, and letting it cool gradually in the fire as that went out.

November the 2nd, 1683.

The company being met ; it was order'd, that a Loadstone should be cut *secundum Axem*, and then one half of it *secundum Æquatorem* ; and triall be made, whether ye parts will retain ye same poles, which ye whole had : Mr. Piggot propos'd an experiment viz: that ye needle of a compass will change it's place, at ye approach, of ye *centre* of gravity of a bar of Iron, drawn up perpendicularly, from ye earth, by it : He was desir'd to try this experiment, before ye company ye week following : Mr. Ballard was desir'd to try ye experiment, mention'd in ye præceeding Minutes, concerning burnt bricks &c. on a bed of Cork ; and examin, whether, when cold, they will acquire a verticity : Dr. Wallis was then pleas'd, to shew us a draught of a chimney-peice, in ye Rectory House at Helmsdon, in Northamptonshire, which has ye date of ye Lord 1133 on it, in Numeral figures ; from whence it seems to appear, that numerall figures were in use

amongst us, abovt 120 years sooner, than is generally suppos'd:

Dr. Aldrich discours'd of ye necessity of (at least) two drums in ye ear, (as *Mengoli* affirm's there *are*, Transactions no. 100) otherwise in probability, he said, fourths would be agreeable notes: The Anatomists are desir'd, to make use of what opportunity they shall have, for a farther enquiry into this matter: Mr. Ballard observ'd, that an arm'd Loadstone takes up most filings, at ye *edges* of ye teeth.[1]

November the 9th, 1683.

Dr. Plot was pleas'd to shew us some leaves, acorns, and a large Branch, of an English Cork-Tree, which grows at Abingdon in Cambridgshire; after which, ye Dr. show'd us a peice of white marble, which He had stain'd to a dusky black; ye color entring $\frac{1}{4}$ of an inch, or more. The Dr. then acquainted ye Company, that he had caus'd a Magnet to be cut *secundum Meridianum*, as he was desired; He produc'd ye peices; We found, that ye South pole of one of them, drew ye North pole of ye other.

A Letter from Mr. Aston dated Nov: 1st 83, was read, which mention'd a compendious way of keeping ye account of ye Barometer, invented by Martin Lister

[1] R.S., Nov. 7. A letter from Mr. Musgrave to Mr. Aston, dated at New College, Oxford, Nov. 3, 1683 (R.S. Letter-book, ix, p. 37), was read, giving an account of the cutting in two a magnetic needle; of a loadstone capt taking up most filings upon the edge of the iron; and of an opinion suggested by Dr. Aldrich, that the ear must have two tympanums for the judging of harmony; since if harmony proceeds barely from vibrations concurring, three-fourths would be the sweetest notes. Birch, p. 224.

Esq.; as also two letters from Mr. Lister; ye first* of which propos'd this Anatomicall Problem, viz: to take out ye *Cæcum* of a Rabbit; which this Gentleman suppos'd might cause a constant *Diarrhæa* in ye Rabbit; The second† contains part of a discourse concerning ye use of ye *Cæcum*.

Mr. Aston is desird, by ye Company, to send down one of those papers, which shews Mr. Lister's compendious way, of taking ye accounts of ye Barometer: after this Mr. Piggot's experiment (mention'd in ye Minutes of November ye 2d) was tried, and found to succeed before ye Company; He is desir'd to prosecute it, and to give an account of it.

Then Dr. Plot acquainted ye Company, with ye severall methods, ye Smiths use at Wolverhampton, in Staffordshire, in hard'ning, and soft'ning, their Iron; the account follows:

They harden Iron at Wolverhampton, with burnt hoofs, Horn, fountain salt, Bay-salt, Sublimat, Urine, and old burnt leather, and Tartar, all mix't together, and reduc'd into a powder, in which they roll ye Iron red hot, to which it will stick, and so put it into ye fire again to harden; which it does onely on ye outside to ye thickness of a shilling.

They have two sorts of hard'ning in this Towne, tough-hard'ning, and brittle-hardning, which they use according as ye Instruments they make, require: When They intend to tough-harden, they use old burnt shooes, Urin, & Wood-soot, with which when any thing is hard'ned, it will not scale in ye least.

But when They would harden a thing to ye height, which renders it brittle, (upon which account they call it brittle-

* This letter has no date, is entred in ye Letter-book belonging to the Society, next to Mr. Aston's of Nov. 1st 83.

† The 2d Letter is printed. Phil. Transact. numb: 155.

hard'ning) they use old shooes burnt, tups-horns, Bay-Salt, and Argall, or Tartar, with which when any thing is hardn'ed, it receiv's ye highest polish.

Though I was told by another, as a secret, that ye toughest hard'ning was made by ye juice of nettles, Mans Urin, & Linseed oyl, and ye highest by quenching Iron red hot in ye juice of Mous eare: thus far ye Dr.'s Account.

Dr. Power's experiment was orderd to be tryed, viz: whether a bar of Iron heated, & when cold, struck violently, will loose it's polarity?

Dr. Smith has undertaken to procure a new Chart, made by a Gentleman, (whom ye Dr. knew at Constantinople,) who has lately travell'd from Muscovy to China; by this Chart it appears, that those two Countries are not so far distant from one another, as our Maps commonly make them.

November the 16*th*, 1683.[1]

Dr. Plot shew'd us ye 2 peices of a Magnet, which he had lately cut *secundum Æquatorem*; they were now 2 Magnets, and referr'd to one another, as when they were one whole; contrary to what was found in ye division *secundum Meridianum.*

Dr. Wallis's letter,* concerning ye Antiquity of ye use of numerall figures, here in England, was read;[2] as also a letter from Dr. Tyson,† which gave an account of a

* Printed Phil. Transactions No. 154.

† Dr. Tyson's Letter dated from London Nov. 10, 1683. Mr. Leigh the author of this account of Chylification has printed a Discourse concerning this subject in the Phil. Transactions, No. 162, where he speaks more fully of this Menstruum.

[1] Letter from Mr. Musgrave to Mr. Aston dated New College, Nov. 17, 1683. (R.S. Letter-book, ix, p. 52.)

[2] Letter from Dr. Wallis to Dr. Plot, dated Oxford, Nov. 16, 1683. R.S. Letter-book, ix, p. 46. Printed in Phil. Transactions, Dec., 1683.

hairy Substance, haveing some bones in it, that was found, not long since, in one of ye ovaria, of a woman, at London : on which occasion, Dr. Plot shewed us a large ball of hair, taken out of ye stomach of a Cow ; 'twas observ'd that ye grain of ye hair, was all one way, which was caus'd (possibly) by ye motion of ye ball in ye stomach.

Mr. Piggot read an account of Chylification, which was put into his hands by a freind of his, who desires to be anonymous to us : The Author say's, he has a liquor, (not easy to be distinguish'd, by ye tast, from $\Omega\,\Theta$[1]) some few drops of which will turn spittle, Urine, the excrements of nose, and ears, ye broths of beef, Mutton, and Veal, as also ye flesh it self, to a white color ; arguing from thence, that probably ye great Menstruum of ye stomach, may be of ye same nature, with his liquor ; Mr. Piggot say's he saw these experimts tryed with success.

Dr. Plot then shewd us a bar of Iron, which had 2 North poles ; one naturall ; ye other acquir'd, by heating ye other end, and quenching it in water ; He was desir'd to try, whether a bar might be brought to have 2 South poles by ye like means :

Twas order'd to be tryed, whether filing will take off ye polarity of Iron ; as also whether a needle may be made to stand upright, on a peice of paper, a Magnet being applied under ye paper.

November the 23rd [1683].[2]

Mr. Piggot inform's ye Company, that filing takes off ye attraction of Iron ; as, he says, was found true by a late experiment ; but this was afterwards found to be true, onely when ye Iron was fil'd *all over* : It was orderd

[1] Spirits of salt.

[2] Letter from Mr. Musgrave to Mr. Aston, dated New College, Nov. 26, 1683. R.S. Letter-book, ix, p. 54.

to be tried, whether ye juice of Onions will have ye like effects on Iron? Dr. Plot shewd us some of that substance, which ye Miners call *Gur*; it grew (as it generally does) to some Iron Ore; both were dug at Wassall, in Staffordshire; this Gur, when liquid, is very sweet, and often drunk by ye Miners; We could not observe, that either ye Gur, or ye Ore, would apply to ye Magnet; altho ye Ore of these Mines is so good, that it is commonly forg'd into Iron, with out any other working; and Dr. Plot tells us farther, that of 22 sorts of Iron-ores, which were dug in Sussex, and he has by him, not one apply's to ye Magnet. It was order'd to be tried whether a peice of this ore will apply after a very great Calcination? as also whether a magnet, and peice of Iron, being put into Mr. Boyl's Pump, and ye air exhausted, will draw one ye other? A Catalogue of Bodies Electricall was order'd to be brougt in. 'Twas order'd to be tryed, whether Electricall Bodies will operate, as such, in vacuo. Severall of ye stones belonging to Mr. Ashmoles Musæum, were examined, as to their Electricity; A Sapphire, a Bohemian Granate, a spinall ruby, a Balass Ruby, and a Hyacinth were observ'd to be Electricall. Then Dr. Plot was pleas'd to finish his Discourse on Earths, ye Abstract of what he said at that time, runs thus: [Metalline Earths are 1 Silver, Lac Lunæ, 2 Mercury, Topho fistuloso, 3 Copper, Zaffar, 4 Iron, most boles, Mogra, Beiloor, 5 Lead, Wadt, Kellow. & ye earths of promiscuous use are 1 Amblecot-Clay 2 Terra tripela, 3 Pulvis Puteolanus, 4 Terra Nilotica, 5 Rusma, 6 Terra Japonica; improperly call'd an Earth.]

Dr. Pit was pleasd to promise us, that ye next time we met, he would give us an account of some experiments relating to Digestion.

November the 30*th* [1683].

After ye Minutes of ye præceding week were read, some Iron ore, which was dug at Wassall in Staffordshire, and had been lately calcin'd, was observ'd to draw ye needle: it being true, that scarce any Iron ore will apply to ye Magnet, unless it has first undergone ye fire; This gave Matter to a Quære,[1] whether fire may not be suppos'd to make these ores attract the needle? A little peice of a sowing needle, about $\frac{1}{4}$ of an inch long, being plac'd on a peice of paper, and a loadstone applied under ye paper, was seen to raise its self on its greater end; upon applying ye other pole of ye Loadstone ye peice of needle affected to raise it's self on its point. A Catalogue of Bodies electricall, drawn up by Dr. Plot, was read; [Non solum Succinum, et Gagates, allectant corpuscula, sed et Adamas, Saphirus, Carbunculus, Iris gemma, Opalus, Amethistus, Pseudo-adamas Bristoliensis, Berillus, et Christallus, item Hyacinthus, Granatus Bohemicus, Vitrum, et ex vitro, sive Christallo gemmæ adulteratæ; Vitrum Antimonii, et Saturni, omnes fluores ex fodinis; Belemnites, Sulphur, Mastix, cera sigillaris ex laccâ, Resina durior, Arsenicum (sed imbecillius) et cælo sicco salgemæ, lapis specularis, et Alumen rupeum.] there was some discourse concerning ye sawing of Diamonds, with ye hair of a mans head, as fetters are commonly saw'd off, by Pris'ners, with a steel virginall string:

A letter dated London Nov: 26, 83 from Dr. John Bagly

[1] R.S., Dec. 5. Some magnetical experiments being mentioned as made at Oxford, it was required, that the three following should be tried at the next meeting:

1. To strike a load-stone with a hammer, and to see the *ramenta* hang upon the stone.
2. To file a touched iron, to try whether the polarity be lost.
3. To see whether a needle begins to turn just at the center of gravity. Birch, p. 236.

was read; it gave an account of some observations, he had lately made on ye *Lumbricus Latus*; particularly that in every joint of ye worm, there appears an Insect, not unlike an Ant, which may be seen with ye bare eye; He say's a Patient of his voided 100 yardes of this sort of worm in 24 hours.[1] This led ye Company to discourse of those wormes, in ye Indian Seas, which cause our Mariners to sheath ye Keels of their Ships, with lead, by way of Defence. It was proposd as a Quære, what Creature makes ye greatest noise in proportion to its bigness? Probably 'tis ye *Teredo*.

December the 7th [1683].

Glass is found to be Electricall onely in ye cold, not by ye fire:

A letter dated from Gresham Coll: Nov: 29, 83, from Dr. Plot, was read; it gave an account of severall sorts of seeds, roots, leaves &c brought from ye East Indies, and presented to ye R.Sc. by Captain Knox:[2] It haveing been affirm'd, that probably Seawater may be sweet'ned by being distill'd from Salt of Tartar, it was order'd to be tried how far ye Distillation of brine from salt of Tartar might go towards ye Sweet'ning of ye brine: It was deliver'd by Mr. Harris, as found true by a late triall, that Juice of Onions did not take off ye attractive power

[1] R.S., Dec. 5. A letter of Mr. Musgrave to Dr. Tyson, dated at New College, Dec. 1, 1683 (R.S. Letter-book, ix, p. 50), was read, containing some observations made by a friend of his on the *Lumbricus latus*; that in the middle of the joint on one side was a foramen, and from that place downwards a body like an ant, seeming to be inclosed in the skin. Dr. Tyson was desired to procure some of the worm. Birch, p. 236.

[2] At the R.S. meeting of Nov. 21, Hooke brought in a paper of curiosities brought by Capt. Robert Knox from Tunquin (Birch, p. 226). The curiosities were delivered for the repository on Nov. 28 (p. 230).

of the Magnet. It was orderd to be tried, whether Iron-ore melted, and cast into an Ingot, lying North, and South, will acquire a verticity ?

As also whether water will bubble, after that a fire has, for some considerable time, been made over it, in like manner as it does when it boils by reason of a fire under it.

December the 14*th* [1683].

The peice of Iron which had been cast into an Ingot, lying North, & South, was produced ; wee did not observe that it did in ye least draw ye needle : A Letter from Mr. Aston dated Dec: 6, was read ; which giving an account that *Gerbertus* brought ye use of numerall figures into these parts of the World, it was order'd that enquiry should be made whence this appears ; A letter from Dr. Tyson dated Dec: 6, 83, was read, it was an answer to ye observations, lately made by Dr. Bagly on ye *Lumbricus latus*, with an account, and draught, of a little Insect, which he found in ye *Trachæa* of ye *rana Piscatrix* : Dr. Smith was pleas'd to oblidge us, with an account of some observations, made by ye learned Mr. Greaves,[1] in Ægypt, & transcribd from his MS, by ye Doctor, to whome it was communicated by Mr. Stubbs formerly of Wadham Colledge.

December the 21*st*, 1683.

The Minutes of ye præceding week being read ; there was one passage in them (concerning Iron-ore, which had been cast into an Ingot, lying North, and South, &, upon tryall, not observ'd to draw ye needle,) which gave occa-

[1] Two letters from Oxford with the observations of Greaves were read on Dec. 19. Birch, pp. 240–2.

sion to this Quære; viz: whether cast-Iron will draw ye needle, as readily as that which is forg'd ? [1] Mr. Ballard was desir'd to try some experiments, in ye Holy daies, in order to the solution of this Quæstion: Mr. Aston's letter* was read; after which, Dr. Smith was pleasd to shew us some Observations, which he made in his Voyage to Constantinople, año 68; among other things, ye Dr. observ'd a great number of Porcpisces, which almost coverd a good part of ye Propontis, from ye Seraglio point, towards ye Islands, that lye over against the bay of Nicomedia; for which reason (as also because He never heard that any Dolphins are caught there by ye Greeks, the good Fishermen; nor saw any sold in their Markets) He thinkes, that Solinus, cap 12, is to be understood of Porcpisces, not of Dolphins; altho he say's (speaking of ye Bosphorus, & Hellespont) hæc profunda *Delphinas* plurimos habent: as for that vast quantity of water, which run's into ye Mediterranean, He conjectures that a great part of it may run out again, by an under-current, at ye Straits mouth †; severall important reasons, were brought to shew ye probability of this opinion: [2]

Wee then examin'd ye effects of a Distillation of brine, from salt of Tartar, which Mr. Ballard at ye request of

* This letter has no date, is placed next to Mr. Aston's of Dec: 6.

† See the Phil. Transactions numb. 158 & Doct. Plott de Origine Fontium.

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[1] A letter from Mr. Musgrave to Mr. Aston, dated at New College, Jan. 12, 1683–4, was read, mentioning an ingot of cast iron, which the Philosophical Society at Oxford had made, which was not magneticall; it was queried, whether cast iron would draw the needle as well as forged. Birch, p. 246.

[2] In Mr. Musgrave's letter were also mentioned some observations of Dr. Thomas Smith in his voyage in 1668 to Constantinople. Birch, p. 246.

ye Company had perform'd; The brine was made of a pint of comon water, & ℥iij of white salt, which, after sufficient heating, was distill'd from Salis Tart: ℥i: we saw about lbss.[1] of ye distill'd water; it was not in ye least brackish, but rather like an Emulsion of sweet almonds.

January the 11*th* [1683–4].

A letter from Mr. Aston dated Dec: 20th, was read; which (among other things) mentioned an Analysis of ye stone of ye bladder, given in to ye Royall Society, by ye Author Mr. Lister; who affirm's, that ye Lapidescent juices within ye body, are ye same with those which are without it; and that ye *Caput mortuum* of ye Stone, will apply to a Magnet, like other Pyrites:[2]

Monsr. Chamar's Magneticall Experiments were read; and some of them order'd to be try'd: After which Dr. Plot shew'd us some sand from ye River of Plate; it was a mixture of black, and brown, sand; ye black applied to ye Magnet, by which it was easily separated from ye brown, and is ye more remarkable, forasmuch as (in all probability) it had not undergone ye fire:

The Minutes of what has pass'd in ye new Society of Dublin were read;[3] They gave an account of severall discourses, of a differing nature, which have been read at their meetings; Wee shall in a little time, have copies

[1] lbss = a half pound.

[2] Cf. Birch, pp. 239 and 243.

[3] At the R.S. on Jan. 16, 1684 was read a letter of Dr. Robert Huntingdon, Provost of Trinity College in Dublin, to Dr. Plot, dated at Dublin, Dec. 18, 1683 (R.S. Letter-book, ix, p. 103), giving an account of a weekly meeting there of several ingenious men about philosophical subjects.

Dr. Plot was desired to acquaint Dr. Huntingdon, that the Royal Society very willingly embraced the correspondence of the Society at Dublin; and had ordered their secretary to write to them in the manner proposed. (R.S. Letter-book, ix, p. 101.)

of them: It was then orderd, that thankes should be return'd to ye Gentlemen, of that Society, for ye favor of their Correspondence; and that ye Minutes of this Society should constantly be sent them:

An Account was given of severall late distillations [1] of brine, made by Dr. Plot, and Mr. Musgrave, in manner following; a quantity of brine was made with bay salt, and common water (the former being to ye latter as 1 to 4), two quarts of this brine, heated, were distill'd from [ ][2] ℥ij, in a glass body, in MB [3]; three quarts of it from Calcis vivæ Mij, in vesicâ in MB; the effects of these distillations were a clear water, not in ye least brackish to ye tast: that from [ ], somwhat like an Emulsion of Almonds: a little after this, lbx of brine, made as before, were distill'd per se, in vesicâ, in MB; lbiiij from chalck Miij, in a 6[4], in MB; lbvi from 2 Shovell's full of ashes, in a glass body, in MB; the effects of all these distillations were produc'd; some of them were not unpleasant esp: that from salt of Tartar; it was order'd, they should be kept, for farther examination; and that a quantity of sea-water should be sent for, that these, or such like experiments may be tried on *that* also.

January the 18*th* [1683–4].

After the reading of ye Minutes, a letter from Mr. Aston,* to Dr. Plot, was read; which tells us, that some

* This letter is dated Jan. 10th and is placed next after Mr. Aston's of Jan. 17th, 1683/4.

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[1] R.S., Jan. 16, 1684. Birch, p. 249. On Jan. 23rd a letter of Mr. Musgrave to Mr. Aston, dated at New College, Jan. 20, 1683–4 (R.S. Letter-book, ix, p. 87), was read, mentioning these distillations. Birch, p. 252.

[2] [ ] = symbol for salt of tartar.

[3] MB = *Balneum mariae* = water bath.

[4] 6 = symbol for a retort.

of ye Royall Society, are of opinion, that ye Porphyry Pillars, mention'd in an abstract of Mr. John Greav's M.S. (lately comunicated to us by Dr. Smith, and transmitted to ye Royall Society) were not brought from Mount Sina, as Mr. Greavs supposes, but dug in Ægypt; wherefore it was orderd, that Dr. Huntingdon should be consulted, and his opinion desired, as to this matter: There being another passage in ye same Abstract (concerning ye Lat: of Constantinople) which seemd somewhat dubious; it was order'd that ye Abstract of Mr. Greave's M.S, comunicated by Dr. Smith, and mention'd, in ye Minutes of Dec: 14th, should be perus'd, as soon as they shall be return'd from ye R.S; and that Dr. Smith should be desird to inform us as to ye Lat: of that Citty.

A letter* from Dr. Hatly of Maidstone in Kent, concerning some Petrifications found in that Country, was read; He endeavors to prove, that these Petrifications are *Lapides sui generis,* and not made in *animal molds.*

Mr. Flamstead's Tide-Table,† for ye year 1684, was read: The Ore of ye *Ferrum Noricum* (part of that generous present, with which ye Learned Martin Lister Esqr has lately oblidgd our University) was seen to apply to ye Magnet; as also ye comon black writeing sand; neither of which can well be suppos'd to have undergon ye fire: It was then Quæried, whether our common ores will not apply, if powder'd? Dr. Plot was pleas'd to take on him ye trouble of trying it: Mr. Ballard undertakes to try some of Mr. Chamar's Experiments.

Part of a Latin M.S. (the *Collegium Practicum* of Dr.

* This Letter is printed in ye Phil. Transactions No. 155.
† Printed in ye Phil. Trans. No. 155.

de Maels,[1] Professor of Chimistry, at Leyden), was then read; ye learned, and ingenious Author, discoursing of ye Stone of ye bladder, give's a Chymicall Analysis of it, affirming, that it yeild's in Distillation, [Portionem aliquam ferosam, pauxillum olej cum *salis volatilis urinosi*[2] quantitate satis notabili] and that ye *caput mortuum*[2] is nothing but a meer *Terra*.

January the 25th [1683–4].

A letter from Mr. Aston dated Jan: 17th, was read; which gave an account, of ye specific difference between ye Christalls[3] of Sea-salts and comon salt, or Inland salt, which consists in this, The angles of ye Chrystalls of Comon salt are entire (as likewise are those of *Sal Gemæ*, and ye lixiviated Marine salts of Dr. Grew) but ye angles of true sea-salt are cut off, into triangular planes, at least in one of ye sides. Dr. Plot shewd us some Chrystalls of sea-salt, in which we observ'd ye triangular plane mention'd in Mr. Astons letter: There being then some discourse concerning ye differing accounts of ye Lat: of Constantinople, given by Mr. John Greaves, and other learned men, particularly Dr. Smith; it was order'd, that enquiry should be made, what time of ye year these observations were taken: Dr. Plot shew'd us an Iron-ore, dug in Sussex, which apply'd to ye Magnet, and by farther observation was found to draw filings of Iron, to

[1] Mr. Musgrave mentioned also a Latin MS. which he had met with at Leyden in 1680, by Dr. de Maels, in which among other things gave an account of the analysis of stone of the bladder, which resolved itself by distillation into portionem aliquam serosam, pauxillum olei, cum salis volatilis urinosi quantitate satis notabili and the caput mortuum is a mere terra.

[2] The substances in italics are indicated by symbols in the MS.

[3] The crystals had been shown by Dr. Lister to the R.S. on Jan. 16, 1683–4. Birch, p. 249.

have poles, and to be (it self) a magnet. The severity of ye frost led us then to discourse of cold, particularly of making holes in ye Ice with salt, which eats through ye ice, which means ye Common-people make use of, in opening their frozen Pumps.

February the 1st [1683–4].

The Minutes of ye præceding week being first read, Mr. Desmasters gave us an account of some Experiments lately made by him, concerning ye expansion of Water frozen; he observ'd, that a Cylindricall Tube of $\frac{1}{4}$ of an inch Diameter, being fild with water, to ye height of 2 inches, and set to freeze, in a mixture of snow, and salt; ye water, when perfectly frozen, appear'd $\frac{5}{16}$ of an Inch above ye marke it stood at before ye freezing began: Another Cylindricall Tube of almost an Inch diameter, being filld with water to ye height of 6 inches, and set to freeze as before; ye water in freezing rose $\frac{7}{8}$ of an Inch; he observ'd farther, that when ye water thus set in Snow and Salt, began to freeze, a great Number of small bubbles rose continually from ye bottom for some time: These Experiments were made Jan: ye 28 last: Mr. Ballard has observ'd of late, that half a pint of water frozen, lost ℥ij—℥ij—grviij of ye weight it was of, before ye freezing; this experiment he tried a 2d time; ye success was much ye same, as at ye first: It was then Quæried, whether water, out of which ye air is pumpt, will rise in ye middle in the time of it's freezing? and whether boild water rises in freezing? or frezes as soon as other water? it was quæried also, whether, if a peice of Ice be put in ye pump, and ye ambient air suck'd out, ye air included in ye Ice will prove strong enough to breake ye Ice? Dr. Plot, and

Mr. Ballard, undertooke to trye these Experiments.[1]

Mr. Ballard gave an account of his success in trying some of Mr. Chamar's Experiments; whereas amongst other things Mr. Chamar says that Iron touch't will loose its vertue, by being fil'd; Mr. Ballard says, this is true, if ye Iron be fil'd *all over*, not otherwise; Dr. Plot shewd us some of ye Turkish *Rusma*, & *Alcanna*, which He lately receiv'd from Mr. Smith, Student of Xt Church, & Chaplain to ye Factory at Smyrna, who writes of ye use of ye Rusma in manner following [The black earth which seems as if it were burnt, must be beaten in an Iron, or Marble mortar, to a fine powder, and sifted diligently; when you use it, take one part of ye said powder, and 2 parts of unslak'd lime; put these mix'd together into a linnen Rag, which infuse in warm water ye space of $\frac{1}{4}$ of an hour, or till it becomes of a black color; then apply it to ye place from whence you would take ye hair; as soon as the hair begin's to be loose, ye part must be wash'd with warm water, and soap] thus far of ye *Rusma*; the *Alcanna* is ye leaf of a plant, dried, & powderd; which, when steept a night in wine, will die ye nails red & I suppose ye Gentleman means Smyrna, or such like wine, for (as Dr. Plot tells us) it will not succeed with Canary, or Claret: [2]

Dr. Plot then proposd, and it was orderd by ye Society, that an exact account of ye weather should be kept, either according to Mr. Lister's,[3] or some such compen-

[1] R.S., Feb. 6. A letter of Mr. Musgrave to Mr. Aston, dated at New College, Feb. 2, 1683–4, was read, containing, among other things, several experiments about freezing. . . . Birch, p. 253.

[2] Upon mentioning Rusma, it was doubted whether it were a mixture, or mere orpiment. R.S., Feb. 6. Birch, p. 254.

[3] Lister's scheme was described in London on Oct. 31, 1683. He shewed a book containing three or four years' account. Every table containing a month's account was printed off upon a copper-

dious, method; and that at ye end of this, and other years, ye account of ye weather of præceding years, one or more, should be printed with an Almanac for ye year to come.*

February the 8th [1683–4].

Dr. Smith being desir'd to take ye Chair, ye minutes of ye præceding week were read; after which, Mr. Desmasters gave us a farther account of ye expansion of Ice; he told us, that whereas the water he made use of lately (in some experiments of this kind, mention'd in the præceeding Minutes) was a sort of rough pump-water, which he has found turn milky, and turbid immediatly upon ye affusion of oyl of tartar *per Deliquium*; and considering also, that ye Ice made of this Water was a sort of rarified white Ice; he was hereby inclin'd to try, whether River water (which would readily mix with oyl of Tartar, without ye least præcipitation) would, upon freezing, be expanded to ye height of ye pump-water above mention'd: in order whereunto, he fill'd a Glass Tube of almost an Inch diameter, with river water, to ye height of 6 inches (as he had done in ye former triall,) and then putting it to freeze in a mixture of snow, & salt, it gaind but $\frac{5}{8}$ of an inch, after it was frozen; whereas ye pump-water got $\frac{7}{8}$ of an Inch: He observ'd farther

* An acct of ye wind, weather, height of ye Mercury in the Barometer, taken at Oxford throughout ye year 1684, was printed in ye Phil. Trans. No. 169.

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plate. The upper line contained the inches from 28 to 31 inclusive, each inch divided by lines into ten parts. The lines by the sides shewed the days of the month to thirty-one. The account was kept by drawing a red line at the height of the quicksilver such a time of the day. The account for the whole month was but one red line bending as the quicksilver rises or falls. Birch, iv, p. 222.

that while ye River-water was freezing, bubbles rose from ye bottom of ye Tube, much after ye same rate, as in ye freezing of pump water: He also tooke boyld pump-water, and having fill'd a tube with it, to ye height of 6 Inches, and set it to freeze as before, it rose hardly to $\frac{6}{8}$ of an Inch aboue ye marke; whereas ye same water not boyld rose $\frac{7}{8}$ths of an Inch.[1]

Dr. Plot shew'd us some *Rosemary balls*, which are of ye nature of Mr. Lister's Rust-balls, and were dug in Staffordshire, where they lye in lumps, in some of their Marl-pits: part of this stone apply'd to ye Magnet, after an hours calcination: A Stone being found in ye bladder of a Boar, part of it was calcin'd about an hour, after which it seemd to apply to ye magnet, but 'twas very faintly: this experiment is orderd to be repeated; Mr. Ballard undertakes it.

A letter from my Ld Bishop of Ferns, and Leighlin, was read; it mention'd a discourse of his Ldships, præliminary to ye Doctrine of sounds included in his letter; with which we receiv'd also a discourse from Mr. William Molyneux, concerning an opticall Problem, which was read, and transmitted to ye Royall Society; Mr. Bernard is desir'd to peruse, and consider it, as soon as it shall be returnd from ye R.S. and give his thoughts of it to ye company: wee saw also some Lough-neagh stone, originally Holly,[2] 'twas order'd that triall should be made, what sort of Stone it will make? and whether it will apply after calcination? We saw also a black stone full of golden starrs; and some Irish Rock Christall, which

[1] Letter of M. to Aston, dated New College, Feb. 9, 1683–4 (R.S. Letter-book, ix, p. 95), describes this experiment in freezing and notes that "a sharp stone had been found between the *processus mamillares* of a hog."

[2] "Lough Neagh turns nothing but Holly into stone." Lister's observations thereon are reported by Birch, p. 256.

does not differ materially from ours: These things were sent us by Mr. Molyneux, for which thankes are order'd to be return'd him: Dr. Smith was pleas'd to promise us an account of what observations he has by him concerning ye Alcanna of ye Turkes.

February the 15*th* [1683–4].

Dr. Smith was desir'd to take ye chair; the minutes being read in which there was mention made of our not being able to tinge with ye Res. of Alcanna, drawn with Canary, and Claret*; the Dr. was pleas'd to inform us, that Alom ought to be dissolv'd in those Res., to make them strike: a letter from Mr. Aston dated ffeb: 7th, was read; which gave an account of ye weight of water, when frozen, and before it was frozen (the difference in weight was gr 4 in ℥iij;) [1] as also of ye ascent of water in a bolt-head, a great while *before* freezing; and that a peice of Ice, of $3\frac{1}{4}$ inches thick, 4 broad, and a foot long, bore, in ye middle, ye weight of 350 lb, but with 400 lb, after some time, it broke; & (which is most surprising) that ye ice on ye Thames of late was not above 11 inches thick. The same letter told us, that Ice was asserted to be to water in weight, as 7 to 8: which differs not much from Mr. Desmasters late experiment, by which it appears that water, 6 inches high, in a Cylindricall Tube, being put to freeze, got $\frac{7}{8}$ of an inch by freezing.

Then my Ld Bishop of Ferns his Discourse†, concerning Acousticks, and ye severall ways of improving the sence

* See the Minutes of ffeb. 1st, 1683/4.

† This curious Discourse is printed in the Phil. Trans. No. 156.

[1] Dr. Croune said that having weighed 3 ounces of water, he found it after freezing to differ a scruple and half. R.S., Feb. 6. Birch, p. 253.

of hearing, was read; and it was order'd, that ye most humble thankes of this Society should be returnd his Ldship, for his communicating to us a peice of so much learning, and of so great consequence, to the Public.[1]

Dr. Plot shewd us a sort of Iron-ore from Virginia; it was like little peices of black sealing wax; it was not magneticall, but applyd better than comon Iron-filings, makeing a long chain above ½ an inch in length: Hæmatites, calcin'd, and pulveris'd, apply'd to ye Magnet:

Mr. Ballard acquaints ye company with his success in some late Experimts perform'd by order of ye company; He calcin'd a peice of *calculus humanus*, 2 houres, or more; after which it was not observ'd to affect ye Magnet: but part of ye Rosemary stone (lately shewn us by Dr. Plot) after calcination in a charcoale fire, apply'd as well as that which had been calcin'd in a Seacoale fire; he chose to calcine it in a Charcoale fire, haveing some suspition it might receive some particles of iron, from ye seacoale; for he has formerly observ'd seacoal to be a kind of imperfect, or unripe Iron-ore, as he supposes; because by an excessive heat of a forge it will flow, like molten mettalls, and then run to ye bottom of ye fire; where, haveing now lost all its combustible parts, it presently grows dead, and looking black, is cast out, a perfectly burnt Cinder; in which 'tis easy to observe most of its parts to end in round protuberancyes; which plainly shew there was a fusion; tho it still was too earthy, and mixt, to run like a pure mettall, in a liquid fluor; but as impure as it is, it move's ye needle more strongly than ordinary oars do, after Calcination:

[1] A letter from Mr. Musgrave to Mr. Aston, dated at New College, Feb. 17, 1683–4, was read, transmitting a discourse of Dr. Narcissus Marsh, Lord Bishop of Ferns and Leighlin, being an introductory Essay to the Doctrine of Sounds. R.S. Letter-book, ix, p. 109. Printed in Phil. Transactions for Feb., 1683–4.

A Paper of Mr. Listers* was read, concerning some Inscriptions at Bath, of which there is not any exact account given by Mr. Cambden, nor Mr. Guidott :

February the 22nd [1683–4].

After ye reading of ye Minutes, a Letter from Mr. Aston dated ffeb: 14th, was read ; which gave an account, of an Experiment lately shewn before ye R.S,[1] by Mr. Paget, viz: ye south pole of ye inclinatory needle followd ye flame of ¼ of a sheet of paper, 5 degrees ; ye side of ye box being very little hot ; ye inclinatory needle was hung in ye plane of ye Meridian ; the North pole shunn'd ye flame : ye same letter told us of a booke lately printed by Mr. Denis, concerning a fountain in Poland, that follows ye Motion of ye Moon ; is cold to ye touch, and yet easily inflamable : Dr. Plot informs us, that there is a spring in Lanchashire, which, tho cold, takes fire, and will harden eggs ; as is mention'd in ye Philosophicall Transactions, No. 26.

Concerning ye Lough-neagh stone, it was orderd, that ye Gentlemen of ye Society of Dublin should be desir'd, that they would be pleas'd to impart their thoughts concerning it, ye manner of it's being made such, and of what Materials it may be made : Two discourses were read, one of ye *Calculus Humanus*,† by Dr. Slare[2] ; ye other concerning severall English salt springs,‡ by Mr. Lister : as also a letter from Mr. Molineux§ contain-

* Printed in the Phil. Transactions No. 155.
† Printed in the Transactions numb. 157.
‡ Printed in the Transactions numb. 156.
§ This Letter is dated Dublin feb. 5th, 83/4.

[1] R.S. meeting of Feb. 13. Birch, p. 256.

[2] Slare's treatise was read to the R.S. on Dec. 12, 1683, and is entered in the Register, vi, p. 1, and printed in the Phil. Transactions, No. 157, p. 523.

ing ye Irish Minutes, of Jan: 28th, & ffeb: 4th, 83–4.

Rust-balls, calcind $\frac{1}{8}$ of an hour, were found by Dr. Plot, to apply, better than after a Calcination, of 4, or 5, hours :

February the 29th [1683–4].

The Minutes being read, Dr. Wallis was pleas'd to inform us, that ye way comonly us'd in opening frozen pumps, with salt, has been known to make Pumpwater, under his house, apt to curdle in boiling, and unfit for washing, which naturally is fit for use, and bears soap very well ; but ye water probably will recover itself as soon as ye salt shall be drawn off. Dr. Plot goes on in ye triall of Dr. Listers Experiments, mention'd in his booke, *de fontibus medicatis Angliæ* ; and at this Meeting shew'd ye S. a Staffordshire Ochre, which was seen apply to the Magnet, after about an hours Calcination ; but an Oxfordshire Ochre, tho calcin'd as long as ye former, was not, upon triall, found to apply at all ; wherefore it was order'd to be calcin'd yet a longer time.

A letter from Mr. Aston, dated ffeb: 21, was read ; which gave an account that Sea-ice [1] sent to ye R.S. from a place where no fresh water comes, was found tastless in ye lump ; being dissolv'd, and examin'd, after ye manner mentiond in that little booke [about Seawater ffreshned] there was no salt discernable in it ; it latherd also well with a wash-ball.

Dr. Pit acquaints ye Society, that sallet oyl cannot be made to boyl over ; this has been observ'd by late experiments, and will give some light to that custom of ye sugar boilers, who use to throw a peice of sewet, candle, &c into their sugar ; and by theese means keep it from

[1] Slare described his trials with sea-ice on Feb. 20. R.S. Register, vi, p. 102. Birch, p. 258.

boiling over. A Report of my Ld Treasurer Burleigh's, made to ye privy Counsill, communicated by Dr. Smith, containing an Examination of Mr. Dee, concerning altering ye Calendar,[1] was read; as also Mr. John Greave's Observations on it: Some Quæries concerning splitting of Trees by ye late great frost, were brought in, by Dr. Plot; they are as follow's[2]

1 Whether any of these trees have split with a noise?

2 Whether they are split quite through, or onely on one side?

3 Whether they are all split to ye same point of ye Compass?

4 Whether ye splitting be more comon in ye Trunc, or in ye Boughs?

5 Whether any Ice has been found in ye vessells of ye wood?

6 Whether ye Trees split be any of them dead?

7 Whether any of ye trees split have clos'd since ye Thaw?

8 Whether ye Bark be loosned by ye splitting, from ye wood?

9 Whether ye Roots have been any way affected, as well as ye body, or boughs, of ye trees?

10 Whether any Trees, besides Oaks, be split?*

Dr. Wallis mentiond vast numbers of dead Congers, which were thrown up by ye Sea, at Dim-Church wall, along ye Coast of Kent, during the late hard Frost, as

* A Discourse [concerning the Effect of ye hard ffrost anno 83, on the Vegetable Kingdome], drawn from those Queries, was printed in ye Transactions Numb. 165.

[1] Cf. R.S. Letter-book, ix, pp. 133 and 135, and Phil. Transactions, No. 257.

[2] Plot's queries were communicated to the R.S. by Musgrave's letter dated March 1, 1683–4 (R.S. Letter-book, ix, p. 131). Also see Phil. Transactions, No. 165, p. 766. Birch, p. 266.

also about 8 years agoe; the same was observd on ye Severn shoar in Somersetshire, about 20 years agoe.

Orderd, that Dr. Wallis, Dr. Bathurst, Dr. Beeston, Dr. Smith, Dr. Aldridg, Dr. Plot, Dr. Pit, Dr. Gibbons, & Mr. Bernard, be desir'd, that They, or as many of them as can conveniently, would be pleasd to meet some time ye next week, and consult for ye drawing up Articles, for ye better Regulating of this Society; and that a report of this consultation be made to ye Society ye next meeting.

March the 7th [1683–4].

After ye reading of ye Minutes, Dr. Plot was pleasd to acquaint ye Society that He had lately calcin'd clay-ochre, and stone-ochre (both which were yellow, from Shotover) about 36 hours, but neither of them applyd to ye Magnet; which gave ye Dr. grounds to quæstion, whether yellow ochres will be affected by ye Magnet after any calcination, how long soever; Tobacco-pipe clay, Marl, Bole armen: and Terra Lemnia were calcin'd ye same space of time, but none of them applyd to ye Magnet.

The Dr. has been pleasd to promise us, that he will examin and give us some account of ye Lapis Bononiensis. A Letter from Mr. Aston dated ffeb: 28, was read; which gave us 2 accounts of ye weather glass[1] upon ye last great thaw in Yorkeshire; one from Whitely Hall, neer Wakefeild, viz that on Feb: ye 5t, when the Thaw began, it was half a 10th under 28; another from Kighly in Craven; the glass had stood at $\frac{3}{10}$ above changable a long time during ye frost, till Munday ye 4th, on which day it fell $\frac{5}{10}$ths; on ye next day $\frac{5}{10}$ths;

[1] These record readings of the weather glass were described to the R.S. on Feb. 27. Birch, pp. 262, 263.

on ye next day $\frac{5}{10}$ths more, so that it was within $\frac{3}{10}$ths of ye lowest line: Note that this place stands not so high as ye first: The same letter told us, that ye Circular Barometer at Gresham Coll., before ye great wind which succeeded ye Thaw, moovd almost quite round ye Plate, falling lower then it had been in 7 years before; and that a Drill [1] by boring in Iron will become a fix'd North Pole; upon which it was quæried in ye RS, whether it will be so by boring in Brass, flint, Copper, wood, glass &c & if a Drill by being touch'd with a Magnet be made a South pole, whether drilling Iron will then make it a North pole? Mr. Ballard promis'd us to try these experiments about Drills:

The weather at Oxford was frosty, and fair, on ye 3d of Feb: (as also for some time before); on ye next day, ye Morning was close, and a little thaw, and snow; a at night, ye [ ][2] fell $\frac{6}{10}$ths; on ye 5th, the weather was thawing, wind, and rain at night ye [ ][2] fell $\frac{7}{10}$ths; these accounts were taken, & communicated to ye Society, by Dr. Plot: Dr. Pit was pleas'd to inform ye Society that Oyl Olive is uncapable of any ebullition after it has spent its aqueous parts, which rise in bubbles; for being pressd, with a stronger fire, then what made water boyl over a large Vessell, it could not be sensibly raisd, altho ye heat of ye oyl was so intense, that, being remov'd from ye fire, it broke out into a flame, & continued to do so after 6 or 7 suffocations of ye flame. Butter boyls over till its serous parts are evaporated, but afterwards, tho prest with a very great heat, is no more capable of ebullition, than so much melted lead.

A Report of ye Consultation, held for ye drawing up

[1] The Drill experiments had been performed by Hunt and were described to the R.S. by Lister (R.S. Letter-book, ix, p. 140) on Feb. 27. Birch, p. 261.

[2] [ ] = symbol for Mercury.

Articles, for ye better Regulation of ye Society, was offerd; but ye examination of it was deferr'd, till ye next meeting: which was order'd to be on ye Teusday following, at 2 after Dinner.

March the 11*th*, 1683–4.[1]

The Minutes of ye præceding week being read; A Report of ye Consultation, held for ye drawing up Articles, in order to ye Regulating our Proceedings, was presented to ye Society; the Articles were examind distinctly, and (after some Alterations) agreed on, by all hands: A Letter from Mr. Aston [2] dated March 6, was read; which gave us an account of a Ship, which, in ye year 81, had ye needles of all its compasses (excepting one) chang'd, from North to South; which continue so to this day: It was quæried at which Degree of Lat: this might happen? & from what cause it might be suppos'd to proceed? particularly whether from Lightning, as in a paralell Relation, mentiond in ye Transactions: N. 127? Some Pyrites, calcind about $\frac{1}{8}$ of an hour, was seen apply to ye Magnet: Salamander's wool was observ'd, by Mr. Ballard to be separated from ye earthy parts, to which it is joynd, by heating the Amianthus & bruising it into peices: It was orderd, that some attempts should be made, towards ye working this wool into a Thread; that so we may [if it be possible] either trace out ye methods of ye Antients, or equall their Inventions, with new ones, in this kind; for ye effecting of which, Dr. Beeston was

[1] An account of this meeting was transmitted to the R.S. by a letter dated at New College, March 15, by Musgrave, who was elected F.R.S. on March 19. Birch, p. 168.

[2] R.S., March 5. Sir Robert Southwell gave in a paper communicated by Mr. Edward Randolph concerning the effect of a thunder clap on the ship's compasses. R.S. Letter-book, p. 129. Phil. Transactions, No. 157, p. 520. Birch, p. 266.

pleasd to take on Him, ye trouble of employing some curious hand, suitable to so ingenious a Design.

A Report of a Consultation, held on March ye 4th, 1683–4, by Dr. Wallis, Dr. Bathurst, Dr. Smith, Dr. Plot, Dr. Pit, and Mr. Bernard, appointed to draw up Articles, for ye better Regulation of this Society; pursuant to an order of ye same, pass'd, Feb: ye 29th, 1683–4.

The Persons above mentiond, having met on Tuesday last, and consulted, according to your desire, do now offer, to your consideration, these following Articles, relating to ye Government of this Society; as it may be establisht:

1 It may not be improper, that this number of men (the business of whose Meeting will consist, cheifly, of matters Philosophicall) be termd a PHILOSOPHICALL SOCIETY, and ye Persons thereof call'd Members of that Society.

2 It seems convenient, that some Person of this Society, be elected, by them, to Præside in their Meetings; who may have ye Name of a Præsident.

3 That there be a DIRECTOR of EXPERIMENTS chosen; whose office shall consist, in enquiring into ye Desiderata of severall Arts, and Sciences; in offering things to be tryed; and (when there is occasion) in advising, as to their Triall.

4 That there be a Treasurer, to manage ye Stock of ye Society; & that accounts be taken thereof, at ye Meeting, præceding every quarter day.

5 That a Secretary be chosen, to take ye Minutes; read them; and manage ye Correspondence; who may

be allow'd to employ some Person under him, in transcribing, at ye Public Charge.

6 That all Officers shall hold their places for a year; and that ye Election be on St. George's Day, or ye meeting præceding, if it be Sunday.

7 That no Person of ye University be elected into ye Society, that is under ye Degree of Art: M: or LL.B.

8 That ye Admission of Members, and other things of like nature, be carried on by way of Ballot; and be determin'd by ye Plurality of votes; and that, for this Reason, a Balloting-box be fortwith provided.

9 That all Persons shall, at their Entrance, write their own names, in ye Journall Booke, under these Articles.

10 That every one shall pay 5*s* per quarter, towards a comon stock, for ye triall of such experiments, for ye buying such Instruments, and for the defraying such other charges, as ye Society shall agree on.

11 That 2 bookes be provided; one, in which ye letters may be kept; another, in which ye Minutes (and in them ye Experiments) may be entred.

12 That ye Time of our Meeting shall be every Tuesday, in ye Musæum, at 2 in ye afternoon, (unless when ye Society shall thinke fit to adjourn themselves, to some other time, or place;) and that all Persons shall be desired, to be present, punctually at that time, unless they are hindred by very urgent occasions.

13 That only ye Præsident, and ye Secretary, shall sit at ye Table; ye Rest at some distance; unless ye Præsident shall order otherwise.

14 That there be no Election of Members into the Society, unless there be nine Members (at least) present to make such Election.

These Articles are signed by the following—

Alex: Pudsey	John Wallis.	John Massey.
Caspar Marcke.	Ralph Bathurst.	Joshua Waller.
James Anderton	Hen Beeston.	Tho: Lane
John Cooke.	Tho. Smith.	Will: Levett.
Anth: Farmer	Rob Plot	N: Crowch
Tho: Hoy.	Wm Gibbons.	Hen: Pigot
Robert Cowcher:	Edward Bernard.	Ar. Charlett
	Jos: Pullen.	Steph. Hunt.
	Joh: Caswell:	Maurice Wheeler.
	Tho: Pigot.	Edm: Entwisle
	Sam. Des Maisters.	Thomas Creech
	Jo. Ballard.	Hugo Todd
	William Musgrave	John Benbrigg
	St: Welsted	J Cuninghame

[A further Article was added on March 26 1684. See p. 51.

15 That, if any Person desires to be of this Society his Admission shall be proposed (at least) a week before it be put to the Ballot.

The Minutes of the Philosophical Society of Oxford, 1683–4.

March the 18*th* [1683–4].

The Minutes of ye præceding week were read; after which it was order'd [that there be no election of Members into ye Society, unless there be nine Members (at least) present, to make such election;] which Article, with 13 others, agreed on March 11th, 1683–4, being entred in ye Iournall Booke, according to order, were subscrib'd, by Dr. John Wallis Savilian Professor of Geometry; Dr. Ralph Bathurst, President of Trinity Coll: Dr. Henry Beeston, Warden of New Coll: Dr. Tho: Smith, Fellow of Magdalen Coll: Dr. Robert Plot, Professor of Chymistry, & Keeper of ye Musæum Ashmolanum; Dr. William Gibbons, Fellow of St. Johns Coll:, Mr. Edward Bernard, Savilian Professor of Astronomy; Mr. Jos: Pulleyn of Madg: Hall; Mr. John Caswell of Hart Hall; Mr. Thom: Piggot, Fellow of Wadham Coll: Mr. Sam: Des-Masters, Fellow of Oriel Coll: Mr. John Ballard, & Mr. William Musgrave, Fellows of New Coll: & Mr. Stephen Welsted, Fellow of Merton Coll:

We then passed to other Business; Mr. Ballard informd ye Society, that, whereas He had, in ye præceding meeting, observd, that ye fine hairy substance, comonly calld Salamander's Wool, may be separated from ye grosser parts, of ye Amianthus, by heating, & crumbling it between your Fingers (whence He was induc'd to thinke, that this separation might easily be effected, by Calcina-

tion, and Trituration) he has lately found, contrary to his expectation, that ye wool *it self*, by being calcind in a considerable heat, becomes *Friable*: Dr. Smith proposd *boiling* of ye Amianthus, as a probable way for ye separating it's parts: ye Amianthus, on which these Experiments were tried, was brought from Cyprus, by Dr. Huntingdon, & comunicated to us by Dr. Plot. Dr. Bathurst was pleasd to oblige ye Society, with a Relation, he lately receivd, from an understanding Freind of his at Wells; who assures him, that a woman was lately brought to bed in that Citty, with out any pain considerable (as she her self saies) except in ye *Tips of her ears*; where it was very violent, beginning, and ending with ye time of her Travail: Two letters from Mr. Aston were read; ye first of these, dated March 13th, mention'd [Hardness, & unalterableness by fire] to be ye Characteristic of sand[1]; which was thought questionable, seeing that sand is melted down into glass by fire: ye 2d, dated March 15th, containd a discourse concerning ye Magnetism of Drills; lately read before ye R.S.[2]; this was deliverd to Mr. Ballard to be considerd by him.

Manganese (a Minerall, dug no where in England, but on Mendip-hills, & used in ye purifying of glass) was not of it self affected by ye Magnet; but after above 3 hours Calcination, it readily consented to it; as was shewn us

[1] R.S., March 12. Lister discoursed on properties and distribution of sands and clays. Phil. Transactions, No. 169, p. 739. Register, vi, p. 55. Birch, p. 267.

A letter of Mr. Musgrave to Mr. Aston, dated at New College, Oxford, March 19, 1683–4 (R.S. Letter-book, ix, p. 149), was read, mentioning, that it had been queried at the Philosophical Society there, in what sense the word *unalterableness*, used by Dr. Lister in his characteristic of sand, is to be understood, since sand may be melted down into glass.

For Mr. Lister's reply on March 26, see Birch, p. 276.

[2] Hooke and Paget had drawn attention to the magnetism of drills. Birch, p. 267.

by Dr. Plot : But Irish slat, calcind about 4 hours, could not be wrought on by ye Magnet ; which gave ye Dr. an occasion to draw up this following discourse, concerning severall Minerall waters, which, tho comonly thought to be Vitriolic, may (he thinkes) be supposd to receive their virtue, rather from such a Slat, as this is, than from any Iron ore.

[It haveing been discoverd to us, about 9, or 10, Months since, by ye Ingenious Mr. Kenwrick, Physitian at Worcester, that ye Irish slat pulverisd, and infusd in water, for a night, or less, would impart its Vitriolic quality so far forth to it, that it would strike of a faint Reddish colour with powder of Galls, (as ye Vitriolic waters of Tunbridg Astrop, and divers others, doe and as you see it has in some Measure done in ye Example here before you) it not onely lead me to beleive, that these waters, some of them, might as well issue from slat, as an Iron-ore ; unless it should appear, that this sort of slat were an iron-ore too ; which put me upon Calcining it for 3, or 4, hours, after ye manner of Dr. Lister, to experiment, whether it would then (like ye other Iron-ore) apply to ye Magnet[1] ; wherein tho I was altogether unsuccessfull, ye Magnet not takeing ye least notice of it, yet it afforded me another discovery altogether as satisfactory, which is ye Matter I have at present to comunicate to you, viz that upon torrefaction, it was all become a yellow ochre, and would *score* like it ; tho this here I have to shew you, be grown a little too dark by much burning ; which further perswades me, that ye yellow, or rather orange colourd, sediment, we find at ye bottom of these fountains, comes rather from this sort of slat, than Iron-ore ; for I much question, whether some of ye yellow ochres (though 'tis plain that red ones do) come from, or are, iron ores : but I intend to calcine this further ye

[1] R.S., March 26. Birch, p. 276.

next week, whereof you shall have an account ye next meeting, but doubt of my success, because ye Shotover yellow ochre will not own ye Magnet, after 36 hours Calcination, or better.]

March the 26th [1684].

Mr. John Massey, Fellow of Merton Coll: Mr. Joshua Walker, Fellow of Brasenose Coll: & Mr. Thomas Lane, Fellow of Merton Coll: being formerly receiv'd into ye Society, did then subscribe their names in ye Journall Booke under ye Articles: It was agreed [That, if any Person desires to be of this Society, his admission shall be proposd at least a weeke before it be put to ye Ballot] and it was orderd, That this Article be entred in ye Journall Booke at ye Top of ye vacant side, of ye 23d leaf: after which Mr. Proctor Charlet, Mr. Crouch, Mr. Henry Pigot were proposd to ye Society; their admission was put to ye Ballot, and carried in ye Affirmative.

A Letter*[1] from ye Rt Honorable The Ld visct Weymouth to Dr. Plot, was read; as also were his Lordships answers to ye Drs. Queries, concerning ye splitting of Trees, by ye late Frost: That Person of honour acquaints ye Dr., that great Damages in this kind have befaln ye timber trees in most of ye Northward Midland Counteys, but very little or none in ye Western Counteys of England:

A letter† from my Ld Bp of Ferns, and Leighlin, was read; it brought ye welcome news of his Lordships leave,

* This letter is dated March 20th.
† Dated March 15th.

[1] Lord Weymouth's letter was ordered to be registered on April 2. Register, vi, p. 104. Birch, pp. 279–81.

for ye printing his learned discourse on ye improvement of Acoustics.

A Letter from Mr. Wm. Molineux of Dublin, was read; as also an acct of his* concerning ye Petrifications of Lough-neagh: It was orderd that ye thankes of this Society should be return'd to Mr. Molineux for this ingenious discourse: in which it haveing been affirm'd, that these Petrifications are sometimes found in ye earth near ye Lough, it was Quæried, whether ye earth, in which these Petrifications are sometimes found, may be supposd to have been thrown up from ye Lough? It was quæried farther, whether ye Bark has been seen Petrified with ye wood? as also, whether any Trees grow on that earth in which these Petrifications are found? Enquiry was made concerning ye Irish Plants *Macknamboy* and *Presby*; ye former of which is said to purge by application: It was orderd, that Mr. Molineux should be desir'd, that he would be pleasd, some time at his leasure, to give us his thoughts concerning these particulars:

It was then propos'd by Dr. Beeston, that ye Petrifying springs in, and near Oxon, should be strictly examin'd, particularly as to their Chymicall Principles; and that enquiry should be made into ye severall steps, and Progress, of their respective Petrifications. It was propos'd by Dr. Smith, that a quantity of ye Lough-neagh stone should be calcin'd a longer time, than ordinary (suppose 48 hours, or 3 days;) it being possible, that a longer calcination may make it yeild to ye Magnet, tho a less will not: It haveing been affirm'd, that ye most considerable Petrifications which we have in England are at Asply Gowis in Bedford-shire, and that Mr. Crouch has an Interest in those parts, it was orderd, that Mr. Crouch

* This account is printed in ye Transactions, numb. 158.

should be desir'd, that he would make use of that Interest, in ye procuring of some account concerning ye Nature, and manner, of those Petrifications.

It was affirm'd that Irish slat calcin'd, and infusd in water, has been observd by Mr. Henry Pigot to turn green with galls : wherefore it was orderd, that Mr. Piggot should be desired to give an account of this Experiment to ye Society: A Letter, dated March 18th, from Mr. Packer, Physitian of Reading, was read: it gave an account of some observations he made lately in ye dissection of a Bear ; particularly that there was no *Cæcum*, & that ye Æsophagus consisted of so narrow a channell ; and ye Stomac, and Entrails, are so well fix'd in ye Abdomen, that it was altogether impossible, they could at any time fall into ye Mouth, as it was formerly suppos'd it might be in some Postures of this Animall: It was order'd, that thankes should be return'd to Mr. Packer, and that he be desir'd to continue a Correspondence with us.

A Letter dated March 20th, from Mr. Aston, Secretary of ye Royall Society, was read ; which gave an acct of severall Experimts concerning ye Magnetism[1] of Drills, ye letter was deliverd to Mr. Ballard, to be considerd by him ; for ye better completing a Discourse of that Subject now under his hands :

The Cuts of severall strange east Indian Plants, engravd by Mr. Hunt, Operator to ye Royall Society, were comunicated to us by Dr. Plott.[2]

[1] Aston's letter may refer to Mullen's magnetical experiments described to the R.S. on March 26th. Birch, p. 274.

[2] R.S., April 9. A letter of Mr. Musgrave to Mr. Aston, dated at New College, March 27, 1684 (R.S. Letter-book, ix, p. 150), was read, giving thanks for his election. It was ordered that he should have leave till the latter end of the year to come for his admission.

In this letter he mentioned that their young Society at Oxford

Aprill the 8th, 1684.

Dr. Bathurst being desird to take ye Chair; 2 letters from Mr. Aston were read; one of which dated April 2d, mentioning some late discourses of ye Royall Society, concerning star-slime, ye Dr. was pleasd to inform us, that he has formerly seen that matter on ye boughs of Trees; and that it consisted of similar parts: Mr. Aston's other letter of April 10th, speaking of Petrifications, gave occasion to Dr. Beeston to propose this Quærie, whether any thing, besides wood, has been observ'd to Petrifye:

The Minutes of ye Dublin Society* included in one of Mr. Aston's letters; and ye Answers† of Sr Wm. Craven, Walter Chetwind of Staffordshire, and Henry Green of Warwickshire Esqrs, to Dr. Plots Quæries concerning ye splitting of Trees by ye late Frost, were read: The Dr. acquaints ye Society, that an Intelligent Freind of his assures him, that not onely standing trees, but also felld timber has split with ye Frost this last Winter: It was quæried by Dr. Plott, whether any young oakes have been splitt?

* from Feb. 11th to March 10th inclusive.
† See Letterbook B. Paper 7th.

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had of late passed several orders tending to the regulating of their proceedings, and making themselves a lasting body.

It was queried, on occasion of a passage of this letter, whether *muckambey* (or tithymal) purges, outwardly applied.

The Bishop of Cork said, that he had caused it to be carried in a servant's pocket, and that it had no such effect.

A French leathern heel of a shoe being mentioned in Mr. Musgrave's letter as petrified, it was doubted whether it were not a real stone. Dr. Wallis observed, that he had seen it, and that it seemed a petrifaction: that it consisted of two pieces, then shavings, afterwards other pieces, and holes at the bottom, where pegs were put in: and he promised, that at his return to Oxford, he would get it bored. Birch, p. 282.

Mr. Ballard read ye following discourse concerning ye Magnetism of Drills, being by way of Answer to a letter of Mr. Aston's on that Subject, Dated March ye 15th, 1683–4. As to ye 1st Proposition, viz that a Drill in boreing of Iron will acquire a vigorous Polarity, I suppose it does not fully appear from hence that all ye comon Drills in a Smith's Shop, which probably have been us'd mostly, if not onely, in Iron, and never been within ye virtue, or under ye touch, of a loadstone, doe with their bills constantly draw ye south end of the needle, and consequently are them selves a fixd North pole; for I causd 6 or 7 severall Drills to be made before my face; and ye bit, or point, of every one became a N: Pole, onely by ye hardning; before they ever came to be workd either in Iron, or any other Matter; so that I cannot suppose those found in a Shop to have gotten their Polarity so much from their after use, as from their first make.

2 That peices of plain Iron in shape like Drills (that is something long, and small,) do always change their Poles, as they are inverted (ye end downward being over ye N: Pole) I find not allways true: for tho it holds generally in such small peices, and always (as far as I can yet find) in peices of any bulke, (as large hammers, Anvills, Andirons, barrs of windows &c) yet I found severall small peices of steel, (such as ye drills are made of,) to have fix'd Poles, one end N: and ye other S; in whatever posture I held them, some of these very vigorous in such their Polarity, others plainly shewing a Tendency to such a Pole, rather than ye other, yet so faintly that if applyd contrary to their Inclination (that is at ye upper end if it affected to draw ye South, or ye lower end if ye North) they causd ye needle to stand in æquilibrio, east and west; ye particular inclination of either end seeming, in some peices, quite to conquer, in ye

others in part to hinder, that more generall Polarity they both acquire, by being either upward, or downward: yet this seems onely to be found in small stems of Iron: the being either upward or downward always prevailing in peices of greater bulke.

3 As to ye opinion of ye Magnetick Philosophers that nothing gives, or receivs a Magnetism, but what is in it self truly Magnetic, as is onely Iron; as to ye last part, that is, *onely Iron receiving a Magnetisme*; I have nothing certain to say; but for giving ye same, I suppose it very quæstionable, whether onely Iron [or what is of near kin to it, as we suppose ye Loadstone it self to be] can bestow, or impart such virtue; since not onely (as I have said before) ye quenching in water will do it, but ye heating also of an Iron, by violent motion, will do ye same; as by quick and hard filing, which is ye very same thing as brisk drilling in ye Iron, and therefore may be said to proceed from ye file which is steel, or Iron; but to shew it comes from ye meer motion (or heat which is nothing else but ye motion continued) this Experimt may suffice, if it succeed to others as it seemd to do to me. I tooke my knife which had been formerly touch'd (a quarter of a year, or more before,) and proffering it to ye needle, it drew ye North pole, which happen'd right for my purpose, I whetted it briskly on a dry dirty threshold, and being thin it became very hot towards ye point; ye edge being whet away to a wire, as they term it. I strooke ye very top, and back towards ye top against ye ground, as I had done ye sides to destroy and rub off (if I could) all its former Polarity, which was southward; then offering it again to ye needle, it drew ye south end, and was quite changed: to confirm ye thing, I touch'd ye same knife again with ye N: Pole of my Loadstone, and it drew vigorously ye North end of ye needle; I whet it again strongly on ye same manner, and

it chang'd again ; this I repeated 5 or 6 times, and it still chang'd with whetting, especially on ye sides towards ye top of ye knife, ye very top and back (which could not be whett to so great an heat) retaining still some affection, for that Pole, ye Loadstone had inclind them to : this I tryd with a knife of a thicker blade, but I could not, with my hand, whet it to that heat, as to have ye same effect wrought upon it, as on my own, though I us'd such force as at last to break it in two : I borrowd then another thinner, but presently had ye same misfortune, I intend therefore to try it at a Cutlers wheel laid with Emery, and oyl, and likewise on a Grind-stone, because ye wheel may be supposd to have much Iron worn in it, from ye many knives which have been ground on it, and so ye effect (if produc'd) will prove noo more, than that of filing with, or drilling in, Iron : and ye wet Grindstone though it want heat to give a new polarity, yet probably it may wear of those parts of ye Iron in which ye old did in here, and so render it simple again.

4 As to ye 4th, whether Brass, or copper, will, as well as Iron, give a North Polarity ; this cannot well be tried, since ye very makeing, if it be hard'ned, will certainly give it ; wherefore

5thly The Drill Mr. Hunt made could not, if well hardned, by what I can find, be indifferent to either Pole.

6 I suppose ye drill haveing a S. Pole given it by ye Magnet, could not be heat so far upward towards ye box by drilling, as it had receivd Polarity ; so that supposing ye very top to be sufficiently heat, and to have lost it's south polarity, it has it still supply'd from ye parts upward. Magnetic virtue (as I always observ'd) tending still toward ye extreams [as appears from ye edges of ye arms of a loadstone, which (ye virtue seeming from ye surface of every side there to unite) takes up much more filings of Iron, then ye middle can.]

7 As to ye conclusions, first that a Drill is naturally a N: Pole I suppose may be true, but it is contrary directly to what is affirm'd in ye 5th Paragraph, viz: that a Drill made by Mr. Hunt was indifferent to either Pole &c; and I suppose that bare drilling might be able to give a Polarity to a Drill, if it could be made indifferent, as well as filing does, if ye Drill be us'd so briskly as to be made as hot as the file makes ye Iron, & that tho a S. Pole given by ye Magnet cannot be taken away by the heat of a brisk motion (as that of Drilling) which yet by ye Experiment of my knife seems to be contradicted, yet perhaps ye heat may be great enough to produce a Polarity in an indifferent peice of Iron, as was before said to be done in little indifferent Drills, like peices of steel, by filing.

I have within these 2, or 3, days tryd severall small experiments, referring to what I before have said, but with such uncertainty that as I find many things in my tryalls contrary to what others have seemd to find, so I question whether any thing I have said, will universally bear ye test; so that happening these 2 or 3 last weekes, to be hinderd [as I am like to be so many more] more than usuall with other concerns, I am forcd at present to want ye satisfaction I promis'd my self, and this Society: till myself hereafter shall endeavor, or some more able member in ye mean time [if at leisure] shall be pleasd, to give us.

Mr. Bernard read a letter * of his to Dr. Huntingdon, concerning ye place of ye fix'd starrs, as treated of in severall Arabic Authors, given to Merton Coll: Library by ye Dr. There being some discourse concerning ye insipid tast of ye Ice of Seawater, it was quæried, whether Sea-water might not be sweetned, and rendred Serviceable by these means. Dr. Wm. Levit Principal of Mag:

* This letter is printed in the Transactions number 158.

Hall, Mr. Crouch Fellow of Bal: Coll: & Mr. Henry Piggot of Wadam Coll: being formerly admitted into this Society, did, at this Meeting, subscribe their names, under ye Articles, in ye Journall booke: Mr. Entwissel's Admission was proposd in order to be Balloted.

Aprill the 15*th* [1684].

Dr. Smith, being desird to take ye Chair, orderd ye Minutes to be read: After which Mr. Pulleyn informd ye Society, that an Elm, split at Cumner, dureing ye late frost, was observ'd to have Ice in it: It was affirmed (by ——) that vines have been split this winter, more frequently towards ye South, than any other, point of ye Compass; and that they split more in ye Thaw following ye great Frost, than in ye frost itself: ye reason of ye former may be, because vines lye most open to ye South, and partly also (as Mr. Walker imagins) because ye Sap-vessells are largest, and ye quantity of ye Sap greatest in ye south side of ye vine, as in other Trees.

Dr. Smith then orderd that Mr. Bobart should be desired, to give an account, in what manner, ye Frost has been injurious to his plants this hard winter and acquaint us with what observations, he has made in this kind: The Dr. did himself observe, that ye Cedars of ye Physick garden, raisd from seeds, brought out of Syria, bore ye shock of ye frost, without being any way damag'd. Mr. Crouch was desir'd to enquire, whether ye Cedars of Bal. Coll: were any way injur'd. Mr. Wheeler of Sibbertoft in Northamptonshire, desireing to be of this Society; his admission was propos'd this meeting, in order to be ballotted. A Letter dated Aprill 10th, from Mr. Aston, Secretary to ye Royall Society, was read; which quæstioning whether a body, in shape like ye heel of a Shooe, presented by my Ld Bp of Lincoln, to Dr. Plott, being

esteemd as a Petrification of leather, be any thing more then a bare Incrustation; for ye satisfaction both of our selves, and ye R.S., it was ordered, that this (supposd) Petrification should be examind, as to its make, and Texture; more especially by boring it: Mr. Wm. Piggot tooke this charge on him:

*Three papers of Dr. Listers concerning thunder &c proceeding from Pyrites; and

*A letter from Sr R: Southwell to Mr. Aston, concerning ye compasses of a Ship being chang'd by lightning, were (all) read:

A Peice of black Brittish Marble, spotted white, found in ye grounds of Mr. Wogan of Bolston in Pembrokeshire (who uses this sort of stone for ye makeing lime) was comunicated to ye Society, by Dr. John Floyd, Principall of Jesus Coll:, and Vice-chancellor of ye University: [1]

It was orderd, that ye most humble thankes, of this Society, be presented to Mr. Vice-chancellor, for this present; and that it be preservd among Mr. Ashmoles Rarityes. This led us to discourse of sawing marble: it was affirmd by Mr. Wheeler that Little Veins, calld *pins* by ye stone-cutters, run up and down, and are sometimes so many and so hard, that they dull ye teeth of ye tooles, so that many times it is not worth ye while to worke ye stone.[2]

* These 3 papers and Letter, are all printed in the Phil. Transactions number 157.

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[1] Cf. Letter of Mr. Musgrave dated at New College, Apr. 19. (R.S. Letter-book, ix, p. 165.)

[2] Dublin, April 21, 1684. Mr. Molyneux produced a letter, which he received from Mr. Musgrave, containing the minutes of six meetings of the Oxford Society: these were so very curious and acceptable, that discourse thereon took up almost our whole time of meeting. Birch, p. 296.

Aprill the 22nd, 1684.

Dr. Smith (takeing ye chair, at ye request of ye Society,) after ye reading of ye Minutes, communicated some abstracts of letters, he lately receivd from beyond Sea:

[From Paris Monsieur Auzout affirms, that no great Loadstone, tho capp'd, will take up above 12, or 15, times its weight, but, he says, that in Italy he has seen little Loadstones, which have rais'd 80 times their weight, and some 140 times their weight.

A Joyner at Roven in Normandy, has made Barometers entirely closd, without any communication of externall air, (unless it can be suppos'd to pass thro ye pores of ye wood ;) which exactly observe ye motions of ye other sort. They have this convenience that ye Mercury cannot get out, because all is very closely glew'd. They may be carried in a Coach, or otherwise, without prejudice: The effect of ye closed Barometer is ascrib'd to a matter more subtil than air.

In a certain province of Nova Francia, there is so great a quantity of salt peter in ye feilds, that ye oxen there are so salt that they cannot eat their flesh, for 3 or 4 Months in ye year, ye steams of salt peter falling in that abundance upon ye grass.[1]

Sheep in Affrick, that have teeth with *aurea armatura*.

Bees in ye W: Indies which have no sting; which place ye young ones in their honey; and their fæces in seperate cells: their honey is as clear as water.[2]

*From Leige On ye 4th of february S.N. severall

* Pr. in ye Trans. No. 158.

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[1] R.S., Apr. 30. The fact of saltpetre in Nova Francia was doubted, because it is a moist country, and northerly and poor; whereas that commodity would have made it rich. Birch, p. 291.

[2] R.S., Apr. 30. Dr. Lister said, that in England there was a little white-nosed bee without a sting. *l.c.*, p. 291.

Colliers working in a Colepit at Herstol, half a league from Leige, betwixt 7 & 8 in ye morning; a vein of water was open'd, which gushing in very violently upon them, drownd one of ye number, those that were near ye mouth of ye pit were drawn up; but 4, that were at a greater distance, sav'd themselves upon a little ascent within ye Mine, which had severall allies to it; 24 days were spent in drawing off ye water, & upon ye 25th, March ye 9th, they were taken up all alive, not haveing had one morsell of bread during all that space; and subsisting onely upon a spring that flow'd near them: a great quantity of this water was evaporated, to try, if they could discover any thing of Nourishmt in it, more than in comon water, but they found nothing, but a scarce perceptable calx remaining.[1]

From Paris: A New Mathematicall Instrument lately invented at Paris, made very comodious for travelling, and so light, that it may be carried in ones pocket, it serves for a semicircle, sector, square, measuring all sorts of Angles whatsoever, takeing ye weight of bullets, ye Declination from ye North, ye inclination, or reclination, of any wall, or whatever it be, and many other uses it hath, which seem to be demonstrable.][2]

Dr. Plott brought in an account * of ye effects of ye late hard frost on ye vegetable kingdom, drawn up by Mr. Bobart, Gardiner to ye University: it was order'd, that ye thankes of ye Society should be return'd to Mr. Bobart for this account: Mr. Maurice Wheeler Rector

* See Letter Book B, Paper 6th.

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[1] The President of the R.S. gave in an extract from a similar letter from Liege, dated Apr. 9, 1684 (Phil. Transactions, No. 158, p. 577), at the R.S. meeting of April 16. Birch, p. 288.

[2] R.S., Apr. 30. Hooke remarked that a sector with sights might perform whatever the new mathematical engine at Paris was said to do. Birch, p. 291.

of Sibbertoft in Northamptonshire, and Mr. Entwisle, haveing been formerly propos'd to ye Societye, their admission was this meeting put to ye Ballot, and carried in ye affirmative ; Mr. Wheeler subscrib'd to ye Articles, as also did Mr. Arthur Charlett, & Mr. Stephen Hunt, Fellows of Trin: Coll: Mr. Charlet offer'd, that a farther enquiry be made into ye effects of ye late hard winter, on plants ; particularly that Mr. Wrench, A Gardiner of Oxon: (whose loss has been very great in this kind) be desird to give an account of ye manner of that losse, as Mr. Bobart has done: Mr. Charlet, & Mr. Desmasters tooke ye care of this thing on them. Dr. Plot comunicated ye abstract of a letter from Capt: Ralph Sneyd of Bradwell in Staffordshire, which sais that a great oak at Chebsey in that County, vallued at £12 ye last Autumn, was splitt quite thro by ye frost this Winter ; The Dr. also informd ye Society, that both resinous, and gummy, trees have suffer'd very much by ye last Frost [1] ; but ye latter much more than ye former ; likewise he shew'd ye Society a lamp, whose wick was made of Salamanders wool, in order to a Discourse of sepulchrall lamps now under his hands: A letter was also comunicated by ye Dr., lately receiv'd from Mr. King of Ingestre, in Staffordshire ; concerning an æquinoctiall Diall in that Country ; representing a booke open'd, ye edges of ye booke were Gnomons, casting a shade on ye opposite side, where ye hours were exprest by paralell lines. Dr. Bagly of Worcester, and Mr. Creech, were propos'd to ye Society.

[1] R.S., Apr. 30. It being said in Mr. Musgrave's letter (R.S. Letter-book, ix, p. 169) that trees of active juices had suffered most from the frost, Dr. Lister answered that the maple and sycamore will bleed all winter, and yet they had not suffered. Mr. Evelyn remarked that splitting was often from want of juice ; and he observed occasionally that the platanus of Zinnar, a kind of myrtle, grows here very well in moist places. Birch, p. 291.

On ye 23d ditto being St. Georges day,

Dr. John Wallis was elected President;

Dr. Robt. Plott, Director of Experiments,

Mr. John Ballard Treasurer,

Mr. William Musgrave Secretary, for ye year ensuing.

At this meeting Mr. Ed: Entwisle subscribd to ye Articles.

Aprill the 29th, 1684.

Mr. President, takeing ye chair, gave order for ye reading of a letter dated Apr: 24,[1] from Mr. Aston; which affirmd, that ye experiment of makeing Plaister of Paris perspicuous, by striking Turpentine thro it, was tried, and succeeded, before ye Royall Society. Dr. Bagley of Worcester, and Mr. Creech were admitted into this Society, by Ballot; Mr. Anderton of Boxford, in the County of Berks, was proposd. The substance mentiond in ye Minutes of Aprill ye 15th, and sometimes supposd to be a petrifyed heel of a shooe, breaking when bor'd; ye peices of it were produc'd, & judgd to have been *allwais* stone: [2] This gave occasion to some discourse, concerning such stones as are of a shape resembling some other body in nature, and are not found in beds, of which sort ye stone now mentiond is an Example: & Dr. Plott acquainted ye Society, that he found a stone in Staffordshire in form like ye *heart* of a Pullet; haveing lines in it, answering to ye coronary vessells of that Muscle.

A Letter* from Dr. Huntingdon to Dr. Plott, concern-

* Printed in ye Transactions numb. 161.

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[1] Aston's letter described proceedings at R.S. meeting on April 16. The plaster of Paris experiment was done by Papin. (Phil. Transactions, No. 158, p. 577.) Birch, p. 288.

[2] See p. 59. R.S., May 7. A letter from Musgrave dated at New College, May 2, 1684, mentions it. (R.S. Letter-book, ix, p. 177.) Birch, p. 296.

ing ye porphyry pillars in Ægypt, was read: in it were enclos'd ye draughts of 2 Pillars taken in that place; this letter being written at ye request of this Society, it was order'd that our thanks should be returnd to Dr. Huntingdon for this obligation.[1]

May the 6th [1684].

Mr. Præsident being out of Town, Dr. Bathurst was desir'd to take ye Chair; A Stone representing a pullets heart, mention'd ye last meeting, was now produc'd by Dr. Plott; ye fat, and Coronary vessells were imitated in a lively manner [2]; another stone, comunicated by ye same hand, represented ye head of a Partridg, with ye bill, eyes, cavity for ye brain &c.

The Dr. was pleasd to oblige us farther, with ye sight of a Glow-worm shining in ye middle of ye day; this gave occasion to some Discourse concerning Lucid Animalls; in which Dr. Bathurst bore a considerable share; affirming, that, in some dissections of Glow-wormes, he had formerly observ'd, that as soon as ye Insect was cut in peices, ye Lucidity disappear'd, but it was asserted by ———— that even ye peices of a dissected Glow-worm have been known to shine; ye Dr. mentiond ye bones of a Thornback, as remarkable for Lucidity.

The Mercury of ye Barometers, haveing been very low, all ye last weeke, & no rain near Oxon: gave suspition

[1] Dr. Huntingdon entertained the Dublin Society on Apr. 7, 1684, by his discourse on the porphyry pillars. Birch, pp. 295, 296.

[2] R.S., May 14. A letter of Mr. Musgrave to Mr. Aston, dated at New College, May 7, 1684 (R.S. Letter-book, ix, p. 185), was read, giving an account of some stones resembling a pullet's heart and partridge's egg, and the shining of glow-worms. Birch, p. 297. The context in the Oxford Minutes shows that 'egg' is an error for 'head.'

that there might be rain at some distance: ye like event haveing been certainly known about a month since: this discourse began on ye acct of a scheme of ye weather ye last month, taken, and communicated, by Dr. Plot.

Dr. Bathurst acquainted ye Society, that ye truth of that Relation given in, not long since, by him, concerning a Woman at Wells, who, in ye time of her travail, felt no considerable pain, except in ye tips of her ears, where it was very violent (vid: Min: of Mar. 18.) is confirmd to him a second time by a sufficient hand; mention was made of ye Custom of some House-wifes who chase down, then cut off ye leggs of ye (as yet) liveing Fowl: and of others, who give their fowl vineger some time before killing them, to make them eat ye more tender.

Dr. Plot read a discourse on sepulchrall Lamps,* shewing by what means a Lamp may be made to burn without air.[1]

†An Abstract of a letter from Mr. Evelyn, containing an account of ye great losse sustain'd by him in his Garden, ye last (hard) winter, was read.

Mr. Thomas Creech ffellow of All Souls Coll: subscrib'd to ye Articles.

Mr. Anderton's admission was ballotted, & carried in ye Affirmative.

May the 13*th*, 1684.

Dr. Smith, takeing ye Chair, comunicated an Abstraet of a Letter from Paris, which sayes [that there is a Thermometer, lately invented there by Monsr. du Val, (whose

* Printed in ye Transactions numb. 166.
† Printed in ye Transactions No. 158.

[1] R.S. Register, vi, p. 127. Phil. Transactions, No. 166, p. 806, for Dec., 1684. Birch, p. 298.

Father, a famous Architect, contriv'd ye Church of Val de Grace) [1] which serves to shew ye duration, increase, and Diminution of feavors, it is but 3 inches long; 4 or 5 lines in diameter; ye inner pipe, which contains ye refin'd quicksilver, is onely half a line in diameter. Mr. Packer of Reading being present, and propos'd this meeting, affirm'd that he knows a Woman who has constantly ye first notice of her breeding from a pain in one of her leggs. A Letter from Mr. Aston dated May 8th, another from Mr. Molineux dated Apr: 22d, and ye Dublin Minutes, from March ye 17th to Aprill ye 21st 1684 were read: on ye account of these Minutes some of St. Cuthberts beads were produc'd by Dr. Plott: they were not perfect screw stones (as they are comonly term'd) but a Conjunction of Annulets; sometimes hollow, (some of which sort have been us'd as beads) and may be seperated from one another, by lying in vinegar. Mr. Molineux is desired to inform us as to ye nature of ffelns i.e. a Tumor growing on ye extream parts, and proceeding (as it is suppos'd) from ye use of whey.

An Abstract of a letter from Mr. Heathcott,[2] from Cabo Cors, on ye coast of Guinea, to Mr. Flamsteed, concerning ye Tide on that Coast, ye variation of ye needle, &c, was read: An Account of some injections into ye Thorax of a Grey-hound, were read by Mr. Musgrave; they are as follows.

[There being mention made in ye Minutes of ye Dublin Society, dated March ye 17th, 1683–4, and just now read, of water injected into ye Thorax of a Dog, and (suppos'd

[1] R.S., May 28. Letter of Mr. Musgrave to Mr. Aston, dated at New College, May 13, 1684. (R.S. Letter-book, ix, p. 196.) Birch, p. 299.

[2] Heathcote's letter was addressed to Mr. Flamstead and communicated by him to the R.S. meeting on April 16, 1684. Birch, p. 288.

to be) brought off *per Anum*; I am hereby induc'd to hasten an Account of some Experiments, I formerly made, by syringing water into ye same (middle) *venter*, which I would otherwise have deferr'd, untill repeated Trialls should have satisfied me, as to ye cheif design of them.

Expt. 1.

On Thursday ye 21st of June 1683, I syring'd ℥iiij of warm water, into ye right side of a Grey-hound bitch; which causd a great *Rigor*; (especially in ye hinder parts;) a shortness of breath; a heat, or burning, in ye flesh; she look'd heavy; was unwilling to rise, or stand long on her feet; these Symptoms wore off by degrees, so that in a weeks time she appeard as well as ever.

Expt. 2.

On ye 2d of July following (that is 11 days after ye former Expt.) I injected ℥xvj of warm water, into ye left side of ye *Thorax* of ye same Greyhound, after which she was extreamly hot, and short breathd; I felt a violent throbbing of her heart; but ye *Rigor* was not so great as in ye first Experiment: She recoverd this also in ye space of a week.

Expt. 3d.

About ye 15th Ditto, I injected ½ lb of warm water into one side of ye *Thorax*, & ½ lb into ye other side, of ye same Bitch: ye Symptomes attending it were (as in ye former Expts.) a burning in ye flesh, and a Shortness of breath; they all went off; and in 5 days time she seem'd perfectly recoverd.

Thus, we see, a quantity of 3¼ lb of warm water, has been injected into ye middle venter of ye same Grey-

hound, within ye space of one month; & if we may be allow'd to judg of her recovery, by a perfect cessation of all Symptoms, as to outward appearance, we must then grant, that this water was carried off thence, in that time; but to give an account, which way it was discharg'd, (whether by Expiration, Perspiration, Seige, or Urin,) seems very difficult, and is beyond my Anatomy to explain; onely thus much I must say as to ye latter; that, haveing order'd ye Greyhound to be tied away, after one of ye 2 last Expts, within 2, or 3, days, I observ'd ye boards of ye flore, where she lay, to be very wet, which I then imagin'd to be ye effects of ye Injection come off by Urine: If I may have leave to give a conjecture in a matter of so much uncertainty, it shall be this; That, as Nature has furnish'd us with Vessells to bring off that humor, which is thrown into ye Ventricles of ye brain, which by tarrying there would prove fatall to us; so likewise (possibly) there may be some *Ductus*, as yet unknown (to me at least,) which, belonging to the Thorax, may convey off thence what liquor arises, either from ye Condensation of Vapors, or from ye Rupture of Lymphatics, or any other way, in that cavity, mediatly, or imediatly, into ye blood: certainly these Expts, as also ye many Historyes of *Empyema's*, and Dropsyes of ye Brest, mention'd by Physitians, as curd by large Evacuations by Urine, doe (in some measure) argue ye probability of this thing; but whether in reality there be any such passage, or no, may in a little time be rendred less questionable, than now it is, if this Society shall thinke fit to order ye triall of such Anatomicall Expts, as seem to promise a full Decision in this Matter.]

Mr. Cooke a Gentleman nere Newbery was propos'd.

The Meeting adjourn'd for a fortnight.

May the 27th, 1684.

A Letter from Mr. Aston,[1] dated May 15th, was read, with an Extract* out of 2 MSS., (suppos'd to be writ at least 300 years agoe ;) concerning *Ignis Græcus*.

On this occasion Mr. Bernard affirm'd, that there is an account of *Ignis Græcus* in an Arabick MS, in St. John's Coll: Library in this Univrsity, and in Julius Africanus's Cesti cap: 45. Mr. Piggot said he was told, by one that makes fireworkes, that Rockets made of Sulphur vive will burn under water. Dr. Plott shew'd ye following Expt. he held a live coal to ye lower part of an *hour-Glass* which imediatly stopd ye running of ye sand ; this he repeated 2, or 3, times with ye like success.

Another Letter from Mr. Aston [2] dated May 22, was read ; it mentiond an Expt of weighing air. Mr. Aston was desir'd by ye Society to give them an account of ye method usd in that Expt.

A Paper of Mr. Flamsteeds [3] was read, which gave an account of a *spot*† which he had observ'd in ye *Sun*, about a month since.

The Answers of Mr. Proctor Clarke of Magdelen Coll: and of Mr. King in Staffordshire, to some Quæries about ye splitting of Trees in ye *frost*, were read. Dr. Plott said ye white grape vines in ye Physick Garden are dead, but not ye red, tho growing on ye same wall.

* Letterbook B, Paper 22.

† An account of it is printed in ye Phil. Trans. numb. 157, page 535.

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[1] R.S., May 7. Dr. Gale shewed a passage in a manuscript in his possession concerning the *Ignis Græcus*, describing punctually the way of making fire-works with gunpowder. The MS. was of time of Henry III. Birch, p. 296.

[2] R.S., May 21. Description of apparatus for weighing the air is contained in the Register, vi, p. 181. Birch, pp. 298–9.

[3] R.S., May 14. Birch, p. 297.

Mr. President observ'd, that severall vines which are split, are dead above ye place split.[1]

Then Mr. Walker produc'd a Modell of ye *Roof* of a Church, which may be built 70 foot wide, without any Pillars in it, and a paper was read by him to prove, that such a Roof would be strong enough for use. Mr. Cooke a Gentleman near Newbery, and Mr. Packer M.B. a Physitian of Reading, were elected. Mr. Todd A.M. Fellow of University Coll: and Mr. Benbrigg A.M. of ye same Coll: were proposd.[2]

June the 3rd, 1684.[3]

Mr. Todd, & Mr. Benbrigg were elected, and afterwards, being calld in, subscrib'd. Mr. Bernard, and some others of ye Society, gave an Account that on ye 27th of May last in ye Evening, they tried to discover ye *Spot* in ye *Sun*, which Mr. Flamsteed had observ'd a month before, and which he conjectur'd would continue during a second Revolution of the Sun ; but they could discern nothing, tho they made use of a good Telescope, 15 foot long, and ye Air was clear.

A Letter dated May 29th, from Mr. Aston, was read ; wherein it being said that *Ignis Græcus* was known 400 years agoe, Mr. Creech tooke notice, that there is an

[1] R.S., Apr. 9. Dr. Wallis remarked, that the vines had split from the bottom to the top since the frost, upon the coming in of the warm weather : and that they did not bleed, though the splitting reached often beyond the heart. Birch, p. 281.

[2] R.S., June 4. A letter from Mr. Joshua Walker to Mr. Aston, dated at Brazennose College at Oxford, May 28, 1684 (R.S. Letter-book, ix, p. 199), was read, mentioning that Mr. Musgrave going out of town had desired the writer of this letter to supply his place in writing.

[3] The proceedings of this meeting were described by Joshua Walker in a letter dated June 4, 1684 (R.S. Letter-book, ix, p. 202). Birch, p. 302.

account of it antienter than that, namely in *Constantinus Porphyrogenitus's* advice to his Son, and in Mathew Paris in ye Life of Henry ye 3d.

A Letter* from Mr. Wheeler [1] was read, concerning ye description of a *watch*, invented by him, that may be so fram'd, as to move upon a declivity without any spring, or any other weight, then what is included in ye body of ye watch ; wherein he also fully, and learnedly, shew'd ye reason of its motion, and ye manner how it should be pois'd.

It was orderd, that the thankes of this Society should be return'd to Mr. Wheeler for this Letter.

Dr. Plott shew'd a pattern of ye same *porphyry*, of which ye Pillars† in Ægypt consist ; this was brought

* Prin. in ye Trans. numb. 161.

† Concerning the Porphyry Pillars of Aegypt, see Dr. Huntingdon's Letter in ye Trans. 161.

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[1] Maurice Wheeler, M.A., rector of Sibbertoft in Northamptonshire. His letter to Dr. Plot, dated May 22, 1684, is printed in Phil. Transactions, No. 161, p. 647.

R.S., July 2. A discourse was communicated from Oxford concerning the making a watch to move upon a declivity such as had formerly been contrived by Edward Marquis of Worcester, though never seen by the author, Mr. Maurice Wheeler. The discourse being long, it was not read, but a copy ordered to be kept. Letter-book, ix, p. 243, printed in Phil. Transactions, No. 161, p. 647, for July, 1684.

Another discourse was communicated from Oxford by Mr. Joshua Walker concerning the figure of a church, which may be built seventy feet wide, without any pillar in it. (Letter-book, ix, p. 236.) This also being long was not read, but ordered to be transcribed.

A discourse concerning the natron of Egypt by Mr. Charles Leigh of B.N.C. (Letter-book, ix, p. 216 ; Phil. Transactions, No. 160, p. 609), was part of it read, the other part being referred to the next meeting. Birch, p. 310.

into England by Dr. Huntingdon; it is said to be so hard, that no tool, made now adayes, will worke it. He also shew'd ye draughts of *2 Obelisks* at *Alexandria*, viz of Pompey's Pillars, and of one of ye needles, both sent by Dr. Huntingdon. He then producd a peice of *Natrôn*,* or Nitre, found on ye top of a lake in Ægypt, which he observd ye last year to yeild, and melt near ye time of ye riseing of ye Nile. He said it did not grow moist in ye thaw, nor all ye winter, but it began to relent 3 or 4 dayes agoe, and ye paper it was put in, was now moistned all over; He promis'd to observe its increase, or decrease of weight, and to give an account of it. Afterwards Dr. Plott read ye following discourse concerning *Vines*.

[To ye many curious observations, lately made by severall worthy Persons, upon ye sad effects of ye late great *frost* on vegetables, I thinke it not impertinent to add these relating to vines, vizt that ye Vines bearing *white* grapes, have suffer'd much more, than those that bear *red*; and consequently seem more tender, especially the white *Muscadine*, which are (some of them) quite dead, but ye *Frontinjac*, *Burlake*, and *Rhenish*, not so; these springing again fresh from ye root, though all ye old branches are dead. and yet none of these have escap'd so well as ye red, whose Branches are not dead above half way down but even amongst ye red grapes too, there is a difference; ye red *Frontinjac*, and ye red *Orleans*, being weaker than ye *early clusterd grape*, or ye *red wine grape*, which seems to be hardy most of any; and amongst all, ye red grape is ye onely one, whose juice is really ting'd red, and gives tincture to ye rest whose juices are white.

* See Mr. Leigh's letter concerning the Natron of Aegypt, *Trans.* No. 160.

June the 10*th*, 1684.

Dr. Plott acquainted ye Society, that, haveing put some of ye *Natrôn* into a Glass about a month since, he observ'd, that, at ye beginning of June, it was somewhat encreasd in weight. He presented ye Society with a sp. of this salt mixd with salt of tartar; it was very volatile, urinose, and had something of an oiliness in its tast;

He mentiond severall other Expts, which he had tried on this salt, but haveing not as yet put his last hand to them, He was desired to prosecute them, as he shall thinke fit; and bring in an account of them, when completed. A Letter from Mr. Aston[1] dated June ye 5th, was read; Dr. Plott brought in an account of ye *weather* ye last Month here at Oxon, taken according to Dr. Listers Scheme: if this design be carried on, in ye severall quarters of ye land, it will inform us more particularly as to ye coasting of winds & how Rains &c depend on them. He also presented to us a pattern of a very rich *Gold-ore* from Hungary, lately presented him by Mr. Lawson a Dane; it was of that sort, which is termd *Aurum statim suum*; it needs no refining; but may easily be separated from ye Alabastine substance, with which it is mix'd, barely by powdering. Dr. Smith comunicated, and read, a Discourse de *Longitudinum* differentijs inveniendis, composd many years since, by Dr. John Bainbrigg, formerly Savilian Professor in this University, and transcrib'd out of ye Authors MS. by ye Dr.[2]

[1] The R.S. met on June 4. Birch, p. 300.

[2] R.S., June 18. A letter of Mr. Musgrave to Mr. Aston, dated at Oxford, June 12, 1684 (R.S. Letter-book, ix, pp. 206, 228), being read, mentioning a MS. discourse of Dr. Bainbridge concerning the several ways of finding the longitude, the secretary was ordered to write that it might be communicated. Birch, p. 306.

Part was printed by Birch, pp. 311–15.

June the 17th [1684].

A letter from Mr. Aston,[1] dated from London June ye 12th was read; a letter* from Mr. Tancred Robinson, to Dr. M L, concerning ye Bridg at Pont Esprit in France, was read. Dr. Plott affirms, that ye Bridg at Burton in Staffordshire (which is one of ye greatest in all England) is built after ye same manner with that at Pont St. Esprit: this occasion'd some discourse concerning ye running of Rivers; It was affirm'd that Medway runns ye least way of any River in England, of that Bigness:

†Two remarkable Cases relating to vision were comunicated by Dr. Plot, to whom they were sent by Dr. Briggs of London; one of these cases was a *Nyctalopia*; a distemper not frequent amongst us.

It was affirmd, that Dr. Turberfeild of Salisbury has (not long since) met with a disease of ye eye as yet undiscoverd, it was a bag of matter on ye outside of ye ball of ye eye, prominent from ye *tunica adnata*; the Dr. Cur'd his Patient, and calld this Distemper *Bursa Oculi*.[2]

There being some Discourse concerning severall ways of makeing a *Sp: fumans cum Aere*; it was orderd that a Sp: of that kind should be made, and an account of ye process brought into ye Society, which Mr. Bainbrigg undertook to do.

Dr. Pudsey Fellow of Mag: Coll, and Mr. Alexan:

* Printed in ye Trans. No. 160.
† Printed in ye Trans. No. 159.

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[1] The R.S. met on June 11. Birch, p. 302.

[2] R.S., June 25. A letter of Mr. Musgrave to Mr. Aston, dated at Oxford, June 18, 1684 (R.S. Letter-book, ix, p. 257), was read, mentioning Dr. Turberville of Salisbury . . . Birch, p. 308.

Cuningham of St. Leonard's Coll: in St. Andrews, were propos'd to ye Society.

June the 24th [1684].

A Letter from Mr. Aston,[1] dated June ye 21st 84 was read; which mentioning an Experiment lately made before ye Royall Society, for finding ye qu: of air, contain'd in Iron; it was orderd, that Mr. Aston be desird to comunicate ye manner, and method, of that Expt: In this Letter were contain'd ye Minutes of ye Dublin Society, from Aprill ye 28th to June ye 2d:,[2] which giving an account, that ye Irish Lime is made of marble, and therefore to be preferr'd before that of England (ye hardest stones always makeing ye best lime) it was affirm'd, that in some parts of England (as in Staffordshire, Devonshire) and in Wales, Lime is comonly made of marble: ye same minutes mentioning [that a Dog, haveing about 2 inches in depth, and 3, or 4, in bredth, cut off from one of ye lobes of his lungs, recover'd it without any injury to him] Mr. Musgrave assur'd ye Society, that ye same Expt was tried by Dr. Lower, here in Oxon, many years since, with ye same success, as he heard from Mr. Fry, formerly a Chyrurgion in this Town, who assisted ye Dr. in that Expt:

These Minutes giving also an account that one of ye externall jugulars of a Dog, was tied without injuring ye Dog. Mr. Musgrave read a paper, acquainting ye Society with what he did in this kind ye last March: the paper is as follows [Sometime in March last, I tied ye 2 externall jugulars of a dog, and cut off ye veins, on this side of ye Ligatures, towards ye heart: The same Expt was tried many years since, by ye famous Dr. Lower (vid:

[1] The R.S. met on June 18. Birch, p. 303.

[2] The Dublin minutes are printed in Birch, pp. 303–5.

ejus librum de corde, pag: 112 Ed: Amstel: 1671) who observ'd, Quod post aliquot horas, partes omnes supra ligaturam mirè intumescebant, et intra duos dies canis, quasi anginâ suffocatus, interijt : porrò toto hoc tempore non solum lachrymæ copiosiùs fluebant, sed et saliva ex ore profluxit, non aliter quàm si, mercurio assumpto, fluxus ille concitaretur:]

These were ye strange effects of ye Drs. Expt, and my success, in repeating it, was also somewhat surprising, but on a differing account ; for I could never find, that ye Dog, on which I tryed this Expt, was any way concern'd, otherwise than at ye wound ; I found no alteration in him at all, that I could impute to ye stoppage of ye circulation, in ye veins before mentiond &c.

About 3 weeks after this Expt, ye wounds being now heald, I tried another Expt on ye same Dog, under which he died : I examin'd him as to ye Jugulars, which I found almost dried up:

If ye Jugulars in men comunicate one with ye other, in ye same manner, as they did in this Dog, we may then argue hence, that bleeding in ye Jugulars, is more proper in some Distempers of ye head, than severall Physitians (who suppose no considerable comunication between ye brain, and externall jugulars) will allow.

This Expt was tried in ye Presence of Mr. Paige, and some others, of New Coll:] [1]

It was orderd, that ye Eclipse of ye Sun, on ye 2d of July next, be strictly observd, and that all things necessary for that purpose be made ready by that day.

Mr. Walker mention'd a Barometer he has, ye tube of which, at about 27 Inches from ye open end, turnes

[1] Musgrave's account is printed in full by Birch, p. 310, having been read to the R.S. on July 2.

in an obtuse Angle, for ye better observing ye Ascent of ye mercury.

He was desir'd to shew it ye Society ye next meeting.

July the 1st, 1684.

A Letter from Mr. Aston, dated June ye 26, 1684,[1] was read:

Mr. Walker presented his Barometer, mentiond in ye Minutes of ye præceding week, to ye Society; ye tube of it, at ye distance of (about) 27 Inches from ye upper end, was bent, in an angle of 108 degrees, for ye better observing ye motion of ye mercury, which, in ye sloaping part of this Tube, does rise, and fall, $2\frac{1}{2}$ Inches, for one Inch in a Tube exactly perpendicular.

Mr. Bernard was pleas'd to acquaint ye Society, that a spot in ye Sun was seen by Mr. Caswell [2] on Thursday last, and by himself at $\frac{1}{2}$ hour after 7 in ye Morning, at which time it was not far from ye Rim of ye Sun: it appeard to be a thick firm spot, and to take ye same course, with that observ'd, not long since, by Mr. Flamsteed, (vid: Minutes of May 27, 1684;) for it past over near ye Center of ye Sun. He tells us farther, that he look'd after it again on ye Munday following but could not see it; it had made its exit: We are promisd a more full account of this matter. Dr. Bathurst inform'd ye Society, of a Relation he lately receiv'd out Somersetshire, concerning ye great damage done to ye beans in that Country, by vast numbers of Caterpillars.[3]

[1] The R.S. met on June 25. Birch, p. 307.

[2] R.S., July 9. Musgrave's Letter, dated July 2, in R.S. Letter-book, ix, p. 260. Birch, p. 315.

[3] R.S., July 16. Musgrave's letter, dated July 9, is in R.S. Letter-book, ix, p. 260. Birch, p. 316.

July the 8th, 1684.

A letter from Mr. Aston, dated July 3d, was read: An Account of ye weather at Dublin, in May last, taken in a scheme* according to Dr. Lister's Method, by Mr. Molineux, was presented by him to this Society. Order'd, that ye thankes of this Society be return'd to Mr. Molineux for this Obligation. A Letter from Mr. Maunders, dated July 2d, and giving an account of ye very great Damage, lately done, to some parts of Somersetshire, by Caterpillars, was read.

An †Acct: of a monstrous child, born, not long since in Jutland, with 2 Draughts of that Child were presented.

†Two Letters written, some years since, by Mr. Lister, to Dr. Oldenbourgh were read: one concerning ye great age of severall persons in Craven; ye other concerning ye projection of ye threds of Spiders, and of bees breeding in cases made of leaves; as also concerning a viviperous flye: Mr. Todd promises an account of ye most aged Persons in Cumberland; and Mr. Crouch, at ye request of ye Society, engages to examin ye Register which gives an account of Mother George's age.

A Paper was presented, containing ye Design of some learned Gentlemen in Somersetshire, to write ye naturall, civil, and Eclesiasticall History of that County. See Letterbook B, Pap: 15.

The Society adjourn'd, by reason of ye Act, to ye 22d ditto.[1]

* See the scheme in ye Letterbook between ye Letters of June 21 and 26th ditto.

† Printed in the *Trans.* No. 160.

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[1] R.S., July 16. Mr. Musgrave's letter likewise mentioned the Somersetshire County History; the whole to be prosecuted by several hands, but the matter to be digested by some one of them: that Mr. Paschal, who lived near Bridgewater, was the chief

July the 22nd [1684].

Two Letters from Mr. Aston, one dated July ye 10, ye other 17 Ditto,[1] were read: An Abstract of a Letter from Dr. Huntingdon sayes, that Mr. Tennant, a Gentleman in Ireland, has lately invented an Engin for ye throwing of water, far exceeding that of Sr Samuel Moreland: Some of ye curiosities lately presented to ye University by Mr. Cole of Bristol, were communicated to ye Society by Dr. Plott, as 1st Sal Gemmæ from St. John de Port Rico, one of ye Leeward Islands[2] near Jamaica; it breaks generally into squares; is transparent near 4 Inches thick; so that at that thickness ye motion of a finger, playing up and down, may easily be discern'd. 2ly Silk Grass of 3 yards long found in ye Swomps, or moorish grounds, in Virginia, growing upon a tall plant from which it is strip't like Hemp. 3ly Neopolitan black writing sand, which applyed to ye Magnet in great quantity's, and much more readily than ye *ferrum Noricum*, or any other Ore wee have yet seen. Some of this Sand being calcind by Dr. Plott, ran into a Mass, which, when cold, was very brittle. Other Expts will be tried on this Sand by ye Dr. of which we are promisd an account.

Mr. Conningham affirms, that Sal Gem: is comonly thrown up by ye Lammas floods within 6 miles of St. Andrews, and usd by ye poor people in stead of common salt.

undertaker; and that they would be glad of any assistance or direction from the R.S. Birch, p. 316.

R.S., July 9. A paper was communicated from Oxford concerning a digestive liquor turning several meats into a chyly substance. The secretary was desired to obtain some of the menstruum for a trial. Birch, p. 315.

[1] R.S. meetings of July 9 and July 16. Birch, p. 315.

[2] R.S., July 23. Mr. Musgrave's letter of July 22 was read. (R.S. Letter-book, ix, p. 269.) Birch, p. 318.

A Letter from Mr. Flamsteed to Mr. Caswell, concerning ye late Ecclipse of ye Sun, and ye *Maculæ Solis* observ'd by him, was read. This great Astronomer does, in this Letter, seem to question, whether these spots, seen by him, were not 2 differing spots, rather than Revolutions of ye same spot; altho ye manner of their course along ye Disc of ye Sun, seems to be much alike, and therefore argues ye latter.

July the 29th, 1684.

An Account* was brought in, of ye Ecclipse of ye Sun, on July ye 2d, 1684; ye Observations were taken in ye University Observatory, by Dr. Wallis, Mr. Bernard, Mr. Caswell, and Mr. Rooke, and are as follow's;

	h	′	″
Beginning	2	03	00
end	4	21	14

Digits Tenths	h	′	″
0 – 6	2	07	44
1 – 0	2	10	44
1 – 3	2	13	19
1 – 6	2	15	44
2 – 2	2	21	34
2 – 6	2	23	44
2 – 9	2	25	39
3 – 5	2	29	54
4 – 0	2	33	04
4 – 4	2	36	34
4 – 6	2	40	04
5 – 0	2	43	14
5 – 3	2	48	19
5 – 6	2	50	09
6 – 5	2	57	36
6 – 7	2	59	14
7 – 4	3	08	24
7 – 1	3	11	09
6 – 7	3	31	39

Dig-Tenths	h	′	″
6 – 5	3	34	39
6 – 0	3	37	24
5 – 7	3	39	29
5 – 5	3	44	29
5 – 0	3	47	59
4 – 4	3	50	34
3 – 9	3	53	54
3 – 8	3	55	29
3 – 8	3	57	44
2 – 9	4	02	49
2 – 5	4	04	59
2 – 2	4	06	19
2 – 0	4	07	54
1 – 4	4	13	09
1 – 0	4	15	04
0 – 7	4	16	49
0 – 3	4	19	39
End 0 –	4	21	14

* Printed in ye Transactions No. 164.

Dr. Plot presented ye Society with an Elf Arrow, brought from within 2, or 3, miles of Edinborough, where they are in great plenty ; he shew'd us also some naturall gold of Scotland ; it was *Aurum statim suum*, in a Pepin, or great gram : He was pleasd also to comunicate to us ye following account of Black Lead [The minerall Substance improperly calld *black lead* (our comon lead being ye true black Lead, and so call'd in opposition to Tin, which is ye white lead) found onely in Keswick in Cumberland, and there call'd Wadt, or Kellow, by Dr. Merret *nigrica Fabrilis*, from its use in scoring, as ye *Rubrica fabrilis*, or ye Red Ochre is ; is certainly so far from haveing any thing of mettall in it, that it has nothing of fusion, much less ductility ; nor can it be reckon'd amongs't ye Stones for want of hardness : It remains therefore that it must have place amongst ye Earths, though it dissolve not in water, as most earths will, except stiff clays, and Ochres ; among ye latter whereof I guess it may be reckon'd, it seeming to be a sort of close Earth, of very fine and loose parts, so burnt that it is become black and shining, discoloring ye hands, as all ye Ochres doe : whence ye most proper name that can be given it perhaps may be *Ochra nigra*, or Black Ochre ; being a stony sort, as there are stony sorts of ye red, and yellow Ochres, as well as Clay.] Mr. Musgrave acquainted ye Society, that he had lately repeated ye Expt mentiond in ye Minutes of June 24th. 1684, tying and cutting of, ye externall Jugulars of a Dog, with ye same success as formerly ; ye Dog in neither of these Expts being any way concernd at ye Stoppage of ye Circulation in these Veins.

DR. PLOT OF MAGDALEN HALL

From a portrait belonging to the University

August the 5th, 1684.

*A Discourse of Sr William Petty's, concerning Land Carriages, was read: [1]

†A Discourse concerning Digestion, and ye ferment of ye Stomach, drawn up by Mr. Lee of Brazennose Coll:, was read, and will be printed in a little time. Some Seawater sweet'ned lately by Dr. Plot, Mr. Lee, and Mr. Musgrave, was shewn ye Society, and judg'd to be not in ye least salt to ye tast, and fit for use. Dr. Plot presented ye Society with some of ye *Pindes*, from ye Coast of Guinea; of which Substance ye Inhabitants make their bread, and severall meats; it seems to be a round seed: He also comunicated some Sawdust of a Wood from Jamaica (ye name of which as yet wee know not) which being put into cold water, did in some few minutes, tinge the water of a delicate Mulberry color.

Dr. Gibbons gave ye Society an account of a well near Cambden, ye water of which (as he is inform'd) tinges with galls, a day, or 2, after it is taken from ye spring, then intermits for 8 or 10 days, and after that tinges again; he promises a more full account of this Matter. An Account of ye weather ye last Month, taken (as usually) according to Dr. Listers scheme, was brought in by Dr. Plott.

The Society was inform'd, that Mr. Lee of Brasenoze Coll: has lately receiv'd a letter from a Freind of his in Lanchashire, who liv'd severall years at Tangier, and assures him, that, during ye time of his stay there, he enquir'd into ye nature of ye Current at ye Streights

* Printed in the Phil. Trans. No. 161.
† Printed in the Phil. Trans. No. 162.

[1] R.S., May 14. A paper of experiments proposed by Sir W. Petty to be made with regard to land-carriage (Phil. Transactions, No. 161, p. 666) was read. Birch, p. 297.

Mouth, by letting fall lines with weights at ye end of them, and that, which way soever ye upper Current went, ye lines were driven outwards; of which he sent this Acct to Mr. Lee, takeing ye occasion from what he finds printed by Dr. Smith in ye Transactions concerning this Subject; This Matter will be farther enquir'd into, and (if possible) A Relation of it be had under ye Gentleman's hand.

August the 12*th*, 1684.

Dr. Alexander Pudsey, ffellow of Magdalen Coll:, subscribd to ye Articles, and then sate as President;

A Letter from Mr. Aston, dated August ye 9th, was read: In it were containd ye Minutes of ye Dublin Society, from June ye 9th, to July ye 21st, 1684; which being read distinctly, and consider'd, it was order'd that Mr. Ash, and Mr. Molineux be desird to impart their Observations on ye last O [=solar] Ecclipse, to be printed with those made at Greenwich, and Oxon.

It is also desir'd, that Mr. K— would be pleasd to comunicate an account of his Mesolabe.[1] Order'd that Dr. Pitt be desird at his leisure to draw up, and comunicate to this Society, his thoughts concerning Digestion:

Sr Wm. Petty's paper of Land carriages, read ye last Meeting, enquiring into ye reason of ye Dishing of Cart-wheels, Mr. Walker was pleasd to comunicate these lines concerning it. [*one* reason of ye Dishing of Cart-wheels seems to be this; when one wheel falls into a Hole, or deep Cartrout, so that most of ye weight lyes upon it,

[1] Cf. Birch, p. 321.

then ye lower part of that wheel stands more perpendicularly to ye plain of ye Horizon, and consequently bears ye weight better than if ye wheel were plain, and not dish't.]

A Letter* from Dr. Turbervile of Salisbury was read, it gave an account of ye 3 following Cases [1]

1 The *Bursa Oculi*, which was in ye white of ye eye, under ye upper lid, an empty purse, no matter in it, and hung flagg about ye length of a thumb nail:

2 Another had no visible disease in his eyes, but could not see at all without squeezing his nose with his fingers, or saddling it with narrow spectacles and then he saw very well; him ye Dr. carried to Mr. Boyl.

3 Another, from Banbury, a Maid of 22, or 23, years old, could see very well, but no color, besides black and white; She had such Scintillations by night, with ye appearances of Bulls, Bears, &c that much terrified her; she could see to read sometimes in ye greatest darkness, for almost ¼ of an hour] It was orderd, that ye humble thankes of this Society be given to Dr. Turbervile, for his imparting to us cases so very remarkable, and worthy observation, and that his leave be desir'd that an account of them may be printed:

The last of these cases gave Mr. Bernard an occasion to acquaint ye Society, that, upon his wakeing in ye darke of night, he has often thought it light for some little time, after which ye false day disappears:

A Discourse† of Mr. Ashe's was read, concerning a new way of demonstrating Euclids Prop: and an accurate refutation of Mr. Coniers:

Dr. Plott comunicated some of ye bark of ye clove

* Phil. Trans. No. 164.
† Phil. Trans. No. 162.

[1] See p. 97.

tree, it had a strong aromatick tast, very much like cloves, and very differing from Cinnamon, which has sometimes been thought to be ye bark of this Tree: He comunicated also some patterns of ffirr, taken up in ye old *dewet pool*, in ye Parish of Norbury in Staffordshire, so full of Turpentine, that it is transparent; this is that which they use as Candles. and may well be thought to have adventitious Bitumen from ye Moores, wherein it lies; for forreign firr is not so transparent, will not burn so well; and that this is firr, appears very probable, because some of ye Trees taken up, have 6 Branches at ye Annuall distances, which, as ye Dr. thinkes, no Trees, but firr's, have: He also gave an account of some experiments he made with ye Wood mention'd in ye Minutes of ye last week; tho a TR[1] of this wood with comon water, be of a deep mulberry color, yet a peice of Cloth died in it (ye color being struck ye same way as scarlet viz: with Aquafortis) was of ye color of ye wood itself viz: Orange tawny. A TR of ye chips with sp: vi:[1] was of ye color of ye wood: ye Mulberry TR, made with fair water, ting'd a peice of paper thorough which it was strain'd, of a perfect blew; ye chips with sp: vi: gave a deeper mulberry color, and more red, than that with comon water.

Mr. Bernard communicated an Abstract of a letter, which he lately receiv'd from Dr. Io: And: Smidt, Prof: at Iene, who says, that Sturmius, Physic and Mathematic Prof: at Altorf, is now printing a booke, which he calls *Physica Conciliatrix*; that Wedelius will suddenly print a booke call'd *Praxis Clinica*; that he himself (viz: Smidt) has lately translated Mr. Pardies Elements of Geometry into Latin; that Weigelius, Professor of Mathem: at Iene, has lately invented a New Cælestiall globe.

[1] TR = Tincture. Sp: vi: = spirits of wine.

August the 19*th*, 1684.

The Society being met, ye following Experiments* were tried, by Mr. Musgrave.

Human spittle, clarified by standing, being mix't with syrup of Violets, turn'd to a delicate *green* color.

Part of a Mucous Substance, taken out of ye Stomach of a Jack near ye Pylorus, and mixt with solution of Sublimate, became much *whiter*, than it was before.

Another part of it, mix't with syrup of violets, turn'd *green*.

The same Person has observ'd like effects, by mixing a liquor found in ye Stomach of a *Hedghog*, with syrup of violets, and with solution of Sublimate.

These Experiments are urg'd as an Argumt against ye existence of an *acid ferment* in ye Stomach. It seems probable, that ye great worke of Digestion proceeds from a *Volatile Alcali*.

He also tooke notice of a large *bed of Glands*, makeing about ye $\frac{3}{8}$ths of ye inside of ye Stomach, and seated near ye Pylorus, of a Jack; the whole bed appears of a brownish red color, and is divided into severall Ridges, which run parallel to one another, and ye same way with ye Stomach; for ye better contraction of that part especially when empty; (at which time these Glands being fix'd to the inmost coat, are, together with it, drawn up into wrinkles:) that edge of this bed of glands, wich is nearest ye head of ye fish, is dented, ye ridges breaking off on a sudden; but at ye other end, on this side ye Pylorus, they diminish almost insensibly:

By these Glands, he supposes, at least a considerable share of ye menstruum (the great efficacy of which makes this fish a fit Subject to illustrate ye nature of Digestion) is seperated from ye blood; for blood vessels may be

* Phil. Trans. No. 162.

seen in great numbers on ye other side of ye Glands, and inner Tunic, by seperating it, and them, from the middle, and musculose Tunic ; and, as a farther Argumt of this use of ye Glands, he has observ'd, that that part of ye Stomach where they are, is generally moister, then the other part near ye mouth ; and that, in dissecting Jacks, whose Stomachs have been filld with some large fish of ye pinnaceous kind, (which must enter with ye head foremost) ye head, and foremost parts, of ye devour'd fish, have, as far as the Glands reach, been either actually dissolv'd, or fairly turning, into a mucilage ; whereas, at ye same time, ye other, and less bony, part of ye included Fish, being not yet come within ye power of the Menstruum, has still retain'd it's form, and Consistence.

Mr. Walker presented ye Society with ye draughts, and Descriptions,* of 2 sorts of Wooden Bridges, contriv'd without any Pillar under them, tho of a considerable length ; these accounts will be printed very suddenly.

August the 26th [1684].

Dr. Plot, lately come from ye Royall Society, informes us, that in a meeting of that Society, on some day in this month,[1] he saw a Handkercheif, made of Salamanders Wool, or Linum Asbesti, shewn ye Royall Society by a Merchant, who lately brought it from China[2] ; to try whether it was genuin, or no ; it was put into a strong charcoal fire ; in which not being injur'd, it was taken out, oild, and put in again ; ye oil being burnt off, the

* Phil. Trans. No. 163.

[1] No meetings of the London R.S. are recorded by Birch between July 21 and October 29, 1684.

[2] R.S., Nov. 12. A piece of Asbestus linnen having been brought from China by Mr. Nicholas Waite, merchant of London, he gave the Society a proof of its resisting the fire, as he had formerly done to some of its members. Birch, p. 328.

handkercheif was taken out again, and was alter'd onely in two respects; it lost dr. 2 gr. 5 of its weight, and was (as ye Merchant affirm'd) more brittle then ordinary; for which reason, it was not handled untill it was grown cold, by whith time it had recover'd its former tenacity, and in a great measure its weight. The Merchant, who oblidged ye Society with ye sight of so great a Rarity, acquainted them, that he receiv'd it from a Tartar, who told him, that the Tartars, among whome this sort of cloth is sold at 80 lb. sterling for a China Ell, (which is less than our Ell,) use this cloth in Burning ye Bodyes (to preserve ye Ashes) of great Persons; and that in Tartary it is said to be made of ye root of a Tree: The Thread of it was (as ye Dr. affirms) very large.

He also acquainted us, that it haveing formerly been queried in ye Royall Society, whether ye Air containd in ye sp: within a Thermometer, be not some cause of the Ascent of that sp: in hot weather: this quære was resolv'd by ye following Experiment. A little Siphon was made to reach from ye Top of the Thermometer, to the receiver of Mr. Boyl's Pump; ye Air in the Thermometer was drawn out, after which a warm hand being applyed to it ye sp: did *still* rise.

The Observations of Mr. Bullialdus,* Mr. Cassini,* and Mr. Jacobs† at Lisbon concerning ye last solar Eclipse, were presented our Society, and compar'd with those made here at Oxon:, and at Greenwich.

Mr. Boyl's booke of ye Porosity of Bodyes was communicated to our Society.

A Letter from Mr. Rob: Spear to Dr. Wallis, dated from Port Royall in Jamaica, May ye 10th, 1684, was read; it mention'd a Booke lately printed at Boston, in New England, entituled *An Essay for the Recording of*

* Phil. Trans. No. 162.
† Phil. Trans. No. 164.

Illustrious Providences; in which, among other Relations, there is an account of ye Poles of some needles of Sea-compasses being burnd by Thunder, and Lightning, near New England; it is almost verbatim with the account of the same thing mention'd in ye Transactions no: 157.

Dr. Plot shewed us some of ye Risagone Ind:, sive Cassumminiar, a Root found on ye Mountains 24 gr: Lat: about Patmia near Bengale; Snow will not lye over it long; 'tis of very thin parts, bound up in an earthy matter; us'd in many disseases of ye head and nerves, and in Dysenteryes; being ground to powder, and given in common water; a Dec: [oction] of it is made in ye same manner as Coffee.

The Dr. tells us, as he is inform'd by good hands, that Mr. Hugh Percy of Weymouth has enquird into ye nature of ye current at ye Streights mouth, by letting fall a Bucket, and a weight with it, & that he found his Bucket constantly carried outwards; it is to be wishd that Mr. Percy be desired to give his own account of what he has done in this kind.

September the 2nd, 1684.

There being no great appearance of company, all buisness was deferrd to some fuller meeting.

September the 9th, 1684.[1]

A Letter from Mr. Creech, dated from Worcester, September the 4th, was read; it gave an account of a Woman in Worcester, who, for these 20 years last past, has every Sunday had a Convulsion Fit, and at no time else, unless she puts both her feet over her threshold; which if she does, a fit certainly seizes her; the case of

[1] R.S., Oct. 29. Three letters of Mr. Musgrave to Mr. Aston dated at Oxford, Sept. 10, Sept. 18, and Oct. 10, 1684 were read. (R.S. Letter-book, ix, pp. 270, 272, 273.)

this Woman is drawn up by ye Learned Dr. Cole, Physitian at Worcester, and was comunicated to severall of the Physitians in Oxford about a year and a half since.

Mr. Francis Davenports account* of the Tides at Tunquin and Mr. Hally's Theory of those Tides, were read, and will be printed very suddenly.

Dr. Plot comunicated an Instrument made by Mr. Bard of Fretwell, for ye better æstimating ye increase, and decrease, of ye weight of oil of vitriol expos'd to ye open air: ye Dr. promises us to make use of it, and give ye Society an account of ye success: He also communicated an account of ye weather here at Oxon: during ye last month; and an Abstract of a letter from the Reverend Dr. Thomas Smith, now at London, who say's, that a Naturall History of Scotland is lately printed at Edinborough by Sr Rob: Sibbald; That, in a visit made by himself to ye Men of Siam lately come into England, he receivd from them a Present of a black lead pen of their Country, and a Nut whose kernell is call'd Areka, which has a smart Aromatick tast, and is said to be purgative. He understood from them, that their Alphabet, and numerall figures, were ye same with those of ye Indians.

Dr. Smith shewing himself very ready to oblidge ye Society, by proposing to those men of Siam any quæries which shall be sent him hence, it was offerd by Mr. Bernard, that ye Dr. be desired to discourse them on ye severall heads of Dr. Plots sheet of Enquiryes.

There being some discourse concerning Barometers, particularly it being affirm'd, That a candle plac'd near ye upper and empty part of ye Tube will make ye mercury descend; it was propos'd by Mr. Bernard, that tryall be made, whither *[=ammonia], applied to the top of ye Tube, will cause ye mercury to ascend?

* Phil. Trans. No. 162.

Mr. Præsident proposd that enquiry be made whither the mercury arises and falls in old Barometers, to as many degrees, as it did in ye same Barometers, when they were new? In one, which he for many years made use of, he has found it does not.

Dr. Plot presented ye Society with a peice of heavy wood from Jamaica, calld *Kicongo*; 'tis of a smell like *Enula Campana*. Some Experiments will be tried on it very suddenly; and an account of them brought in to the Society.

The Dr. haveing finished his discourse *de Origine Fontium* was, at this meeting, desired by ye Society, to comunicate it to them, and begin reading it the next week.

The Society then tooke into consideration the enlarging of their Correspondence; for ye effecting of which, they concluded, that some attempts be made for ye setling a Correspondence in Scotland, in like manner, as it is now carried on between ye Royall Society, and that of Dublin, and this of Oxford; in order whereunto, it was ye most humble Request of this Society to Mr. President to take on him ye trouble of writing to the Heads of ye Universitys in Scotland, concerning this Affair.

September the 16*th*, 1684.

Dr. Plot began reading his discourse *de Origine Fontium*; half of which being read, we proceeded to other matters:

A Letter* from Dr. Pit was read, which promises his discourse concerning Digestion; and gives an account of a woman, who, by reason of stoppages for 3 monthes,

* Entred in ye Letterbook immediately after the Letter from Mr. Haviland dated Aug. 25, 84.

complaind of a load, and fullness of her Stomach ; vomited blood ; Flesh ; and blood-vessells, as big as Goose quills ; after which, by ye help of some Physick, she recover'd. A Letter from Mr. Molyneux, dated Dub: Septembr ye 2d –84, was read ; It gave an account, that Mr. Osburn had observ'd ye last Sun Eclipse near Tredagh in Ireland, lat: 53°. 40′. Initium. H.1.37′.30″. finis H.3.56′.20″.

Merchant Wayt's account of his peice of Incombustible Cloth was read.

A Letter,* written at ye Request of this Society, by Mr. Præsident, to be sent to ye head of each of the Universityes in Scotland, for the establishing a Correspondence in that Kingdom, was read.

Christianus Henninus de græcâ linguâ secundum Accentus non pronunciandâ, Ultrajecti, 84 ; Morelliæ Specimen universæ rei numariæ antiquæ, Paris, 83 ; & Sr. Rob: Sibbald's Scotia Illustrata, were presented ye Society.

Dr. Mark, an ingenious Brandenburg Gentleman, was propos'd, in order to be elected a member of this Society.

September the 23rd, 1684.

Dr. Plot continued ye reading of his discourse *de Origine Fontium*, and severall other things were offer'd to ye Society, but ye Company being very small, they were referd to another meeting.

September the 30th, 1684.

Dr. Plot made an end of reading his Discourse *de Origine Fontium*, after which, ye Society gave him their thankes, for comunicating to them so succinct an account, of what has been deliver'd by other writers, & of his

* Entred in ye Letterbook, and dated Sept. 16th, 1684.

own observations, on this Subject; and also made it their request, that He would be pleas'd to print ye same.

A Letter from Mr. Aston, dated Septembr ye 25th, was read; in it were contain'd some observations of ye late Solar Eclipse taken by severall French Astronomers, and printed in ye Journall des scavans; they are translated into English, and will suddenly be printed in ye Transactions.*

Part of a Letter from Dr. Cole of Worcester, dated September ye 27th, was read; which inform'd the Society, how very ready that learned Physitian is to correspond with us, and to comunicate to us, whatsoever shall occurr to him fit to be imparted.

Dr. Plot comunicated an old silver ring, lately found in Staffordshire, with this motto (in Godt al) and an old Roman brass ring gilt about two ounces, 3 drams in weight, sent him by Mr. Packer, Physitian at Redding; this Ring had a Cornelian set in it, and 4 Collets round ye Cornelian, for as many Stones more, 3 of which were lost.

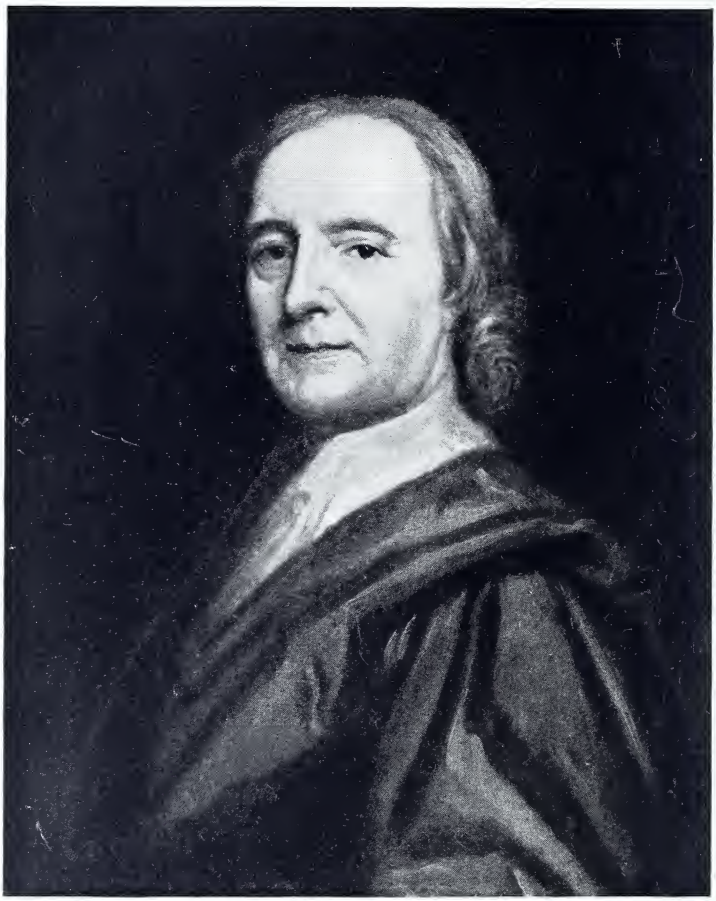
A Large Stone, consisting of severall Branches, taken out of ye kidney of a woman by Mr. Packer, was comunicated by Mr. Welstead [1]; An Acct: of this Stone will be printed in a little time.†

Spongia arborescens erythmiformis, (i:e:) of ye forme of Samphire, from Devonshire; and some of the button berries, from Jamaica; as also some Kelp, embroyder'd with ye shells of Fish growing on ye leaves of that Plant, (all which are a part of that Present the generous Mr.

* Phil. Trans. No. 163.

† of ye Ring and Stone here mentioned see Mr. Packer's Letter of Nov. 8th, 84.

[1] R.S., Nov. 26. Birch, p. 335.



DR. WILLIAM COLE OF BRISTOL

From the portrait in the Wellcome Historical Medical Museum

Cole of Bristoll lately made this University,) were communicated to us by Dr. Plot.

Dr. Caspar Marck haveing been propos'd, Sept: 16th, his Admission was now put to the Ballot, and carried in ye Affirmative, after which he subscrib'd to the Articles.

October the 7th, 1684.

Mr. Anderton, haveing formerly been admitted into this Society, did, at this meeting, subscribe his name to the Articles; after which he comunicated ye following Account [Margaret Parry, of ye Parish of Kintbury in Berkshire, in ye year 1668, was deliver'd of a Child; she continued indifferently well 2, or 3, days, after her delivery; then new pangs came upon her, and for 3 weeks together, there came from her dayly some quantity of corruption, with peices of Flesh, and skin; and she continued dangerously ill for about 8 weeks; at the end of which time, she was releiv'd, as is suppos'd by takeing a Potion which was prescribd her; after 2 years space, she began to breed again; had 3 children, in ye 3 years following, all which were drawn from her by violence; during her lying in with ye last of these 3 Children, some bones of a Fœtus came from her, and after this severall other bones came away monthly in ye evacuation, and severall (amongst which were diverse parts of ye Scull, and some of ye larger bones of ye body of a Fœtus) work't their way by degrees thro ye Flesh above ye *os Pubis*:

The Woman is now alive, and in health: all ye children were born perfect. For a farther enquiry into this matter, Mr. Anderton was desired to examin this woman, according to a paper of Quæries drawn up by Mr. Musgrave: Letter book B, Pap: 19.[1]

[1] At the meeting of the Dublin Society on Jan. 12, 1684–5, Mr. Bulkeley proposed that Mr. Poynter, a chirurgeon in Oxford,

He also acquainted ye Society, that a *spout* of rain fell between ffarnborough, and Brittleton, in Barkshire, ye 3d of May last was 2 years; that ye Fall of ye water was so violent, as to beat its way into a house on the top of a hill.

He says farther, that a *Woman near him in ye Country, did, at 60 years of Age, give suck to a little child; tho she her self had no Child, nor given suck, for many years before. He promises more full accounts of ye particulars of all these matters.

Dr. Plot communicated an account of ye weather here at Oxon:, in September last; He presented us with some of ye East Indian Bange, which is ye leaf of a Tree taken comonly by ye Inhabitants at their Feasts; it is said to intoxicate, and put every man in his particular humor.

He also communicated an Abstract of a letter, sent him by Mr. Todd, dated September ye 7th, from Rose Castle in Cumberland, concerning a salt spring, and another (Minerall) spring near Durham; as also concerning some Roman Urns which he promises to send us. Mr. Todd says in this letter, that as he traveild over Stane-Moor in Yorkshire, he observ'd ye River Greatah (which is about ½ as big as Charwell) run underground for about a mile, so that he, and his Company, past over it drye foot; the passage under ground is but narrow;

* Vide Jeb. Deimerbrook: Arat: cap 2d de Thorace ubi tradit historiam de anuosâ quâdam Joannâ Vuyltuyt supra annum 66tum provectâ, lactantis nutricis munus præstante.

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be desired to communicate an account of a bitch he opened, that contained in her the fœtus of several impregnations; as also of a stone, which he took from under the tongue of a shoemaker in Oxford. Birch, p. 376.

so that in Winter when the streams are high it keeps ye channell above ground.*

Mr. Farmer of Magd: Hall, & Mr. Machell of Cumberland, were, at this meeting, proposd to ye Society, in order to be Ballotted.

October the 14*th*, 1684.

A Letter† from Dr. Turbervile,[1] dated at Salisbury Oct: 5th, was read; it containd severall remarkable Observations relating cheifly to ye eyes; and, which is yet more oblidging, it containd also his promise to communicate to us more observations of ye same kind: The Society then order'd, that their thankes be sent to ye Dr., for what he has already imparted, and for ye hopes he gives us of a continued correspondence with him.

‡A paper of quæries, drawn up by Sr William Petty, for ye examining waters, especially such as are minerall, was read.

A Discourse§ concerning Sands and Clays, and another discourse|| concerning Mercury in Barometers, both written by Dr. Lister, were read.

Dr. Plot comunicated an Abstract of a Letter, sent him by Dr. Tyson; which is as follows: I have lately sent me, by Caspar Bartholin, a small Tract he has put

* This is agreeable to Mr. Kings Account of the Tur loughs in Ireland of which see ye. Transactions, No. 170.
† Phil. Trans. No. 164.
‡ Phil. Trans. No. 165.
§ Phil. Trans. No. 164.
|| Phil. Trans. No. 165.

[1] Turberville's letter is printed in Phil. Transactions, No. 164, p. 737.

out *de ductu salivali, hactenus non descripto*, He take care to send it you ;—an Acquaintance of mine has lately put forth a Chronologicall Map from ye Creation to this time, in 16 large sheets of paper ; which may either be pasted together in one or two Maps, or else contriv'd conveniently into a Booke.

He also comunicated a Substance, call'd *Solda*, which came from Timoa, one of ye Molucca's ; it look'd like an Elmbark, had an aromatic smell, is an excellent Osteocolla, when pounded to powder, and put into sp: of wine.

He shew'd us also a peice of silver talc, from Norway, on which fire makes no impression ; and informd us, that in Staffordshire there are mountains of gold Talc, which yeild not to the most violent fire.

The same Person shew'd us a peice of copper, from ye East Indies ; it was very heavy ; of an irregular figure, like ye top of a cone, but flat ; in which figure that mettall naturally grows in ye mines, whence this pattern was dug.

Mr. Cooke, haveing formerly been elected, did now subscribe to the Articles.

Mr. Machell and Mr. Farmer, formerly propos'd, were now elected.

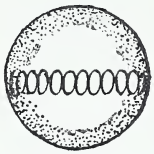
October the 21*st*, 1684.

A Letter* of Mr. Lewenhoeck's,[1] being observations about the Chrystalline humors of ye eye &c, was read : The Latrôn, mention'd frequently in ye Minutes of this Society, was, after a great deal of rain, observ'd, at this meeting, to be very hard.

* Printed in ye Transactions, No. 165.

[1] R.S., May 21. Leewenhoeck's letter was mentioned by Grew. Birch, p. 298.

The very small seeds of Fern, Lunaria, & Leucopodium were comunicated by ye Dr. Plot.



The figure of Fernseed as it appears in the Microscope.

October the 28th, 1684.

A Bottle of water, sent the S:, by Mr. Maunder's, from a well near Milton-Abby in Dorsetshire, was delivered in at our meeting by Mr. Crouch ; & ordered to be examined as to it's principles ; which office Mr. Welsteed took on him ; the well from whence this water came, does sometime purg, sometimes vomit, and is said to cure ye gout. A larg lump of flesh taken out of an Ox, supposed to be ye heart of ye Ox, was presented ye S. by Mr. Musgrave ; order was given for ye dissecting it, and that the Observations on it be reported ye next meeting.

An account of Caspar Bartholins new treatise [De ductu salivali hactenùs non descripto,] was read.

Mr. Farmer of Magdalen Hall subscribed to ye Articles.

Dr. Plot communicated an Abstract of a Letter sent him by Mr. Cole, and dated from Minehead, October ye 17th 1684. in which Mr. Cole acquaints ye Dr., that he was lately met with a shellfish on ye Severn shore, containing a white viscous Phlegm, which being laid on cloth, turns *greenish*, within a minute or two ; then being put out into ye Sun, for a little while, turns to a deep red, which growes somewhat lighter by ye first washing, but after that never decays, tho ye cloth be often washt : He adds farther, that this Tincture is extremely fetid, so that the ill smell is not easily taken away ; He was

pleas'd to send us Patterns* of ye green, ye deep, and lighter Reds, which sufficiently answered their Descriptions: The thanks of the Society were ordered to be return'd him, for this considerable peice of newes.[1]

November the 4th, 1684.

The minutes of ye week foregoing were read.

Mr. Musgrave then communicated ye following † account of a larg preternatural Glandulose substance growing between the pericardium and ye heart of an Ox.

That lump of flesh, taken out of an Ox, and seen by this S: ye last meeting, having been examin'd [by Dr. Plot, Dr. Gibbons, Mr. Caswell, Mr. Desmasters, Mr. Welsteed, Mr. Ballard and my selfe,] afforded ye following observations.

The weight of ye whole substance, clear'd from ye little fat &c: adjoyning to it, amounted to $19\frac{3}{4}$ lb.

As to its figure it so far resembled a Heart, that it was a long time taken for nothing else; but it was something flatter then a Heart is naturally, each of ye flat sides makeing an æquilaterall triangle.

The Basis of this Cone of flesh was 2 feet, 7 inches in circumference: a thred drawn from round it lengthways, from ye Basis to ye Vertex, came to 2 feet 9 inches.

Wee then divided it, cutting from ye Vertex to ye Basis of ye Cone, and passing thro both ye Ventricles, and mucro, of the heart, by which means we saw ye

* These Patterns were sent to ye Royal Society and shewn by his late Majesty, King Charles II who was well pleased at the sight of them.

† Phil. Trans. No. 167.

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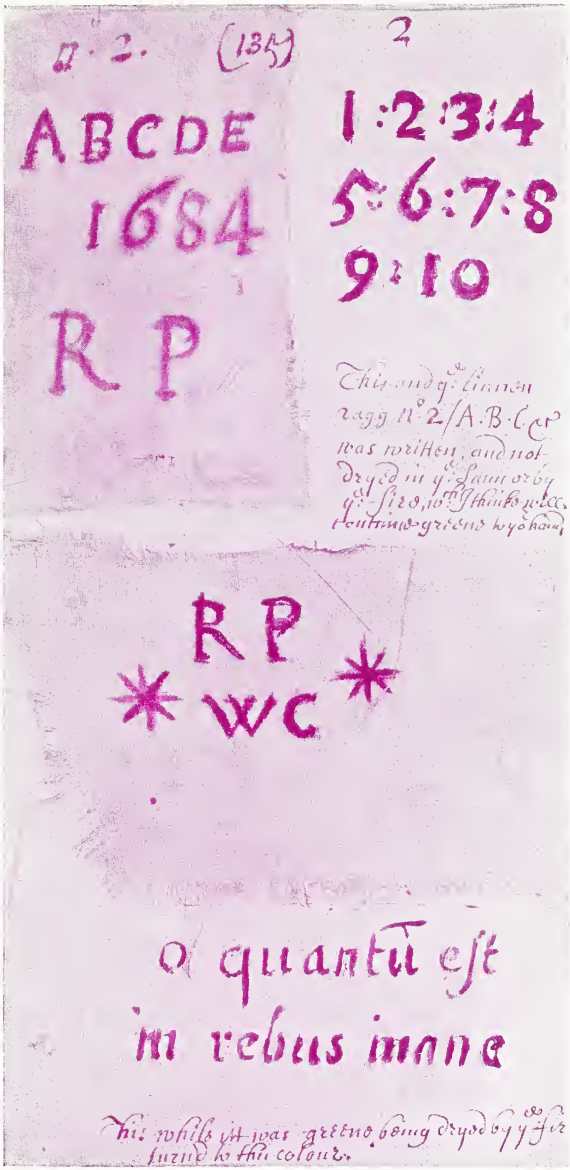
[1] Musgrave wrote to the R.S. about the Severne shell-fish on Nov. 2, 1684. R.S. Letter-book, ix, p. 274.



FABRIC AND PAPER DYED BY DR. PLOT ('R. P.')
WITH DR. COLE'S ('W. C.') SHELLFISH IN 1684

Heart not to exceed the naturall size; that which was peculiar about it, being a larg glandulose substance growing all round ye heart (unless where ye vessles had their passage) and stretching ye Pericardium to ye excess before mention'd: We saw no Liquor in ye Pericardium, nor indeed was there room for any, this Glandulose Substance taking up all ye Space between ye Heart, and Pericardium, to both which it grew very fast.

This præternaturall Substance was thickest about ye Basis of the Heart, where it cover'd ye auriculæ, and was 3 inches $\frac{1}{5}$ thick, but grew thinner on all sides gradually toward ye Mucro, where it was 1 inch and $\frac{1}{2}$ thick.

In ye Septum Cordis a gritty sabulose substance was found, half as big again as a walnut.

In ye Lungs were severall Cystides containing matter more or less fluid: one very Larg Cystis held some ounces of a matter not unlike that of a Steatoma.

The Butcher who kill'd this Ox, sais ye Lungs grew fast to ye Pleura on both sides, which he affirms not to have happen'd once in 40 times in ye Cattle kill'd by him.

He say's also that this Ox tho not overburden'd with fat, complain'd much in travailing, which is easy to account for, there being not room for ye Heart to be distended, as it ought, in it's Diastole

A Letter from Mr. Aston read.[1] And ye account Mr. Waller gives of his Book. this acct is printed in ye Transactions, numb: 164.

Then Dr. Plott shew'd us some saffron, which grew in Hereford-shire; it's tast was tart enough, and seemed little unlike our best saffron, wanting only it's bright or yellow-red colour, and being of a much browner and darker hue, which also by some was suppos'd chiefly owing to it's being very dry.

[1] The R.S. met on Oct. 29. Birch, p. 324.

He shew'd us likewise an *Ovum Centeninum*, which was given him that week for ye supposed Cocks-egg.

It was somewhat bigger then a Pigeon's Egg, of a Pale-box-colour, but opening it we found it nothing nigh full, otherwise not differing from an Ordinary egg. So that we suppos'd it might be ye first egg of some young Pullett, one of the Society affirming, that he knew, some Years since, a chick, which, wanting a day, or two of three moneths old, began to lay, and the eggs for some weeks were scarce bigger then this.

Then was read Mr. Flamsteed's Catalogus Eclypsium Iovialium Anno 1685. it is printed numb: 165.

November the 11*th*, 1684.

A Letter from Mr. Aston, dated November ye 6th: 1684, was read.[1]

The following account was communicated by Dr. Plot,[2] [Saturday the 8th instant, the operator below, being about to præpare Tartarum Vitriolatum upon pouring the vitriol upon the oil of tartar *per deliquium* in the conflict between them was conceiv'd a visible flame, and in the Coagulum afterward there continued a light, much like that of ye Phosphori, for a great part of ye evening, and if held to the fire so as to be a little excited for 2 days after, some little star-like brightness would appear up and down here and there in ye Coagulum: which flame and brightness I suppose to have proceeded from ye fiery particles imprison'd in ye oil of tartar during the calcination of ye vitriol, which when cutt in peices by the acid parts of the oil of vitriol, were let out, and so appear'd first in a flame, and afterwards by way of Sparkles.]

[1] The R.S. met on Nov. 5. Birch, p. 325.

[2] At Dublin on Dec. 8, 1684, Mr. Mullen was requested to try Plot's experiment of producing light. Birch, p. 374.

He also brought in an account of ye weather here at Oxford the last moneth.

A Letter from Mr. Cole to Dr. Plot, dated from Minehead, October ult: 1684, was read; it contain'd more of his observations concerning ye dying shellfish; and also an account of a bullock in Wales, which has 2 leggs extraordinary, growing out of ye Lower part of ye Crest, next to ye Shoulder, being near as long as his forelegs, and not much less then they are.[1]

A Letter from Mr. Nicholson, dated at Salkeld near Penrith, October ye 20th: 1684, (sent to ye Mr. of University-Colledge, by whom it was communicated to our Society,) gave an exact account of ye Runic Inscription [2] at Bridekirk, in Cumberland; it is as follows

[2 *lines omitted.*]

A Letter from Mr. Charles Leigh,[3] dated from Preston in Lancashire, November ye 4th:, 1684, was communicated by Dr. Plot, to whom it was sent: it contained an account of severall curiosities observ'd by him in Lancashire; He speaks particularly of Barnacles, which he takes to be a Shellfish, not a bird; of Caterpillars, concerning which he is of opinion, that ye old ones are kil'd by the Younger; of worms in apple-kernells almost as larg as ye Kernells, which he urges as an argument against *omnia ex Ovo*; unless perhaps ye egg rises with ye juyce of ye tree; of a peice of chalk of ye shape and bigness of a Muscleshell; taken out of ye bladder of a hog.

[1] R.S., Nov. 12. A letter of Mr. Musgrave to Mr. Aston, dated at Oxford, Nov. 8, 1684 (R.S. Letter-book, ix, p. 281), was read, transmitting one from Mr. William Cole of Bristol to Dr. Pot, dated at Minehead, Oct. 17, 1684. Cole's letter is printed in extenso by Birch, p. 239.

A second letter dated Oct. 31 was read by Plot to the R.S. on Nov. 19. (Register, vi, p. 290.) Birch, p. 332.

[2] R.S., Nov. 19. Birch, p. 335.

[3] Leigh's letter as communicated to the R.S. on Nov. 19 was printed by Birch, p. 333.

Of waters impregnated with Latrôn.

Of a Water in that Countrey, which, by falling on wood, turns into a substance which rings like a bell.

Of a water from a white marl 2 ounces in a quart lighter then comon water usually is.

Mr. Vice-Chancellor was pleased to communicate to ye Society severall stones, all of a cubicall form, but of severall sises; all *pyrites aurei* found plentifully at St. Davids in Pembrookshire: whereof Dr. Plot said that severall also had been found on ye Woolds in York-shire by Dr. Lister, by Ol. Wormius at Osterdale in Norway, and by himself in Staffordshire: and that they were ye true *Ludus* of Paraselsus, so called says Helmont, quod tali, tessatæ aut Cubi, formâ sempèr eruatur; there being no other stone, he ever met with, so agreeable to this character: being pulverized, calcined, and mixt with a circulated salt, and set in a coold moist place to run per deliquium, and after digested gr: 2. till ye Ludus swims like a thick oil upon ye water contracted from ye moist Air of ye Cellar, it is ye great Arcanum against ye Duelech, or Lapis spongiosus, generated in humane bodies, of a middle nature between a Tartar and ye ordinary Calculus humanus.

November the 18th, 1684.

After reading ye minutes of ye Last week, a Letter from Mr. Aston, dated November ye 13, was read; which giving an account of severall experiments mentioned in a book lately written by Kunckell, and dedicated to ye R.S., being sent over by ye E. of Brandenburg, these experiments were ordered to be tried: Mr. Desmastres took ye trouble upon him: [1]

[1] Kunckel's book was discussed by the R.S. on Nov. 12. Birch, p. 328.

A Letter from Mr. Packer Physitian at Reading, dated November 8th, was read; in which he gives some account of ye case, and dissection of that person in whose kidney ye stone, mention'd in ye Minutes of Sept: 30th, was contain'd. He mentions a hollow oak, not far from Early Court in Berk-shire, which, as he is inform'd, is 18 yards in compass at ye bottom, but lessens apace from ye ground; He promises a full account of this thing as soon as his occasions will suffer him:

September the 25th, and December the 2nd [1684].

The Præsident, Director, & Secretary being all out of town, we had no meeting for a fortnight.[1]

December the 9th, 1684.

Minutes, dated November ye 18th, were read.

A Letter from Mr. Aston, dated November ye 20th, was read.[2]

A Letter from Mr. Musgrave, dated December ye 4th, was read.

The following Paper was præsented, by Mr. Desmastres. Mr. Aston, in his Letter dated November ye 13th: 1684, makeing mention of ye Tryall of some Experiments found in Kunckel,[3] vizt: 1 That V^s [=Spirits of Wine] and syrup of Violets make a green;

[1] At the R.S. in London a Committee meeting sitting under Sir Christopher Wren, vice-president, ordered that Dr. Plot should have a gratuity presented to him; but the sum was not determined till the treasurer's accounts were audited. Birch, p. 337.

[2] The R.S. met on Nov. 19. Birch, p. 331.

[3] The R.S. experiments were made by Drs. Papin and King. Birch, p. 332. On Dec. 17, Mr. Musgrave read Mr. John Ballard's (of New College) letter dated Oxford, Dec. 10, 1684 (R.S. Letter-book, ix, p. 327), mentioning the trial made there of some of the experiments of Kunckel. Birch, pp. 348–9.

2 That Sp: of wine, and Milk, in equall parts, curdle ;

3 That a few drops of Water and V^{s}, heat perceptibly ; It was ordered, that ye same Experiments should be tryed here, which was done in ye following Method.

1 We mixt V^{s} with Syrup of Violets, but found no other change in ye colour, then that ye Syrup became of a paler blew, upon its being diluted by ye V^{s}. There being not ye least chang toward a green, as Mr. Aston observed. This Experiment was tryed both with plain & Tartarized sp: of Wine, with equall success.

2 We mixt sp: of Wine and milk, of each equall parts, which coagulated considerably, in less then a Minute of time, but makeing ye like tryall with V^{s} tartarized, and milk, no coagulation followed.

Qu'. whether ye coagulative vertue in simple V^{s}, be not to be ascribed to ye common salt, from which tis destilled ? We then tryed some other experiments upon milk, not mentioned by Mr. Aston vizt:

3 We mixt ———— and milk of each equall parts which coagulated but not so considerably nor altogether so soon as simple sp: of Wine and Milk.

4 ———— poured upon ye uncoagulated mixture of Milk and V^{s} ———— quickly coagulated.

5 ———— poured upon milk made not ye Least coagulation though it was suffered to stand a good while, we then poured simple V^{s} upon this mixture but no coagulation followed.

6 We then poured ———— upon ye Coagulum made with equall parts of milk and V^{s}, which was so far from restoreing it to its fluidity that it increased ye Coagulation.

7 The forementioned Experiments made upon cold milk were at ye same time made upon hot milk with ye same success excepting that ———— being poured upon warm milk ye Coagulation was not discernable till

ye Milk was almost cold neither did ye Coagulation appear so hard as with cold milk.

8 In order to ye 3d Experiment mentioned by Mr. Aston vizt: that water poured upon V^s heat perceptibly, we first made tryall what Operation water & wine separately would have upon ye Thermometer, and we found that a Thermometer being put into pump water (and ye same experiment afterward held good with rain water) ye inclosed Tincture rose $\frac{1}{10}$ of an Inch above ye mark, being thence removed into V^s it rose about so much higher, and being thence removed into V^s & water it rose an Inch higher then ye mark it stood at before yet ye heat was not discernable by ye hand.

9 We then tryed ye same Experiment with V^s and milk and found that a Thermometer being put into cold milk ye ringed sp: contained in ye thermometer rose a little as it did with water, but when an equall Quantity of Sp: of wine was poured upon ye Milk, it rose to ye same height, as when put into V^s and water.

A sheet of Paper was præsented ye Society, made of ye Asbestus-Stone by Mr. Lloyd, Register to the Chymicall courses of ye Laboratory of Oxford. The Paper was made thus.*

Mr. Lloyd received a Parcell of this stone from the Isle of Anglesey, part of which he pounded (crude as it was) and carrying it to a Paper-mill, had it mixt with water in their troughs for that purpose, then taken up, like their other matter for paper, it ran together. But ye Lint being heavy, and quickly subsiding they were forc't to stirr it often, and be very Quick in their operation: It was thought it might be made much finer and whiter, if it could be made stronger and tough, so as to be fit for any use.

* Phil. Trans. No. 166.

December the 16th, 1684.

Our Præsident, and Director, being now return'd home we had a full meeting, in which after having read ye præceeding minutes: A Letter from Mr. Musgrave, a Letter from Dr. Turbervile, both dated December ye 10th: 1684, and Sr Will Petty's Catalogue* of Experiments were read: Dr. Plott was pleased to shew us a piece of cloth, which he brought from London, woven and made with ye flax of ye Amianthus, or Asbestus-stone; which before Mr. Vice-chancellor, and some other Drs. of the University (who were then pleased to honour us with their præsence) was heat for some considerable time red-hott, with no other alteration, after it was cold again, save only it appeared somewhat whiter, and cleaner, than before; and was, whilst hot, more brittle; but being cold, of ye same strength, and toughness, as before calcination; which it had now undergon 5 or 6 times; contrary to our Paper made of ye Anglessey-Asbestus, which, being of a shorter thred, was at ye first of a contexture not so tough, and strong, as ye cloth, and after ye fire is so friable, and brittle, as not to endure any bending, nor ye very handling, if any thing roughly: this Paper, it was thought, might be made much finer, and whiter, if it could be made also tough, and tenacious for any use.

The Irish minutes,[1] from October ye 6th, to November the 24th, were read: for which ye thanks of ye S. being first ordered; ye Secretary was commanded to desire

* Printed numb. 167.

[1] The Dublin minutes are printed by Birch, p. 341. Under Nov. 10 it is noted that Dr. Mullen had successfully amputated the lung of a dog—an operation which had been done on a man about six years before by Mr. Fry, a chirurgeon at Oxford. Birch, p. 345.

coppys of Mr. Ash his discourse concerning ye Squaring of the circle, of Mr. Kings discourse concerning Bogs, as also accounts of Mr. Bukley's pump, and machine to register ye force of ye wind, and a coppy of Mr. Smith's discourse de Angulo contactûs.

December the 23rd, 1684.

Mr. Præsident being out of town, Dr. Smith was desired to take ye chair: after which Mr. Musgrave acquainted ye S. with ye contents of a Letter, he had lately written to Dr. Lister, concerning ye color of ye liqr conveyed by ye Lacteals;[1] In this Letter he endeavors to prove, that a great part of ye Chyle passes *pellucid* thro ye Lacteals, (contrary to ye Opinion of those, who thought it to be *always white* in those Vessells;) and that a pellucid Liqr Refluus does constantly fill *some* of them, when no flash of Chyle can be supposed to extend them. He then read Dr. Lister's Answer* to this Letter; The Dr. is willing to think that the *liqr Refluus* may be of ye nature of *Lympha* but he takes ye greatest part of what fills the Lacteals in sicklie, and empty animals to be Pituita, and sometimes Bilis; In consideration that ye Catalogue of Experiments, lately drawn up by Sr William Petty, contains many particulars of good consequence, & easy to be tried; It was ordered, that the aforesaid Catalogue be again read before this Society, on ye first meeting after Christmas.

Mr. Caswell præsented a Letter,† written, long since, by Dr. Speed, to Mr. Briggs, giving ye externall figure of a perpetuall motion, as ye Dr. calls it.

* Entd in Letterbook and dated Nov. 10th, 1684.

† entred in the Letterbook, imediately after Dr. Turbervile's of Dec. 10th.

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[1] R.S., Jan. 14. Birch, p. 356.

This Letter was ordered to be preserv'd in ye Letter-book.

Mention was made of a proposall of Dr. Lister's, which was to try Kunckel's Experiment [of coagulating milk, by adding sp of wine to it,] both with a spirit, drawn from pure Nants-Brandy, and also with a sp drawn from an eager wine; it being possible, as ye Dr. thinks, that ye Experiment may succeed with ye one of them, and not with ye other.

A Message was then deliver'd, by Mr. Musgrave, as from ye R.S. to Dr. Bernard, and Dr. Smith desiring them, at their leasure, to enquire into ye Antiquity of that M.S. of Julius Africanus, which is amongst ye Baroccian books, in ye Bodleian Library; particularly, whither there is any just Reason to suppose, there were two writers of that name; and what that Author says concerning making Ignis Græcus.

Adjourn'd to January ye 13th 1684–5.[1]

January the 13*th*, 1684–5.

Dr. Smith (in ye chair, in ye Absence of ye Præsident,) acquainted ye Society, that in Tym's Philosophicall

[1] R.S., Jan. 7, 1684–5. A letter of Mr. Musgrave to Mr. Aston, dated at New College, Dec. 23, 1684 (R.S., Letter-book, ix, p. 336), was read relating to two cures of Dr. Turberville.

"Whatever is communicated by Dr. T. must certainly be very welcome to you: in a letter he lately sent me I find these observations.

"He had a gentlewoman his patient, who was very much troubled with the falling sickness; she brought her water to the doctor, in which he perceived many short worms, full of legs, of the likeness of millepedes. . . ."

Mr. Hooke remarked that Mr. White the chemist at Oxford had been troubled with the falling sickness, and by a vomit had brought up several worms; but he could not tell the sort, referring himself to the person living at Oxford. Birch, p. 354.

Dialog, pag 60, (a book, in 4to, in ye Bodleian Library) there is a farther account of that machine, whose outer form is described in that Letter, written many years since, by Dr. Speed, to Mr. Briggs, but lately præsented this S. by Mr. Caswell, and now præserv'd in our Letter-book[1].

The Dr. also inform'd us, that according to a MS of Julius Africanus, belonging to Magdalen Colledge, (which MS he thinks is about 200 years old,) ye citation of Vossius out of this Author, concerning ye making of Ignis Græcus, is exact.

Sr William Petty's Catalogue of Experiments to be tried, was read again; pursuant to an order of ye last meeting. Severall of these Experiments were pitch't on, to be tried, by ye first opportunity.[2]

A Cubicall measure, of a Quantity given, was propos'd to be provided; Mr. Caswell, and Mr. Walker were desired to enquire, concerning ye making one; with it ye difference as to weight, between ye same measure of severall sorts of substances, as grains, earths &c: of diverse kinds, may be examin'd: And ye Quantity of water &c: exhaling from a given space, in a time given, may be found out; an account of which will make much toward ye clearing this Quære, viz whither the water of ye mediterranean is dispos'd of by way of Vapor?

Mr. Musgrave acquainted the S., that he had lately tied ye Left Ureter of a Dog, and cutt it off, between the ligature, and bladder; but ye Dog, making his escape near a fortnight after, (in which time he was perfectly recover'd,) prevented any farther observation on him; in that fortnight, he seem'd to be no way concern'd otherwise then at ye wound.

[1] The letter refers to one of Cornelius Drebbel's inventions. It is printed by Birch, p. 357. Samuel Speed, Canon of Christ Church, 1674, died vicar of Godalming, 1681.

[2] Birch, p. 353.

A Letter from Mr. Aston S.R.S, dated London Jan: 8th, was read; it brought ye news of another double keeld Ship, built lately in Ireland, by Sr Will Petty; which does not answer expectation; it say's, that the Knight is not discourag'd, but will build another; and if that doe's not succeed, that he will then write against his own principle.[1]

A Letter from Mr. Charles Leigh, dated Preston Jan: 5th, was read; He tell's us, they have in that Countrey (viz Lancashire) an earth, never yet plowed, in ye memory of man, in which (about 2 yards under ye surface;) He has found severall grains of corn, not in ye least rotted; he has seen trees in it perfectly sound; it will præserve any kind of flesh; and (he thinks) it may make compleat Mummies.[2]

He says, they have a Tobacco-pipe clay, which will (like fullers earth) dissolve in water; and take out any spot: that they have a fish, which (he thinks) is the sepia; for if they offer to catch it, it will imediatly make ye water look as black as Ink; another fish in that Countrey, has a prickle on its back; with which, if the seamen are at any time prickt, ye part will certainly gangrene; this prickle, he say's, is hollow, and is inserted into a little bladder, out of which (he judges) ye poyson proceeds, after ye same manner as in Vipers: They have also, in that countrey, severall golden Marcasites, each about $\frac{1}{4}$ of a yard in length; they are all naturally Rolles, like sticks of brimstone, and have their surfaces striated. The thanks of ye S. were ordered to be return'd him, for these Informations, and a more particular account of that earth, probably fit to make Mummies, is desired.

Mr. Caswell mentioned ye Barometer, as a likely Instru-

[1] R.S. Letter-book, ix, p. 334. Birch, p. 352.

[2] R.S., Jan. 21. Letter from Musgrave to Aston, dated Oxford, Jan. 17, 1684–5 (R.S. Letter-book, ix, p. 343).

ment to discover ye difference of ye height of places, to which purpose it has formerly been used by him.

Mr. Welsteed communicated ye following account of making Turpentine, Tar, Rosin, and pitch near Marseilles; being an Abstract of a Letter, sent him, from Nismes, by Mr. Tho: Bent MA, lately of Lincoln Colledge Oxon.[1]

Five Leagues from Marseilles are very high mountains, which are (for ye most part) cover'd with forrest's of Pine-trees, which there grow wild; half a League out of ye road, you see ye making of Pitch, Tar, Rosin & Turpentine; which is thus. viz. In ye spring-time, when ye sap runs most, they pare off ye Bark of ye pine to make ye Sap run down into an hole, which they cut at ye bottom to receive it; as it runs, it Leaves a cream, or crust behind it, which they take, & temper in water, and send by a cheat for white bees wax, that they make flambeaux of, & is a great deal dearer; then they take up ye Juice, in spoons, from ye bottom, and after they have so got a good Quantity, they strain it through a Grocers basket, such as they put up their Malago raisins in; that which runs through easily is ye common Turpentine: Then they take that which remains above, and adding a sufficient Quantity of water, distil it in an alembick, that which is so distill'd is oyl of Turpentine, and ye calx that remains, is common resin; Then they cut ye stock of ye Tree into large chips, and pile them hollow in a cave, covering it on ye top with tiles, but so as to let some air come in to feed ye Fire, then burning them there runs a thick Juice down to ye bottom, where they make a small hole for it to run out at, (a Larger hole would set it all in a flame) and that which so runs out is Tar; then they take of that, and boyling it gently over againe, to consume more of ye moisture, they set it to cool, which, when cool, is Pitch.

[1] Bent's letter is also printed by Birch, p. 359.

January the 20th, 1684–5.

A foot cubic measure, made by order of ye S. was presented by Mr. Caswell, & Mr. Walker;[1]

A Catalogue of Experiments to be tried with this measure, was drawn up, and put into Mr. Caswel's hands;

A pair of fine scales were proposed to be provided.

A Letter from Mr. Aston S.R.S., dated January ye 15th, was read.[2]

A Letter from ye Reverend Dr. Middleton, Provost of Kings Coll. Aberd., dated December ye 27th, was read; this letter gives us hopes, of what we have so long, and so earnestly desired, viz a correspondence with Scotland.

The Dr. desiring some account of ye manner of our proceedings, and of what has been done by us, ye Secretary is commanded to prepare a Transcript of ye Orders, and some of ye latest Minutes, to be sent him.[3]

In Answer to ye 39th Quere of Sr William Petty's Catalog of Experiments to be tried, (which Q. runs thus, viz: How many shoes of a certain size, a shoemaker can make up in a time given?) it was Affirm'd, That *Children's shoes* reach from *Ones* to *twelves* inclusive; that ye five first sizes of *children's shoes* are calld *Children's pumps*, of which 12 pair may be made, by a good workman, in one day; That of Childrens *Eights*, 4 pair are an ordinary days work. That women's, and men's, shoes, beginning

[1] R.S., Feb. 4. There was likewise read a paper of experiments made at Oxford with a cubical vessel of well-seasoned oak, the measure of a foot being first examined by the university standard; the weights made use of being the university standards, the scales large, and turning with two ounces. Phil. Transactions, No. 169, p. 926.

[2] The R.S. met on Jan. 14th.

[3] R.S., Jan. 28. A letter of Mr. Musgrave to Mr. Aston, dated Oxford, Jan. 27, 1684–5 (R.S. Letter-book, x, p. 10), containing the reply to Sir W. Petty's 39th quæry, is printed by Birch, p. 362.

at *Ones*, End ye former at *Elevens*, ye latter at *Thirteens*, inclusive; and that of Women or Men's *Sixes*, 3 shoes, or 2 pair, are usually a Days work:

In Order to a solution to ye 20 Quere of ye forementioned Catalogue, It was affirm'd, by Mr. Musgrave, that 80 lb. of Wedgbury pit coal, kindled at several times, with $4\frac{1}{2}$ lb. of Charc-coal, gave a little above $\frac{5}{8}$ of a peck of Ashes, which weighed $4\frac{1}{4}$ lb avoird:, beside which about a pound of coal was left unburnt in ye grate: so that a pound of this sort of coal, well burnt, does not yeild an ounce of Ashes: A discourse was presented by Mr. Walker, proving from Experiment, that ye longer ye wheels of a coach are, (cæteris paribus) ye more easily they may be drawn over a Stone, or such like Obstacle, that lies in ye way.[1] This Discourse is printed in ye Transactions, no. 167.

January the 27th, 1684–5.

Dr. Smith in ye chair.

A Letter to Dr. Middleton, provost of Kings Colledge in Aberdene; containing some of our latest minutes, a Transcript of our Orders, & a short account of what has been done by this Society; drawn up by ye Secretary; was read; and approv'd to be sent him, as an Answer to his of Dec: 27th, to Mr. Præsident, concerning the

[1] R.S., Feb. 4. A paper of Mr. Walker, communicated by Mr. Musgrave, was read, being an account of several experiments made at Oxford with the model of a waggon, whereof the lesser wheels were $4\frac{1}{3}$ inches high, the bigger wheels $5\frac{2}{3}$ inches high. There were also two more wheels of $5\frac{2}{3}$ inches high to be used instead of the lesser sort.

The inference from the experiments was, that a waggon in a rough way might be drawn more easily, if it had four equally high wheels, and the thills were fixed under the axis.

It was desired that Sir Anthony Dean and Mr. Hooke would peruse the paper. Birch, p. 363.

establishing a Correspondence between us of this Society, and ye Gentlemen of Aberdene.

A Letter from Mr. Aston, dated January ye 22d, was read.

A Paper* of Dr. Lister's was read, concerning freezing, & ye difference betwixt comon fresh water Ice, & that of sea-water; & of ye origine of ye Nitre of Ægypt.

A Letter from Mr. Young of Plymouth, dated Jan: 17th, was comunicated, & read; it shew'd his great readiness to correspond with this Society; of which, he say's, we shall have a convincing Argument in a Little time.

The Society, being acquainted, that, in Hullington-fields, in Wiltshire, there is an odd sort of light barren earth; and that severall curious plants grow thereabout; gave order, that Dr. Plot, at his return to Oxford, be desir'd, to write to Mr. Cole of Bristoll, (to whom this land belongs,) and make use of his interest with that Gentleman, for ye procuring an account of these matters.

The following Paper was read.

Sr William Petty having thought it worth his while, to enquire into ye proportion of ye materials, used in making severall sorts of Mortar, I may be excus'd, if I beg Leave to offer such Informations, as I have lately received concerning this Matter.[1]

The Mortar used by our Plaisterers is generally of two sorts, course or ffine: 1. *Course* mortar is made of Lime, sand, & hair: the Lime used here at Oxford is of 2 sorts, viz Chalk-lime, made of a Chalk-stone dug at Nettlebed, and other places, & burnt: or 2dly Hard stone lime, which is made of hard rag stone, burnt; this last sort

* Printed in ye Transactions No. 167.

[1] R.S., Feb. 4. The reply to Sir W. Petty's query about mortar was communicated by Musgrave to Aston on Jan. 31, 1684–5, and was printed by Birch, p. 363.

of lime is much stronger, and will go 2 yards square in five, farther, (for it takes up far greater Quantity of sand, and water,) than ye former, which is the finer of ye 2, and ye more beautifull, and glorious, to the eye.

One bushell of chalk lime, one bushell of sand, and one peck of hair, mixt all together with water, will make *course* Mortar : but if you use hard stone lime, then one bushell of Lime will require a bushell & ½, or 2 bushells, of sand, & a bushell of hair. 2 In ye making of *fine* mortar mix one bushell of chalc lime with ½ a peck of Hair, or a bushell of hard stone lime with a peck of Hair, and as much water as is necessary.

Course mortar is used next to ye lathing, or ye stone, or brick-wall ; ffine mortar is drawn on ye other, makes it white, and beautifull.

Clay mortar, or Loam mortar, is made with clay, and as much chopt straw, as ye clay will take in by ye help of water.

Whiting is made by dissolving spanish white either in size, or in water, that with size is not easily rub'd off.

That substance, which is comonly sold at London for about 1d. per pound for spanish white, is suppos'd to be made of chalk ground, and made up into Balls with water.

It is not affirm'd, that ye forementioned rules are universally true, but only that they are observ'd, by *some* men, in *this* place.

Something being said in this paper concerning ye *Whiting* of Plaisterers being made sometimes with Spanish White, & *size* ; Mr. Crouch inform'd ye Society, that Spanish white, & *sower milk*, make whiting as difficult to be rubd off, as if it were made with *size*.

Mr. Caswell & Mr. Walker acquainted ye Society with severall Experiments, they had tried, with ye cubic measure ; they were desir'd to Methodize them by ye next meeting.

February the 3rd, 1684–5.

A Letter from Mr. Aston, dated January ye 29th, was read.

Two Letters from Mr. Cuningham, one of them to Dr. Bernard, dated at St. Leonards Coll Jan: 16th:, the other [1] to ye Secretary, dated Jan: 19th 84–5, were read: the latter of these mentions a way used in Scotland for ye cleansing mines of noxious vapors; the Miners carry down a Candle, in a dark Lantern, covered with a wet cloth; then, lying flat on their faces, they, in that posture, kindle, and mantain a fire, which carryes off ye vapors, without injuring ye Miners. Mr. *Hoy*, of St. John's Coll:, was Propos'd.*

February the 10th, 1684–5.

Dr. Smith in ye chair.

A Letter from Mr. Aston, dated ffeb: ye 2d, was read.

It Affirm'd (among other things) *That mortar is always without Hair*; of ye truth of which we must own our selves not as yet satisfied.

In this Letter was inclosed an Epitome of Kunckel's late book, [concerning an acid spirit contain'd in sp of wine,] drawn up, & presented ye R.S, by ye Honourable Mr. Boyl; this also was read.

Mr. Hoy of St. John's Coll: was elected.

* Experiments of the weight of a cubit foot of diverse gr tried in a vessle of wel-seasoned oak, (whose concave was an exact Cubic foot,) at the request of this Society, by Mr. Caswell, and Mr. Walker, were by them presented to ye S. and read at this meeting; for which they received the thanks of the Society. These experiments are printed in ye Transactions, numb. 167, pag: 926.

[1] This letter from St. Andrew's is preserved in R.S. Letter-book, x, p. 15.

Dr. Plot presented ye S., with some of Monsr. Seignet's sal Polychrestum, of which vid: Lemerye's Chymistry.

He presented also a Persian Gum, supposed to be a Mastick, and Windsor Castle, in straw-work, made by Mr. Clerk a German, and sent by Mr. Ashmole to be laid up in his Musæum.

Three pair of scales, one of ounces, one of drams & scruples, & one of grains, are ordered to be provided, the care of which is put into Mr. Caswel's hands.

Ordered, that Letters be sent to Mr. Maunders, Chaplain to Coll: Lutterell, in Dorsetshire; to Mr. Thomas, Minister of Chard, & to Dr. Turbervile of Salisbury, to desire what information they can give of ye late cold wind, which prov'd so fatal in Wiltshire, and Dorsetshire, about last Christmas.

Ordered, also that Mr. Maunders be desired as his occasions will give him leave, to draw up, and send us, an acct: of ye *Laver*, an Herb growing on ye rocks near Dunstar Castle.

An account of ye weather here at Oxford Dec: Jan: & Feb: last, taken by Mr. Walker, was by him presented to ye Society.

An Abstract of a Letter from Mr. Wm. Molyneux, dated Dublin Jan: ye 27th, was read.

It mentioned 2 human fœtus's born in ye County of Meath, in Ireland, each with 2 heads; one was a ffemale child, had gone it's full time, was well siz'd, and alive ye night before it's birth, but born dead, ye heads of a due proportion, and so exactly alike, that there was no distinction; the other a Male, ye heads compleat, and well shap'd, but one something less then ye other; it had also 3 arms, one whereof grew out between ye 2 heads, and was (as it were) ye back of a hand, on both sides: This latter was not alive within 6 days before it's birth.

A Letter from Mr. Cuningham, dated St. Leonards Coll. Jan: 17th: 84–5, written to Mr. Præsident, was read; It shew'd his great readiness to procure us correspondents in Scotland; and contain'd a Letter from ye reverend Dr. Skene, Provost of our holy Saviour's Coll, in St. Andrewes, to Mr. Præsident, concerning ye establishing a Comunication of matters Philosophicall, between this S. and ye learned Dr., and his ffriends.

Ordered, that some of our Minutes be transcribed, to be sent ye Dr., with the humble thanks of this S. for his compliance in this matter.

The following obss. concerning ye weight of ye severall parts of Henn's eggs, were comunicated: the expts: were tried by Mr. Standard, of Merton Coll, with a pair of scales which turned with ½ a grain.[1]

[1] R.S., Feb. 18. A letter of Mr. Musgrave to Mr. Aston, dated at New College, Feb. 11, 1684–5 (R.S. Letter-book, x, p. 14), was read, containing an account of experiments made at Oxford on the weight of the parts of an egg, as follows:

	A.				B.			
	oz.	dr.	scr.	grs.	oz.	dr.	scr.	grs.
A hen's egg weighed .	2	—	1	15	2	1	1	19
The skin weighed .	—	—	—	16	—	—	—	18
The shell . . .	—	2	2	4	—	1	2	8
The yolk . . .	—	5	1	—	—	5	1	18
The white . .	1	1	—	6	1	1	2	4
Lost in weighing .	—	—	—	9	—	—	—	11

The preceding experiments were tried on raw eggs.

	oz.	drms.	scr.	grs.
Another raw egg of the same sort .	2	1	2	13
The same egg boiled . . .	2	1	1	18
Lost in boiling	—	—	—	15
The skin	—	—	—	13
The shell	—	1	2	19
The yolk	—	5	—	7
The white	1	2	—	13
Lost in weighing . . .	—	—	—	5

The weight of a Hen's egg, raw, two ounces, one scruple, & fiveteen grains: the weight of ye skin sixteen grains; of ye shell, one drachm, 2 scruples, & four grains; of ye yelk, five drachms, one scruple; of ye white one ounce, one drachm, 6 grains: lost in weighing, eight grains.

A second egg weighd 2 ounces, one drachm, one scruple, nineteen grains: the skin eighteen grains; the shell one drachm, 2 scruples, eight grains; the yelk five drachms, one scruple, eighteen grains, The white one ounce, one drachm, 2 scruples, 4 grains: lost in weighing eleven grains.

A third egg (raw) weighd 2 ounces, one drachm, two scruples, thirteen grains: boild it weighd two ounces, one drachm, one scruple, eighteen grains; (lost in boiling fiveteen grains;) the skin thirteen grains; the shell one drachm, two scruples, nineteen grains; the yelk five drachms, seven grains; the white one ounce, two drachms, fourteen grains: lost in weighing five grains.

February the 17th, 1684–5.

Mr. President in the Chair:

A Letter from Dr. Briggs, to Mr. President, dated Jan: 22, was read; it mention'd another Nyctalops; who, being a Scholemaster, and able to answer such Queries, as shall be proposed to him, the Dr. kindly offers his hand for the conveying such Queries, to the Person thus affected, as we shall send him.

The following Queries were agreed on, to be sent ye Dr., with ye humble thankes of this Society for his kindnesse to us in this Particular.

1. Whether this Person can see by Candle-light, in a darke room, any time of the Day?

2. Whether, at any time, by candle-light darted through a Ball of water?

3. Whether by ye light of Glow-wormes, rotten wood, Herrings heads &c. ?

4. Whether at any time, and by any light, with ye Bishop of Ferns his Spectacles ?

5. What help Glasses of severall sorts afford him ?

6. Whether he can see, by candle-light &c. about one, or two, in the morning, after four, or five, houres sleep ?

7. What Effect drinking to a considerable quantity, hath on him ?

8. Whether his Eyes are equally affected ?

A Description* of the Cicindela volans, written by Mr. Waller, Fellow of ye R:S. was read. Dr. Plot affirm'd, that this Insect has been observ'd in Staffordshire.

A Letter* written by Mr. John Beaumont junior, of Stony Easton in Somersetshire, to one of ye Secretaries of ye Royall Society, concerning a new way of cleaving Rockes, practised by the Miners in Mendip Hills, was read.

A Letter* from Mr. Davis,[1] Minister of Little Leah in Northamptonshire, and a paper* of Dr. Papin's, Fellow of ye R.S., were read: Both these Gentlemen mention Siphons made by them (viz: one by Mr. Davis, & three by ye Dr.) all which, as they affirme, performe the same things with the Sipho Wurtenburgicus.

A Letter of Mr. Aston's dated Feb 12th was read.

A Letter† from Mr. Charles Leigh informed us, that he had by him a dozen Cubicall Pebbles, which were taken out of ye Omentum of a Cow: That he dropt into a Minerall Water in Lancashire Spirit of sal Armon:, & it

* Phil. Trans. No. 167.

† In the Letterbook immediately after Mr. Cole's Letter of Feb. 5th.

R.S., Jan. 28. Mr. Davis's letter, dated Jan. 20, 1684–5 R.S. Letter-book, x, p. 6), was read. Birch, p. 362.

præcipitated Vitriol, but made no effervescency; He put into it Volatile salt of Sal Armoniac, and it made a great effervescency, & præcipitated Ocre: He put into it Crab's Eyes, they would not mix with it.

A paper* of Dr. Lister's was presented giving the Figure of a Stone cut out of ye bladder of a Boy, together with an Iron Bodkin, to which the Stone grew: the Bodkin was thrust up into ye bladder by ye Boy himself about 2 years before ye Incision.

Mr. Walker brought in an account† of the prices of ye best Wheat & Mault at Oxford on the Market-dayes next before Lady day & Michaelmas for 20 yeares last past: by which it appeares, that the price of Wheat for 20 yeares last past at a mean rate (i.e. one year with another) has been 5*s*. 4¼*d*. ye Bushell: Mault, during the same time, in ye same market, at a mean rate, has sold at 2*s*. 11½*d*. ye Bushell.

A Letter[1] from Mr. Cole, dated Minehead Feb: 5th to Dr. Plot, was by him comunicated to ye Society, it mentions ye Cornu Amonis Cristatum, found in Somersetshire, from 7 to 27 inches in breadth, & was 7 inches thick on that part, where some vainly thought ye Head to grow: He promises us patterns of 7 distinct colours from his Shell-fish viz: White, a fine Yellowish Green, a fair deep Sea-green, a deep Watchet blew, a Sullen Purple, a deep dark Sanguine, & ye bright Tyrian Purple.

Mr. Cole was proposed by Dr. Plot in order to be Elected of this Society.

Mr. Hoy subscrib'd to ye Articles.

* Phil. Trans. No. 168.
† See Letterbook B, Paper 14th.

[1] Reported by Musgrave to R.S. meeting on Feb. 25th. Birch, p. 370.

Mr. Pigot presented a Nose-gay consisting of severall flowers, whose Colours were preserved very well; & ye smell of it Lively.

February the 24th, 1684–5.

Dr. Pudsey in ye Chair.

A Letter from Mr. Bulkly to Dr. Lister, dated Jan: 26th, was read; it gave a farther account of ye 2 humane Fœtus's, each of which had 2 heads, lately seen in Dublin.

A Letter* from Mr. Molyneux to Mr. Aston S:R.S: was read, it gave a description and draught of the Connaugh Worme.

A Letter† from Dr. Howman, dated Norwich Jan: 27, to Dr. Brigs of London, by whom it was sent to us, was read: It gave an account of a Hydrophobia in an Alderman of Norwich, caused by the bite of a mad Fox.

Mr. Walker affirm'd, that about 15 yeares since a Person died mad in Cheshire, having been bit by a mad Catt, which received it's madnesse from ye bite of a mad dog.

A Horne was communicated by Dr. Plot, said to be a Horne, which grew behind the Head of a Woman, who was shew'n in London about 14 yeares since, and is reported to have shed her horne once in 3 yeares: This was sent by Mr. Ashmole to be laid up in his Repository.‡

A paper of Queries concerning Filtration, drawn up by Mr. Dalgarno, was read. see Letterbook B, pap: 17.

A Letter from Mr. Todd to Dr. Plot dated Rose Castle Dec: 12th. 1684 was read: it mention'd 1 a little Roman

* Phil. Trans. No. 168.
† Phil. Trans. No. 169.
‡ Vide Tho. Bartholini *Histor. Anatom. Cent.* 1. *Hist.* 78.

Urne* found, where antiently was Welp-Castle in Cumberland, 2ly some pieces of Sacrificeing Vessels found near Bishop Aukland in ye County of Durham: 3ly golden Marcasite from Cumberland; all which particulars were communicated to us.

A Letter from Mr. Aston S.R.S. dated Feb: 19th was read.[1]

March the 3rd, 1684–5.

Dr. Smith in ye Chair.

A Letter from Mr. Aston, dated Feb: 26th, was read[2]: Among other things it mention'd a new Invention of watering Serges &c: at a very cheap rate; it mention'd also a stone cut out of ye bladder of a Man, which (Stone) weigh'd 36 ounces.

A Letter† was communicated by Dr. Plot, which he received from Dr. Threapland of Hallifax, it was dated Feb: 2d, & gave an account of 2 larg stones voided per anum by a Carpenter near Hallifax: With ye letter came one of ye stones, which was as big, as a middle siz'd walnut, ye other was sent to ye R.S. ‡[3] The thankes of this Society were order'd to be sent ye Dr.

Dr. Plot acquainted the Society, that some time since

* See the Phil. Trans. No. 158.
† Phil. Trans. No. 170.
‡ Vide Tho. Bartholini, *Histor. Anatom. Cent.* 4. *Hist.* 9 and 49.

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[1] The R.S. met on Feb. 18.

[2] R.S., Feb. 25. Joshua Haskins presented a petition concerning the "watering" of fabrics. Birch, p. 370.

Robert Collinson desired to exhibit a bladder stone taken from Francis Dugord of Aberdeen which weighed $35\frac{3}{4}$ oz., being in length $5\frac{9}{10}$ inches, diameter $3\frac{6}{10}$. The man who brought it was ordered 10 shillings.

[3] R.S., Feb. 25. Letter-book, x, p. 4. Phil. Transactions, No. 170, p. 961.

he saw 20, or 30 cubicall stones in ye gall-bladder of a Woman, who had poysoned herself with Arsenic.

A Letter * from Mr. Leigh gives a farther account of ye Balsamic Earth mention'd in his last: He saies it will take fire at a Candle, and, if tost in ye air, will burn exactly like a Torche, an Oyl dropping from it scarce distinguishable from ye oyl of Amber: He saies, that any other Earth whatsoever, if put into ye place, where this is dug, will in a yeares time be exactly the same with this: 4 drops of this oyl is a present Cure for ye Colic, & may therefore in all probability be proper in those distempers, which affect the Nerves: Spirit of wine takes a very deep tincture from it, which is easily evaporated to an extract, which Extract (if evaporated ad Siccitatem) does very much resemble fat Amber: He saies also, they have in Lancashire a Crow (they call Manc's crow) which breakes ye shells of Muscles, on which it commonly feedes, by carrying, pebbles up into ye air, and letting them fall on ye fish: this, he saies, he has observ'd to be true.

A Letter from Mr. John Awbrey, dated London Feb: 27 was read; it mention'd an Opinion that some Merchants were of; that Beasts are generally offended at a Barbary Lion's skin: There being one of these skins in ye Musæum Ashmolianum, he desires, ye truth of this matter may be enquired into, which was order'd to be done.

With this letter we receiv'd another, which was sent him by Dr. Peirce of Bath, & dated Nov: 28th 1684. It gave an account, & a draught of a shell found in ye Ureter of a Woman, which shell was of ye shape of ye shell of some fish:

* Next after Mr. Paschal's of March 3rd.

A Discourse* of ye Bogges & Loughs of Ireland, by Mr. William King, Fellow of ye Dublin Society, was communicated, & half of it read, ye other part reserv'd for ye next meeting.[1]

March the 10*th*, 1684–5.

Dr. Plot in ye Chair.

The remaining part of Mr. King's ingenious discourse of Bogs was read; & the thankes of the Society order'd to be sent him.

A Letter [2] from Mr. Aston, dated March 5th was read; it mentioned an account from Mr. Justell, that ye Savages of Canada, when the juyce rises in ye Maple, make an Incision to let it out, and then evaporate 8 lb. to 1 lb., whereby they get a Sugar as sweet, as that of ye Canes: A pattern of this Sugar was enclosed in ye Letter. This Experiment was order'd to be tried on both kindes of the Acer, both Majus & Minus.

The Earthen vessel lately found at York (a draught of which was sent to the R.S. and mention'd in Mr. Aston's Letter of Feb: 26th under ye name of an Urne) [3] was communicated to us: It is supposed by Dr. Plot to be a Roman Flower-pot, rather than an Urne; there being no Roman Urne found or described like this Vessel.

Mr. Cole of Bristoll was Elected Member of this Society.

* Phil. Trans. No. 170.

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[1] Phil. Transactions, No. 170, p. 948.

[2] R.S., March 2. The Secretary was desired to write to Oxford to request that a shell of Mr. Cole's purple fish might be sent up. Also, to send a piece of Mr. Justel's Canadian sugar to Oxford to have an experiment repeated. Birch, p. 372.

[3] R.S., Feb. 25. The urn was found at the brick-kilns without Barthant bar and was sent to Dr. Walker of University College. Cf. Phil. Transactions, No. 171, p. 1017. Birch, p. 369.

A Letter from Dr. Peirce Physitian of Bath dated Feb: 28th gave a Satisfactory Instance of ye Vertues of the Bath in cureing Palsies & Barrennesse; A Gentlewoman, who had no Children in 10 yeares after Marriage, is strucke with a palsy, which brings her to the Bath, where she is recover'd, and after this has 5 Children following.

A Letter from Mr. Maunders dated Dunstar Castle Feb: 20th to Mr. Crouch, was by him communicated to the Society: He saies that the best and greatest of that sort of fish, which yields ye Purpura, has not matter enough to make above 6 or 8 Roman Letters; this it is call'd by ye People of that Country (as he thinkes) a Periwincle. Speaking of ye dismall weather on ye 23d of Dec: last, he saies, that above 80 Persons were found kill'd by it, in Wiltshire & Dorsetshire; some died suddenly, others by degrees: Some, that escaped, were so tormented in their hands, & face (parts exposed to ye cold) that, as they recovered, & ye swellings abated, the skin peeled off, and they were some days without ye use of their limbes, & sometimes of their Senses.

Dr. Plot comunicated a Letter, he received from Dr. Lister, who affirms, that by ye Vessel found at York it appears, that the Red, the Romans used, was a peculiar sort of Varnish laid by a Brush or Pencill at discretion; & not from the clay and polish or burnishing, as in ye glaseing of pipes.[1] He writes also of ye nature of the Hydrophobia, of which he promiseth his thoughts more freely hereafter.[1]

A Letter of March 5th from Dr. Brigs of London was read; it mentions a Letter, he received lately from Dr. Turbervile of Sarum, by which he understands, that that

[1] R.S., March 2. Dr. Lister spoke about the urn from York and about hydrophobia. Birch, p. 371–2.

Physitian (Dr. Turbervile) has also met with the Disease Nyctalopia in the course of his practice.

A Letter from Mr. Paschall of Chedsey in Somersetshire dated Mar. 3d was read; It proposes ye makeing a Digest in Philosophy, (I suppose in imitation of that of ye Civil Law;) this would certainly be advantageous to the progresse of that Learning.

A Letter from Mr. Wm. Molyneux dated Feb: 21 was communicated, together with Mr. Ash's Discourse* of squareing ye Circle, which was put into Mr. Caswell's hands to be considered by him.

An Account† of ye Specific Weight of severall Bodies was presented ye Society by Mr. Caswell and Mr. Walker.[1]

March the 17th, 1684–5.

Part‡ of 2 Letters from Mr. Tho: Molyneux to one of ye Secretaries of ye R.S. concerning a prodigious Os Frontis in ye Medicine-School in Leyden was communicated & read.

A Letter from Mr. Aston dated Mar: ye 12th was read;

* See Letterbook B, Pap. 11.
† Printed in Phil. Trans. No. 169.
‡ Phil. Trans. No. 168.

[1] R.S., March 25, 1685. A letter from Mr. Musgrave to Mr. Aston, dated at Oxford, March 21, 1684–5 (R.S. Letter-book, x, p. 61), was read, concerning the comparative weight of several bodies, as follows:

	lb.	oz.
A Cubic foot of sand weighed	85	4
Of New castle coal	67	12
Of Gravel	109	5
Of wood-ashes	58	5

It was affirmed, that a bushel of corn weighs more in dry than in wet weather: that 64 lb. of meal makes 35 lb. of fine flour, if it be from the best wheat, and very dry. Pump water and that of the Isis were found of equal weight. . . . Birch, p. 383.

with it came ye Minutes of ye Dublin Society from Decemb: ye 1st to Feb: 23. 1684–5 inclusive. Orders were given, that the thankes of our Society be return'd for these Minutes, and that Copies of Sr William Petty's *Supellex Philosophica*; of Mr. Brownlow's answers to ye Queries sent him concerning Lough-Neagh; and of ye Anatomicall Observations lately brought in to the Dublin Society by Dr. Mullen & Dr. Huolaghan, be desired.

A draught* of Mr. Beaumont's designe for writing ye History of ye Nature and Arts of the County of Somersett, was comunicated by Dr. Plot. Who also presented us with a Catalogue of the most considerable Desiderata in Chymistry as followes.—

A Catalogue of some of ye Arcana & Desiderata in Chymistry.

1. To reduce any of ye Metalls into a reall fluid.

2. To turne ye whole body of Mercury into a clear Diaphanous water wetting ye hands.

3. To fix Mercury so that it shall abide a blast, or that it will endure a distillation with fixt Salts without revivification.

4. To make a Mercury which shall coagulate by naked digestion into a powder, which may be melted into Gold.

5. To make a Mercury which by digestion with other Metalls amalgamated therewith shall separate their Sulphur in a black powder, & likewise joyn it self with ye Mercurial part, and so multiply it self infinitely.

6. To make Aurum Potabile. viz. to bring it into a liquor or into a powder readily dissoluble in Wine &c, which may be easily taken inwardly, and cannot be reduced into Mineral Gold as before.

* See Letterbook B, Paper 13.

7. To make the body of Gold rise over ye helm, and in a permanent liquor, after separation of it's concomitant.

8. To transmute one Metalline Species into another, especially ye baser, into Gold and Silver, either by projection, Cementation, Commixtion, or Digestion.

9. To take away the tincture or Anima of Gold, leaving the body behind white.

10. To take from Copper its given tincture, leaving the body white, and which shall never grow green by rust.

11. To destroy any of ye Metalls, so as it cannot, by Flux, or otherwise, be reduced to it's pristine Forme.

12. To make ye Metallus Masculus of { Paracelsus & Helmont.

13. To make the liquor Alkahest, which will dissolve all bodies whatever, except its Compar, & what it is.

14. To Sublime Antimony in it's own forme, black & striated.

15. To make a Menstruum, not corrosive, that shall perfectly dissolve all ye Metalls, particularly Gold and Silver.

16. To turne Essential oyles upon Salt of Tartar into a Volatile Salt.

17. To make ye Balsamum Sameth Paraselsi.

18. To make urinous volatile Salt, or Spirit, from most Vegetables.

19. To make in good Quantity an Urinous Salt, and Spirit out of a Mineral with little cost.

20. To make ye green & red Oil of Vitriol.

21. To make ye sweet Anodyne Sulphur of Vitriol.

22. To make a true tincture of Corall, viz: to take away the tincture, leaving ye body behind white.

23. To Mummiate an Animal entire without opening,

or taking out the intestines, or giving to ye flesh any taste, colour, or smell.

24. To make Oil of Talc.

25. To make glasse malleable.

26. To make many fragments of Diamonds, or other precious stones into one.

27. To make Artificiall Marble.

28. To stain glasse Red, as anciently.

29. To find Specific Medicines for most diseases.

30. To make a Universall Medicine.

31. To stain Marble black.

32. To make Lully's Lunaria.

33. To make an inconsumable oyl for perpetuall Lamps.

34. To make ye Asoph of Helmont & Paraselsus.

35. To make ye Silver-Tree of Diana.

36. To make Helmont's Arcanum against ye Duelech.

37. To make his Laudanum and Driff.

38. To make his plaister for ye Quartan.

39. To make ye Sal Polychrest of Monsieur Seignette.

40. To reimpregnate Sea-Salt, so as to draw a Spirit of Salt from it nine severall times without addition; after ye manner of ye same Monsr. Seignette.

March the 24th, 1684–5.

Mr. President in ye Chair; [1]

Dr. Plot communicated a piece of old glasse from Wooburn-Abbey in Bedfordshire, painted Red & Blew; part of ye Blew having formerly been separated from ye glasse, there appeared severall scratches in it, which with the blew, that was left near them, made up a Mullet, being part of a Coat of Armes designed by ye Painter:

[1] R.S., Apr. 1. Letter from Mr. Musgrave in R.S. Letter-book, x, p. 64. Birch, p. 387.

This intimated to us, that the use of these scratches was for the better fixing of ye Paint. It was farther observ'd by Dr. Plot, that the paint lay higher than the glasse it self, this being a paint laid on the Superficies of the glasse, not entred into ye Body of it, as sometimes it was by the Antients.

The Society was informed by Mr. Musgrave that, in the dissections of two Persons, who died not many yeares since in Oxford of Consumptions, the Intestinum Cœcum had these things remarkable in it; In one of them it was quite dried up, and grew fast to the Peritonæum: In the other it was much lesse, than usually it is.

Two Letters from Dr. Turbervile of Salisbury, giving an account of some of his Observations, were communicated and read; one was dated Feb: 26th. ye other March ye 20th.

Mr. Dalgarno presented the Society with 2 papers,* one concerning the bringing a Philosophicall Language into practice, the other a Compendium of a Book, not long since printed by him, entitled *Didascolcophus*, which among other things undertakes to prove, that the Eye & Hand are more usefull Organs of knowledge, than the Tongue and Ear.

This gave occasion to some Discourse concerning the Vigour and improvement of some one Sense, upon the Defect, or non-employment of one or more of the others; upon which Subject Mr. President was pleased to informe us, that Mr. Whaly (the deaf Gentleman, whom he taught to speak) could, when within doors, distinguish a Coach from a Cart in ye street by the motion, it made; when those, who were in company with him, could not discerne whether it were the one, or the other, by the noise, it made.

* See Letterbook B, Paper 16th.

Mr. President* was also farther pleased to informe us, that He himself has extracted ye square Root of a Number of 53 places in ye dark by ye help of Memory, which he could not do so easily in ye Light. And Dr. Plot informed the Society, that one Rich: Clutterbuck (a Blind man in Gloucestershire) can hear the running of the Sand in an Hour-glasse, as has been often experimented, of which he promises a farther Account.

March the 31*st*, 1685.

After the reading of the Minutes, Mr. President was pleased to give the Society a more full account of his extracting the Root of a Number of 53 places in the darke, by the help of Memory : The account is as follows :*

Upon occasion of a Discourse at a meeting of the Philosophicall Society at Oxford (March 24, 1684–5) concerning the advantage, which those may have (as to Memory, & the Application thereof) who want their Sight, Dr. Wallis confirmed it by this Consideration, that even we, that have our Eye-Sight, can yet with more advantage apply our Memory (in matters of intent Consideration) by Night, in the dark, when all things are quiet, than by Day, when Sights and Noises are apt to divert our Thoughts : And gave instance in his application of his own Memory, by Night, (in performing Arithmeticall Operations in great Numbers) better, than by Day he could have done : And, even by Day, we may better do it with our Eyes shut, than open.

And, because some present seemed to be surprized at the Particulars mentioned, He did at their next meeting (Mar. 31. 85) give this farther account of it.

Having had the Curiosity heretofore to try, how far ye strength of Memory would suffice me to performe some

* Phil. Trans. No. 178.

Arithmeticall Operations (as Multiplication, Division, Extraction of Roots &c) without the assistance of Pen, & Ink, or ought equivalent thereunto ; And finding it to succeed will (for Instance) in Extracting the Square Root from Numbers of 8, 10, 12, or more places : I proceeded to try it (with Successe) in Numbers of 20, 30, or 40 places. But was not curious to keep Memorials of the Particular Numbers, which I had so considered (as being but a Curiosity and not of farther use,) Till there happened an occasionall Discourse of it with a Forreigner, (*Johannes Georgius Pelshover, Regio-Montanus Borussus*) who, coming to see the University, was pleased (as divers other Forraigners often do) to give me a Visite (Feb: 18. 1670–1) at a time, when I was afflicted with a tedious and severe Quartan Ague, (which held me, for a whole year, from about Michaelmas then last past, till about the same time in the year following :) which caused me to passe many Nights with little or no Sleep.—He was desirous, I would tell him some of those Numbers, which I had so considered, which, at the present, (for the Reason but now mentioned) I could not do : Save onely, that on December ye 22d, 1669. I had (by Night, in the Darke) extracted the Square Root of 3 (with Cyphers adjoyn'd) continued to ye Twentieth place of Decimall Fractions. Finding it to be,

1.73205, 08075, 68877, 29353 ferè

which is ye Square Root of 3, with 40 Cyphers adjoyned. 3·00000, 00000, 00000, 00000, 00000, 00000, 00000, 00000. (which I had chanced to write down, because 3 is a Surd, which I might after have occasion to make use of) But added, that I could at pleasure performe the like at any time. And when he farther pressed me so to do, I did that same Night (by darke, in bed, without any other assistance, than my Memory) propose to my self (at all adventures) this Number of 53 places

2,4681,3579,1012,1411,1315,1618,2017,1921,2224,2628,
3023,2527,2931.

and found its square Root of 27 places to be

157,1030,1687,1482,8058,1715,2171 feré.

These numbers (having fixed them in my Memory, by repeating the same operation a night or two after) when he made me another visit, March 11th following, I did dictate to him from my Memory (having not before committed them to writing) for him to write down and examine: And did afterwards write them down my Self.—He did, it seemes, discourse this afterwards (at London) with Mr. Oldenburg (by whom he had before been directed to me) to whom (as I remember) upon a Letter from him, I gave a like account, as now I do.[1]

I will not undertake, that my Memory is now so strong, as then it was in my younger daies: But do believe, if occasion were, I could yet performe the like. But I have never tried it (in so great Numbers) since that time: Being by that time sufficiently satisfied, that a reasonable good Memory, fixed with good attention, is capable of being charged with more, than a man would at first imagine.

A Letter from Mr. Aston S.R.S., dated Mar: 26th was read.[2]

The Figure of a *Stone said to be taken out of the bladder of one Francis *Dugood* of Aberdeen, & to be in length $5\frac{90}{100}$ inches, in Diameter $3\frac{60}{100}$, & in weight lbij—ʒiij—ʒvi. was communicated by Mr. Aston[3]; The Person, in whom this Stone was found, is said to have been

* Phil. Trans. No. 171.

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[1] R.S. Letter-book, x, p. 67. Phil. Transactions, No. 178, p. 1269.

[2] The R.S. met on March 25. Birch, p. 382.

[3] See p. 125.

50 yeares old; which gave occasion to one of ye Society to affirme, that those, who were never troubled with any fitt of the Stone, may sometimes be supposed to have a Stone in the bladder: especially, if they have a bloody urine upon extraordinary motion, as riding &c; & also have a frequent inclination to go to stool, which yet proves a false alarme, and is not caused from a sharp humour settled on the Intestinum Rectum, as in a Tenesmus.

An account of a strange sort of *Bees in the West Indies was communicated from the R.S. and read.

An Extract of a Letter† from Mr. Leewenhoeck, concerning the Salts of Wine and Vinegar &c: was communicated, and half of it read.

It was ordered by ye Society, that Dr. Plot, Mr. Crouch, Mr. Caswell, Mr. Walker, & Mr. Musgrave; or any 3 of them, should meet some time before St. George's day, & audit ye accounts of the last year.

The Figure of that Stone,‡ which was voided per Anum. by a Patient of Dr. Threapland's (of which there is an account in his Letter of February ye 2d. 1684–5) was communicated to the Society.[1]

April the 7th, 1685.

Mr. President in the Chair.

A Letter, dated Edinburgh March. 23. 1684–5 from the Reverend Dr. Middleton Provost of Kings College in Aberdeen, was read; in it were contained a Letter from Dr. Garden to Dr. Middleton, dated Aberd: Mar: 2d. 85

* Phil. Trans. No. 172.
† Phil. Trans. No. 170.
‡ Phil. Trans. No. 170.

[1] See p. 125.

and a very Rationall Discourse* concerning Weather,[1] written some time since by Dr. Garden (by way of Letter to his Friend Mr. Scougall) which were read also: The S. ordered their thankes to be returned, both to Dr. Middleton and to Dr. Garden, for the communication of so Considerable a piece of Philosophy. Dr. Garden mentioning in his Letter, that he had severall other remarkes on the same Subject still by him, which he should be ready to impart to us; the Society made it their request to him, that he would adde to the Favour He has already done us by communicating the Remains† of his Thoughts on this Subject. One Passage in Dr. Garden's Discourse deducing the Rise & Fall of Vapours from their weight in respect to that of the Air, (intimating, that ye Vapours arise, when Specifically lighter, and fall when Specifically heavier, than the Air;) Mr. President, not denying this to be true, added hereunto, that Subterraneal heats, or other ferments, may bear some part in producing this Effect; as impelling upwards those Vapours, which, being Specifically heavier, than the Air, fall again in a little time: An instance of which he gave in ye boyling of Water; where the Vapours are forced upwards by the Fire placed under the Vessell; &, having lost that Impetus, which raised them, & being intensively heavier, than the Air, sink down again.‡

* Phil. Trans. No. 171.
† Phil. Trans. No. 175.
‡ Discourse, Phil. Trans. No. 171.

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[1] R.S., Apr. 22. Dr. Garden's attempt of an aerostatical hypothesis of the various changes of the weather, sent from Aberdeen to the Philosophical Society at Oxford, and by them communicated (R.S. Letter-book, x, p. 54), was read. Phil. Transactions, No. 171, p. 991. Birch, p. 393.

Garden's hypothesis occasioned the discourse of Dr. Wallis which was published in the Phil. Transactions, No. 171, p. 1002.

The Following Paper was communicated by Dr. Aldrige.

De Quadraturâ Circuli
Propositiones Quinque,
Quas (si tanti videbuntur) Erudito Orbi Demonstrare Paratus est
Nicholaus Mercator è Soc: Reg: Londini.

1 Prop. Theorema. Diametrum ad Peripheriam esse Longitudine et omnibus potentijs incommensurabilem.

2. Prop. Theorema. Nullam omnino Chordam esse arcuj suo Longitudine aut ullâ potentiâ comensurabilem.

3 Prop. Theorema. Differentiæ chordarum Arcuum æquidifferentium Primæ, Secundæ, & Reliquæ deinceps omnes alternis crescunt & decrescunt in Infinitum usq.

4 Prop: Problema. Datâ Diametro invenire Peripheriam in Infinitum usq.

5 Prop: Problema. Dati cujuslibet arcûs chordam invenire in Infinitum usq.

Divulgatum Martij 1mo. 1684–5

A Letter from Mr. Aston dated Apr: 2d. was read: it mentioned a Catalogue of Rarities, brought from Ceylon, by Dr. Heerman of Leyden, & preserved according to a peculiar way known to him: A Transcript of this Catalogue is desired.[1]

The Remaining half of Mr. Leewenhoeck's Letter concerning the Salts of Wine, Vinegar &c, was read.

A Letter from Dr. Peirce of Bath, dated Bath March 17th was read.[2]

[1] The list of Herman's Rarities is printed by Birch, p. 384.

[2] R.S., April 8. Dr. Pit, who had time allowed him for his admission on account of his residence at Oxford, was now admitted. He stated that the cœcum was full of glands. Birch, p. 388.

April the 14*th*, 1685.

Mr. President communicated a farther *discourse concerning ye Air's Gravity observed in ye Baroscope, occasion'd by that of Dr. Garden read ye last meeting. He Also comunicated ye following observation;

Apr: 4th. 85. I understand this day be a letter from Hythe in Kent, that at Dover, on March 19 last past, (which was two daies after the last quarter of ye Moon) there was observ'd this extraordinary in ye Tide: After it had flowed some time it ebbed two foot; then flowed again, & then ebbed; and after flowed a third time, and so a fourth time: so that there were four Flowings, and three Ebbings in one Tide.[1]

Dr. Bernard† was pleased to informe us, that in the *Iter Germanicum* of Mabillonius, printed at Paris Anno 85, there is the delineation of a Telescope, as it was described by Conradus Victor, who (according to Stephanus Abbas) lived before the year 1241; This Tube differs from ye Dioptra Ptolemaica, found in the MSS of the great Syntaxis, and of the Hypotyposis of Proclus.

A Letter from Mr. Cony, dated Rochestr Mar: 27, was read; the Subject of it was concerning the raining of Fish, as it was supposed to have been in that Countrie some time since.

A Letter from Mr. Cole of Bristoll, dated Bradfield March 25, mentions a Substance proceeding from Calamy oar, which far exceedes, in colour, and finenesse, all Metalls, beside Gold, and Silver.[1]

Adjournd to April 23, the Day of Election.

[End of Minute Book A].

* Phil. Trans. No. 171. † See Letterbook B, Paper 31.

[1] R.S., April 29. A letter of Mr. Musgrave to Mr. Aston, dated at Oxford, April 27, 1685 (R.S. Letter-book, x, p. 121), mentions the Dover tide, the telescope and Cole's letter about calamine. Birch, p. 395.

TRANSACTIONS OF THE PHILOSOPHICAL SOCIETY OF OXFORD, 1685–90.

Minute Book B begins with the Fifteen Articles of the Society already printed on pages 45 & 46.

They are subscribed by Charles Standard
William Deedes
Christopher Pitt
Thomas Ludford

A sixteenth Article is added;

16. Ap. 23rd, 1686. Ordered that from henceforth there be two Secretaries chosen annually.

April the 23rd [1685].

This being ye day of Election, Dr. Wallis was chosen President. Dr. Plot Director of Experiments. Mr. Ballard Treasurer. Mr. Musgrave Secretary.

April the 28th [1685].

Mr. Pulleyn was desired to take ye Chair.

A Letter from Mr. Willm Molyneux dated Dublin Ap. 4th was read; in it was contained a Transcript* of Sr Will: Petty's Supellex Philosophica, as it was presented to the Dublin Society, which also was read, and the thankes of ye S: ordered to be returned for it.

A Letter from Mr. Aston dated April 9th, and con-

* See Letter-book B, Paper 12.

taining an account of ye Curiosities brought from Ceylon by Dr. Heerman Professor of Botanics at Leyden, was read.

A Letter from Dr. Pierce of Bath dated April 11th was read; it gave a farther Relation of the shell found in ye Ureter of a Woman, and of the Evets found alive in ye middle of a stone.[1]

A Letter from Mr. Aston was read containing a proposall of Dr. Lister's of cutting for ye stone by entring ye Abdomen a little above ye Os Pubis, & opening the ffund of the bladder; on which account Mr. Bainbrig informed the Society, that one Colbron a Chirurgeon at Haysham in Sussex has taken out the stone of the bladder this way with successe: Mr. Bainbrig is desired by the S: to procure a full Relation of the particulars of this Operation; & Mr. Pigot is desired to try ye Experiment on a Dog.

The following paper was communicated by Doctor Cole of Worcester.

Feb. 15. 84–85. Ad quendam Io: Bellas, Pistorem Uptoniensem, Apoplecticum accitus sum. Is (per tres vel quatuor ante dies hæmorrhagiam narium, sed levem, in dies passus) pridiè hujus diei, horâ 4tâ pomeridianâ, a muniis quotidianis calens, nullis ampliùs inductis vestibus, verùm a foco remotus, frigidâ per apertum ostium admissâ aurâ, pransum considit. Mox surrexit aliud quiddam negotij aggressurus, cùm subitò malè se habere mussitans humi corruit. Post quam per tres vel quatuor horas aphonos et stortens nil oblatorum deglutire valens, jacuerat; consilio (vel potius permissu) Medici, qui priùs accessitus fuit, vena secta erat, et sanguis ad ℥x circiter missus: Mane sequenti vesicatorium Nuchæ admotum erat. At quoniam ad paroxysmo per totas 24 horas non omninò absolvi percepit Uxor, me tandem

[1] R.S., Apr. 8. Birch, p. 389.

accisi voluit. Adveniens (Feb: 16) horâ octavâ vespertinâ inveni loquentem quidem, sed admodùm delirè, et cum magnâ inquietudine huc illuc in lecto se comoventem, quin frequentia dantem indicia & manu, & querelis caput valdè dolere. Pulsus fortis erat, quanquam a Pharmacopæo, qui illi ministraverat, resciveram exilem admodùm & via perceptibilem ab initio fuisse: Nec per sedem, nec urinam quicquam tot horis reddiderat. Statim phlebotomiam iterari jussi, & sanguinis ℥xxv ad minimum educi, et clysterem acrem injici, atq sp: *cj quantum potui ingessi, statuens mecum, si non ad se post paucas horas rediiset, repetere sanguinis missionem. Sed ille multò quietiùs mox se continuit, et post unam horam vel alteram in somnum, satis compositum, incidit; & mane perfectè ad se redijt, clystere tamen adhuc in visceribus detento; verùm synciput admodùm dolore conquestus est. Clysteris exclusioni promovendæ, suppositorium insuper inditum erat; quibus post aliquot horas redditis, se aliquantò meliùs habere fassus est. Et quoniam impetrare non potui, ut sanguis iterum mitteretur (præ magnâ, quæ plerosque incessit, αἱμοφοβία, nec vulgus solùm, sed etiam Medicos (in nostrâ saltem degentes viciniâ) non rarò inde in ægrotantium perniciem, fortassis et futuros in suam, cautos) alium injici clysterem curavi; undè sequenti mane de dolore vix ampliùs conquestus est, et pulsus multò melior erat, omniaque se exhibuerunt indicia brevi redituræ sanitatis, quâ nunc post septem septimanas fruitur.

A Letter of Mr. Aston's dated Ap: 23 was read.[1]

Mr. Bainbrig affirm'd, that ye little end of a Dutch Tobacco-pipe (ye piece about 2 inches in length) having been thrust into ye bladder by a Boy was cut out by ——— and is now to be seen at Leyden.[2]

[1] The R.S. met on Apr. 22.

[2] R.S., May 6. A letter of Mr. Musgrave to Mr. Aston, dated at Oxford, May 1, 1685, was read, mentioning that at Leyden

May the 5th, 1685.

Mr. Crouch being desired to take ye Chair, a Letter from Mr. Aston (dated April ye 30th) was read.

A Letter from Mr. Will: Molyneux (dated Dublin Ap: 17th) was read ; it gave an account of a new Hygroscope* of his invention : it is made of comon whip-cord fastned at ye upper end, the lower end hangs loose with a little weight annext, and turnes round according to ye degree of moisture in ye Air: the turning of ye lower end is mark'd by a Tongue or Index joyned to ye weight, and playing over a Circle in paste-board or ye like ——, so as that ye weight hangs over ye Centre of ye Circle.[1]

* Printed in ye Transactions N: 172.

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there had been cut out of a bladder by Smalrius a few years ago two inches of the small end of a tobacco-pipe, which had been stuck into it some time before, and was kept at Leyden.

The letter was accompanied with a copy of Sir W. Petty's *supellex philosophica*, as it had been offered to the Society at Dublin, containing forty-five articles, as follows :

[List of 45 measuring instruments.]

1. Scales and steelyards to weigh in the air and water.
:
15. A water level.
17. Mr. Flamstead's quadrant.
:
45. A looking-glass.

[1] R.S., May 13. Phil. Transactions, No. 172, p. 1032. Birch, p. 400.

At the same meeting Dr. Plot communicated a letter from Obadiah Walker concerning a swarm of bees at University College, which settled upon an elm branch that a commoner held in his hand, as he was walking near the hall, and was hived.

May the 12th, 1685.

A Letter from Mr. Aston dated May. 6th. was read.

The following discourse* was read by Mr. Ballard.

Mr. Desmaisters some time since, on occasion of a Letter from Mr. Aston concerning some Experiments of Kunkel's about ye mixture of V^s with Syrrup of Violets, Milk & Water, having given in an acct of some tryalls in that nature by him made; it was desired by the Society, that some farther Essaies should be made towards the finding out of the Nature of the Spirits of severall sortes of Wines and other liquors. From these therefore following I have drawn and rectified their Ωs[1] viz: Sacks—Canary, Malaga and Sherry, Rhenish, new, and old Hockamore, Tent, white-Wine, and Clarret. These were all distill'd, some three, some four times, without addition of any thing, and therefore could not (though in high Bodies, and with a spunge at the top) be quite fined from their phlegm. Every one of these without any discernible difference made a like coagulation of the milk with ye simple and pure V^s: trying then [symbol] tartarized V^s (which Mr. Desmaisters observed not to coagulate) I could not find, but it coagulated very near (if not altogether) as apparently, as ye plain V^s. For although, if ye liquors were hastily poured together and presently shook, the Coagulum would be so minutely broken, and mix'd with the Serum, that the precipitation would scarce appear; yet even so, if some few drops of this mixture were poured upon a blackish pot-sharde or piece of thick glasse, yu might by turning it from side to side plainly see ye rags of Coagulum (forsaken by ye thinner serous part) hang behind upon the vessel. But if ye mixture be made gradually by dropping either one of ye liquors into the other without shaking, (especially

* Letter-book B, Paper 51.

[1] Ω was a usual symbol for "spirit."

ye Milk into ye Spirit) you may after ye fermentation see ye clottes swim about distinctly in ye clearer part. And this case of shaking well ye two liquors just in their mixture will, in most ordinary coagulations, so confound and break in pieces ye crudd, and ye Serum be sett in, as it were, into all parts of it, that it shall appear, as not at all coagulated; though we cannot well suppose, but there has been some operation from ye usually præcipitating liquor. Thus we stirre bloud, whilest it falls from the Beast, till it is cold, to prevent (as we comonly say) its coagulating; but rather, I suppose, to make a thorow and perfect mixture (at that nick or juncture) of ye Serum with the Coagulum: which, were it suffered to combine and knitt it's parts within it self more closely, would hardly afterwards, if ever, be reduced to so equall a commixture.

And this I found true in ye mingling of plain V^s with Milk, and, I suppose, it will be so every where, when ye Præcipitant is not of extraordinary strong vertue, or over-much in quantity: in which cases I find a visible coagulation cannot be prevented by such shaking.—As to ye Question, whether ye coagulation made by simple V^s be not to be attributed to ye comon Salt, from which it is distilled: it seems not, in as much as all ye before mention'd Spirits of Wines (having nothing mix'd in their distillation) made altogether as great a coagulation, as it.—As to the experiment of cold Water mixt with V^s, whether it heat perceptibly? I had no Thermometers to examine it by, neither was there need of any; for about halfe a spoon-full or more of cold water poured into about ye same quantity of V^s in ye bottom of a sharp conicall drinking glasse made so great a ferment & heat as to (almost I may say) scald the fingers of severall, that put them in; far beyond that luke-warme & just perceptible heat, which Kunkelius intimates. Yet this considerable heat (through ye small quantity, I suppose, of

liquors) was scarce or very little perceptible through the glasse, which was indeed none of ye thinnest, and this way, I suppose, it was in Mr. Desmaister's report not discernible by ye hand. This Experiment held it's successe in all sorts of V^s with Pump-water, Rain-water, and also River-water; though in the last it seemed ye least warme. I tryed then ye same with Water distilled from Milk, which had ye same effect, as also with the water of Egg-shells (hereafter mentioned.) But trying the mixture of V^s with Ω [1] of sal ammoniac I could scarce by ye hand perceive the heat; but adding a little water to it, I found it as hot, as in any of ye other mixtures, as it was also with small or weak Ω of sal ammoniac at ye first mingling: the same effect with this had Hartshorn & Ω fuliginis; Aromatiz'd V^s mixt with Ω of sulphur per Comp: pure and without phlegme, had ye like effect, that is, the heat was not very discernible by ye hand without some water mixt: thô I cannot say, but in both (without water) ye ferment was great, & they seemed somewhat lukewarm, that is, not so cold to the finger, as either of the liquors single was: but their heat was very evidently augmented by ye addition of some water. The Ω of sulphur with water alone became very warme, but Ω of sal ammoniac could not very plainly by the hand be discerned to have the same effect: though by it's fermenting, I suppose, it produced some degrees of heat, & seemed scarce so cold to ye hand as before the mixture. I mingled then V^s with water, which had comon salt dissolv'd in it, which also fermented, and became as hot, as with plain water. I poured an equall quantity of Milk & V^s together, & it produced almost as great a heat (to ye finger) as ye Mixture of Water, and ye said V^s. All ye Præcipitations before mentioned made by Vinous Spirits were wrought with great ferments

[1] Ω was a usual symbol for "spirit."

of mingled liquors, but those of sal ammoniac, Hartshorn and Oil of Tartar (though as perfect coagulations as the other) were made without any visible motion of the mingled liquors.—The third Experiment of Kunkel's I cannot find true, that is Syrrup of Violets turning green with V^s : Though at first making the tryall in a piece of an Eggshell, I thought it had been so ; till having some suspicion, that my vessel might (being a reputed Alcali) have the greatest share in ye change, I tryed it upon a white plate, where I could not discern any such effect. Having therefore some water by me, which on another occasion I had distill'd from fresh Egg-shells (I mean just emptied of their contents) some drops of ye white, as usuall, yet hanging about them, I mixed some with this Syrrup, and it presently turned it to a perfect and pleasant green, as ye liquors and powders of burnt Hartshorne, Crabb's claws, Egg-shells, & lime will do, and all fixt salts, and plain ashes (from ye salts in them) as well as ye volatile Salts of Hartshorn, Sal Ammoniac &c.—Being willing to try, whether the sugar in the Syrrup of Violets, might not either occasion some, or hinder other effects, which might be wrought on ye colour of this flower, I tryed ye forementioned mixture with bare juyce of Violets just press'd out, and I found all the testaceous powders, fixt & Volatile Salts (ye noted Alcali's) to turne it green as they do ye Syrrup, & Ω[1] of nitre & of Sulphur (ye great Acids) to make it Red. But V^s was so farre from turning it green, as Kunkel saies of ye Syrrup, that it made it imediately become as red, as when the aforesaid Acids were mingled with it, or that of Vinegar. And so did all ye Spirits of all those Wines before mentioned, and also Ω of Sider, and Ω of Beer, none of which Spirits would make any alteration upon ye colour of the Syrrup.

[1] Ω was a usual symbol for "spirit."

May the 19th, 1685.

Dr. Plot in ye Chair.

A Letter [1] from Dr. Mark, Physitian to the Elector of Brandenburg, & Member of this Society, dated Potstam, March 28, 85, was read; It brought an account how well his Electorall Highnesse is pleased with ye design of this Society; His Highnesse having comanded Dr. Mark to continue a strict correspondence with us, and promising him assistance, by furnishing him with matter to comunicate, when his own stock shall be defective; and at present enjoyning him to acquaint ye Society—1mò. Kunkelio esse Artem conficiendi Vitrum Rubrum, Rubini ad instar, eâ quidem quantitate, ut et Pocula eximiæ magnitudinis conflare sciat. 2dò. Quòd pari modo vitrum conficit Agathi æmulum. 3tiò. Succinum artificiale colore, a vero non distinguibile: Of all which ye Dr. promises us Specimens, by ye first opportunity. The Elector also comanded him to enquire concerning ye Concha, which affords ye Purple, and of ye way of making Amianthus-paper, and procure both, if possible. He has also given orders for some of ye Philosoph: Transactions to be sent over. The S: ordered their humble thanks to be returned to Dr. Mark for this welcome newes; for the Honour done them in it; & for (the occasion of it) ye Character he has been pleased to give of this Society

[1] R.S., May 27. Birch, p. 403.

Dr. Lister remarked that the arcanum of red glass was to make the red jet or glass lead, which flows upon nealing.

Mr. Hooke observed, that the scarlet-red window glass was brought from Germany; but that there had been none brought over for eighty years past.

Dr. Gale mentioned, that he had seen a MS. 400 years old, intitled *Brantz de tincturâ Vitri*, which, he said, he would give a farther account of. Mr. Henshaw said that counterfeit amber had been long known here; and Dr. Papin was ordered to try to make some.

to the Elector; and that answers be speedily sent to ye Queries in ye Letter; and that ye Letter it self be carefully preserved among ye papers of this Society.

Proceeding then to other matters, two Specimens of Bookes, now in the presse, were shewn us; one a History of Fishes, written, some years since, by Mr. Willoughby, & Mr. Ray: the other, a History of Plants, by Mr. Ray, after his new Method.[1]

An account of an Aqueduct,* designed for ye conveying ye River Eure to Versails, comunicated by Mr. Aston, was read; together with a Letter of his dated May 14th.

A Letter from Mr. Hardress, dated Rochester May 3d was read; it kindly offer'd his correspondence with this Society.

A Sort of Earth,[2] dug at Hogsdon, 8 or 10 foot deep, of an Aromaticall smell, was comunicated by Dr. Plot; who inform'd us, that the Water under this Earth is found Bituminous, from whence, he conjectures, ye Earth may be supposed to have this flavour.

May the 26th, 1685.

Mr. Pulleyn is desir'd to take ye Chair.

A Letter from Mr. Maunders dated Dunstar-Castle

* Transactions No. 171.

[1] The printing of these works had been the subject of prolonged correspondence between the R.S. and Dr. Fell, the head of the Oxford University Press.

[2] R.S., May 6. Dr. Sloane presented three sorts of a sweet-smelling earth found at Hoxton in a field, where some workmen were digging cellars for houses, that were building. In digging but six feet deep there was first cast up a clay, then a gravel, and afterwards a sand, all smelling, but the lowermost the strongest. It seemed to partake of a petroleum: and he said, that it had yielded an oil upon distilling. On May 20, Dr. Sloane presented a glass of the water taken from the earth. . . . He said that a person had drank a pint of it, which gave him two or three stools. Birch, pp. 396, 401. This is an early record of the laxative power of petroleum.

Apr: 24 85 [1] was comunicated by Mr. Crouch: with it there came some of ye shells of the purple fish from the shore near Dunstar; the Fish it self would have been sent, but it will not bear carriage hither. That matter, which gives the purple, is (as Mr. Maunders affirmes) a little wat'ry Substance in ye back of the Fish, and not enough to make above 6 or 7 letters. With these shells (some of which are order'd to be preserved in the Musæum, others to be sent ye Royall and Dublin Societies) there came Specimens of 2 sorts of Laver (or Lichen Marinus) growing on the same shore; the one green and large, the other blackish and lesse; this last sort is that, which is pickled & brought to table, the former is not used in those parts. There came also a little piece of Lignum Fossile from Watchet.

Another Letter from ye same Person, dated Milton-Abby (in Dorsetshire) May 16. 85. was read; it gave an account of what number of Persons were kill'd by cold in Dorsetshire on ye dreadfull 23 of December last.

The Society ordered their thankes to Mr. Maunders for these considerable comunications.[1]

A Letter from Mr. Aston dated May 21. 85. was read; it contained a draught of ye Hony-combes* mentioned in the Minutes of ——— and lately sent ye Royall Society by Monsieur Villermont.

An account* of a New Callesh invented at Dublin (the advantage of which is, that it may overturn without any danger to any Person in it) was read.

* Vide Transactions No. 172.

[1] R.S., June 3. A letter of Mr. Musgrave to Mr. Aston (R.S. Letter-book, x, p. 140) was read, describing the shells sent by Mr. Maunder, chaplain to Colonel Lutterel of Dunster Castle. Birch, p. 404.

June the 2nd, 1685.

Dr. Plot in ye Chair.

A Letter (dated May 28th) from Mr. Aston SRS: brought newes, that the Councill of ye Royall Society has lately made an order, that such Persons, as are of the Oxford or Dublin Society, and likewise of ye Royall Society, in consideration of the charges they are at in ye places, where they reside, for carrying on the comon work (ye discovery of Naturall Science) shall be excused half their weekly payments to the Royall Society, and be accountable to their Secretary only for 1 *li* 6*s* per Annum. Which order shews such generous and reall encouragement for the advancement of Learning, that this Society, considering that many of their Members may enjoy the Benefit of it, think themselves very much obliged by it, and accordingly order'd their Secretary to returne their humble thankes to the R:S: for it.[1]

Dr. Plot acquainted ye S: that in a MS belonging to Magdalen-Hall-Library there is a way of making artificiall Amber: Mr. Pulleyn is desired to extract and comunicate it to the Society.[2]

An old Roman brasse key, somewhat resembling one part of a clasp for a gown, was presented in order to be laid up in the Musæum.[2]

A Letter from Mr. Cole, dated Bristoll May 21. tells us, that the best time to see the severall colours afforded by the Purple-fish with the help of ye Sun is by drying the ting'd cloth in a Morning Sun, forasmuch as a more violent heat makes ye colours passe so quick one after another, that they will not easily be discerned: It saies also, that the Watchet Blew (one of ye colours) is best seen by the help of a Winter Sun.[2]

[1] R.S., May 27. Birch, p. 402.

[2] R.S., June 10. Letter from Musgrave to Aston dated Oxford, June 6. (R.S. Letter-book, x, p. 148.) Birch p. 405.

An account of a piece of Watch-work by Mr. Watson of Coventry was comunicated & read, it is as followes.—[1]

A Moving Ephemeris

On a piece of Watch-work moving with a long Pendulum invented and made by Samuel Watson of Coventry Watchmaker performing these following Motions.—

It shew's ye true time of ye rising, Southing, and Setting of the Sun by a visible figure of the Sun rising every day at ye time, that the Sun riseth, making it's true Diurnall Arch with the Sun, & setting with it, shewing the hour of the day, as it goeth along.

It shew's ye Sun's true Longitude and Declination from ye Æquator ; It shewes the place of the Sun in the Zodiack passing through ye 12 Signes.

The true rising, Southing, & setting of ye Moon, with it's Diurnall and Nocturnall Arch, by a visible figure of the Moon every day rising, southing & setting, as ye Moon in ye Heavens does.

The true time of the Conjunction and Opposition of the Sun and Moon, or the true hour and minute of ye change & full of the Moon, at what time soever either shall happen ; shewing also the illuminated & dark part of ye Moon by an illuminated & dark'ned figure increasing and decreasing with ye Moon in all it's Alterations.

The Signe & Degree ye Moon is constantly in through ye 12 Signes.

The true time of the Ecclipses of the Sun & Moon, at what time soever they shall happen.

The day of ye moneth by ye Julian account by a continued regular motion giving it's Leap-day, with ye Leap-year.

[1] Samuel Watson was a watch maker of Coventry. Mr. Hooke supposed that the watch-work might be the same that was in the king's bed-chamber ; and was of opinion that it would not reach the exactness that was pretended.

The Day of ye week with it's primary Planet governing it.

The Golden Number & Epact.

The Dominicall Letter & ye Cycle of ye Sun.

Note, that the figures of ye Sun and Moon are not visible in the work, but when the Sun and Moon are above our Horizon. And these figures move round 2 Semi-globes.

The Motions are continued without any alteration in this piece, which requires no more trouble in ye looking to, or manageing of it, than another clock; neither do's ye multitude of its motions make it lesse exact in any one of them, than if it had no other. Nor is it Liable to be any oftner out of order, than any eight-day clock, that has but one motion.

It is to be wound up once a week, and by the turning of a Key you may move all the work backward or forward, and if any neglect should happen in not winding it up, then turn ye key, till ye hand of ye day, of ye day of ye moneth, & ye day of ye week come aright to ye present day, & all ye other motions will agree with them. Probat:[um] est.

Mr. Coward & Mr. Standard (both of Merton College) were proposed in order to be elected.

The Secretary acquainted ye Society with ye following Case.—

A young man about ye beginning of ye Spring had a Pleurisie, which enflaming & breaking inwardly into ye hollow of ye Thorax on the left side, where ye pain was, came to an Empyema, which wasted the Person extreamly, caused a continuall Feaver and a thirst in him; the water was easily heard upon moving his breast. The Person, when dead, was open'd, 7 quarts of matter were taken out of the left side of the Thorax: about one quart, of another colour, (being like urine) in the right side. A

great part of ye lungs on ye left side were rotted of, & lay loose in ye chest, ye remaining part (in the same side) was hard & full of imposthum'd matter; onely some part of the lungs (on the right side) had been used of late: the heart extreamly emaciated.

Adjourned (by reason of ye Whitsun-Holydaies) to ye 16 Ditto.

June the 16*th*, 1685.

A Discourse* of Dr. Robinson's, & a Letter of Mr. Ray's, both concerning the French Marneuse, were read.

A Letter from Mr. Aston, dated June 11th, was read.[1]

Mr. Pulleyn brought in an Abstract of ye way of making artificiall Amber, extracted from a MS in Magdalen Hall Library, it is as followes—

To make artificiall Amber.[2]

Seeth Turpentine in an Earthen pan well leaded, and put therein a little Cotton, stirring it, untill it be as thick as paste, then pour it into what you will, & set it in the Sun eight daies together, and it will be clear, and hard enough; you may make of this beads, hafts of knives &c: And when they are made so, set them to harden again in ye Sun, and they will be very hard & clear.

A Letter from Mr. Leigh giving a description and containning a draught of the Sepia, together with a paper written with ye naturall ink of that fish was comunicated. These things are sent up to ye R.S.

An Abstract† of a Letter from Dr. Cole of Worcester

* Transactions No. 172.
† Transactions No. 175.

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[1] The R.S. met on June 10.
[2] R.S., June 24. Birch, p. 409.

concerning stones voided per penem, was brought in by Mr. Desmaisters.[1]

An accurate account* with figures of a monstrous Cat dissected by Dr. Mullen of Dublin was comunicated in a Letter from Mr. Ash Secretary of ye Dublin Society, for which ye Society order'd their thankes to both these Gentlemen.

A Description and Draught† of an artificiall Fountain by Dr. Papin, was presented from Mr. Aston.[2]

Mr. Coward & Mr. Standard, both of Merton College, were elected.

June the 23rd, 1685.

A Letter from Mr. Aston S.R.S. dated June 18th. 85 was read.

A Letter‡ from Dr. Cole to ye Honble. Mr. Boyl concerning a false Conception, together with ye Dr.'s observations§ on my Lady Packington (who died of an Apoplexy) were read.

Dr. Plot presented severall Birds, as ye Puffin, Razor Bill, & ye Eligug, together with ye Egges of each Species; the Egges were observ'd to be large, but especially those of ye Puffin.

He comunicated an account of incombustible cloth, drawn up by way of letter to Mr. Bayly Fellow of ye R.S. & Mr. Wait, both Merchants of London; this Discourse was read.‖

Dr. Huolaghan's Description of a monstrous kidney

* No. 174. See Letter-book B, Paper 1.
† No. 173. ‡ No. 172. § No. 173.
‖ Transactions No. 172.

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[1] R.S., June 17. Phil. Transactions, No. 175, p. 1162. Birch, p. 407.

[2] R.S., June 3. Register, vi, p. 244. Phil. Transactions, No. 173, p. 1093. Birch, p. 405.

(*vid.* Letter-book B, Pap. 10) was communicated this meeting.

July the 14*th*, 1685.

After some interruption of our meetings by reason of ye Rebellion,[1] on this day (Dr. Smith being in ye Chair) three letters from Mr. Aston, dated June. 25. July. 2d & 9th were read. The ways of making Prince's metall mention'd in ye letter of July 2d were order'd to be tryed, which Mr. Ballard undertook to do.

A Letter from Mr. St. George Ash Secretary of the Dublin Society, dated Trin: Coll, July. 4th 85. containing ye Minutes of that Society for ye moneth June was read: together with a paper* enclos'd in it, drawn up by Mr. Smith Fellow of Trin: Coll: by way of answer to Mr. Molyneux's Quæries concerning Lough-Neagh, which paper with very good reason ascribes a petrifying quality to ye Earth, but not to ye Water of that Lough: The thankes of this Society were ordered to Mr. Ash & Mr. Smith for these comunications.

Mr. Aland's discourse concerning ye Longitude, and an account of ye monstrous fish [2] mentioned in ye Dublin Minutes, are desired to be sent us.

Dr. Cony presented ye S. with a Telescope in ye name of Thomas Hardresse of Rochester Esqr. Order'd that ye Secretary send ye most humble thankes of this S. to Mr. Hardresse for this very generous present, and that it be carefully preserv'd in their Repository.

Two Cases in Physick drawn up by Dr. Cole of Wor-

* See Transactions No. 174.

[1] R.S., July 8. A letter from Mr. Musgrave to Mr. Aston, dated Oxford, July 4, 1685 (R.S. Letter-book, iv, p. 183), was read, mentioning, that a great part of the university being in arms [on the occasion of the rebellion under the Duke of Monmouth], the Philosophical Society there was broken up for some time. Birch, p. 413.

[2] Birch, p. 411.

cester were comunicated & read; they were both of Convulsions returning periodically, viz. in one instance every 5th day, in ye other every Sunday: these observations will in a little time be printed in ye Transactions.*

July the 21st, 1685.

Mr. President being in the Chair acquainted the S. that in Northamptonshire about 2 or 3 miles from Astrop, there is dug a heavy black earth, which being calcin'd comes to a black sand, some of which he was pleas'd to shew us, almost as heavy as ye earth: A Magnet being applied to this Sand, was seen to attract it.

A Letter † of Mr. Leewenhoeck's concerning ye generation of Man &c: from an Insect was read.

Dr. Bernard presented some papers ‡ of Mr. Greave's giving an account of some Experiments made at Woolwich in ye year 51 for ye triall of great guns; The Dr. also presented ye S. with a Cornu Ammonis, some Belemnites, Lignum fossile, Ostracites, all which were dug out of a well on a Hill near Faringdon.

A Letter from Mr. Aston dated July. 15 was read; it affirmes ye true Zaffer is nothing but Kobalt calcin'd, ye comon Zaffer being adulterated with Pebbles.

Dr. Plott presented a Persian wood, which was observ'd to sink in water; & a Hen's egge sent him from out of York-shire, having a round hole at one end of about ½ an inch Diameter: this hole was exactly fitted by a little cap of ye same matter with ye rest of ye shell, but more protuberant, than ye end of an Egg-shell is naturally, & full of wrinkles; the Cap is said not to have been continued to ye main body of ye shell, but sticking close by it's inner side to ye membrane was by these meanes kept as a cover on ye hole.

* See Transactions No. 174.

† See Transactions No. 174. ‡ No. 173.

A Letter from Mr. Cole of Bristoll dated July 16th was comunicated by Dr. Plot & read.

July the 28th [1685].

Mr. President prsented ye S. with a Copy of his Algebra lately printed.

A Letter from Mr. Aston dated July 23 was read[1]; with it came Hevelius's Annus Climactericus presented to this S. by ye Royall S. to whom ye Secretary was ordered to return ye most humble thankes of this S. in a manner suitable to ye greatnesse of ye Favour; & to expresse ye deep sense this Society has of it's obligations to them.

Four Mathematicall papers (mention'd in Mr. Aston's Letter) drawn up by Mr. Tolet, were presented ye S. three of these papers were concerning gunnery, & ye finding Altitudes: the fourth mention'd a controversy between Mr. Tolet & Mr. Hern, concerning ye scituation of ye lines of Longitude; ye former affirming, that ye line of Longitude lies North & South, & ye line of Latitude East & West: ye latter affirmes that ye line of Longitude lies East & West, & ye line of Latitude North & South. Concerning which controversy Mr. Hern having appealed to ye R. Society at London, & this at Oxford for a determination; this Society on ye account of Mr. Hern's appeal, and at the request of Mr. Ash Secretary of ye Dublin Society (see his Letter next to Dr. Middleton's of July 23, 1685* ;) gives their opinion, which is this; They conceive it has been generally received among Mathematicians, that ye Lines of Longitude ly North & South, & ye lines of Latitude East & West.[2]

* See also Mr. Ashe's Letter of July 4th, '85.

[1] R.S. met July 22. Birch, iv, p. 420.

[2] Birch, p. 422.

These papers gave occasion to some Discourse concerning the motion of Projecta; it was thought not improbable both by Mr. President & Mr. Caswell, that the Air do's make a greater resistance against quicker Bodies, than against those, which are slower, cæteris paribus.

A Letter from Mr. Cole of Bristoll dated July 18 and correcting a mistake in a former letter of his concerning ye measure of a Virginia Catskin in his custody, was read.

A Letter from Mr. Ash dated Trin: Coll (Dublin) July. ye 12th was comunicated & read; it contain'd a letter of Sr R. Bulkley's, which gave a full description of ye new Calesh used by him: this last letter is sent ye R.S.

Dr. Plot prov'd, that not onely Box of ye English woods sinks in water; for Elder, if you cut off ye Pith & the Rind, does ye same, as we saw; ye black Walnut of Virginia was seen to sink.

*The measure of the hand of a monstrous Irish man, shewn lately at Oxford, was comunicated by Dr. Plot; He was 7 foot 6 inches high, ye length of his span 14 inches, of his Cubit 2 foot 2 inches; of his Arm 3 foot 2 inches $\frac{1}{2}$, from ye shoulder to ye crown of his head $11\frac{3}{4}$. His name Edmund Melloon, aged 19 years Anno 84, born at Port Leicester in Meath. Upon this occasion Dr. Plot discoursed on ye extravagant proportion of parts in men of an extraordinary Size, especially after sicknesse: concerning which he was desired to draw up his thoughts against ye next meeting.[1]

Adjourned to Aug: 25. 85.

* See Letter-book B, Pap. 25.

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[1] R.S., July 29. A letter of Mr. Musgrave to Mr. Aston, dated at Oxford, July 25, 1685 (R.S. Letter-book, x, p. 203), was read, mentioning *lignum fossile*, cornu ammonis, and *ostracites*, dug out of a well near Faringdon; an egg-shell having a loose cap rising up at one end of the same matter with the shell; and a

August the 25th [1685].

Adjourn'd to Octob: ye 6th, 1685.

October the 6th, 1685.

The Minutes of July 28th, 85, being first read the Secretary in ye name of Dr. Peirce of Bath presented ye Society with ye *shell* found by ye Dr. in ye kidney of a Woman, and describ'd Transactions Number 171, which very curious present was order'd to be reposited in the Musæum Ashmolianum, and the thankes of this Society to be return'd for it.

A Letter from Dr. Middleton dated Aug: 8th 1685 was read, it brought us a letter* from Dr. Garden to Dr. Middleton concerning two monstrous Children lately born at Aberdeen; concerning the Sucker or Proboscis of ye Bee, and the Instruments, by which they break ye Globulets, (or little Bags of liquors) taken from the flowers, & prepare their wax: and also concerning ye †circulation of ye blood, easily seen in ye Lacerta Aquatica by reason of it's transparentnesse; This letter was dated. Aberdeen: Jul: 17th 85.

* Transactions No. 175. † No. 177.

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wild Virginia rat's skin above four feet long from the nose to the anus. Birch, iv, p. 423.

R.S., Oct. 28. Four letters of Mr. Musgrave to Mr. Aston, dated Aug. 1, Oct. 11, Oct. 19, and Oct. 25 (R.S. Letter-book, x, pp. 210, 224, 253), were read; the first mentioning the sinking of several woods in water; the measure of Edmund Melloone, a large Irishman, shewn at Oxford some years before, 7 ft. 6 in. high; . . . The letter of Oct. 11 . . . concerning several persons in the family of Mr. Speke of White Lackenden troubled with unusual fits. . . . The letter of Oct. 25 took notice of some discourse at Oxford concerning the effect of bleeding on the eyesight. . . .

Dr. Plot observed that there was kept in the library of B.N.C. the picture of a person, called the Child of Hull, being nine feet three inches high.

A Letter from Mr. Ja: Aston to Dr. Bathurst, dated Whitelackenden Oct: 1st. 77. was comunicated us from the Dr.; it gave an account of 3 Persons (one Man and two Women) in ye house of Mr. Speke of Whitelackenden taken with fitts, which came and went off in all and every one of them, though in distant places, at ye same time, & with the same Symptomes; insomuch that if one laught, Sung, curst, or ye like, the rest did so also.

Mr. President presented a booke,* ye Author Richard Norris, it treated of his manner of finding ye true sum of ye infinite of an arch, by an infinite Series. Printed London 85.

Proposals for printing Mr. Ray's History of Plants, together with a pattern of it, were presented.

October the 13*th*, 1685.

A Discourse † entituled Logica rerum compos'd by Mr. Foley Member of ye Dublin S: & by him dedicated to ye Royall S: was presented & read, & ye thankes of this S: order'd for it.

A Letter of Mr. President's to Mr. Norris concerning his Book prsented ye last meeting was read.*

The Figures ‡ of some antiquities chiefly Roman communicated by a Member of ye R.S. were comunicated.

A § farther acct of ye Aqueduct about Versaille was read; as also was a letter || of Dr. Lister's to Mr. Ray concerning some addenda to the Ornithology.

October the 20*th*, 1685.

The Minutes of ye Dublin S: from July 6, to Aug: 12th 1685 were read, & ye thankes of ye S: ordered for them;

* See Letter-book B, Pap. 18th.
† See Letter-book B, Paper 54.
‡ See Transactions No. 175, 6. § No. 176. || No. 175.

there being mention made in them of wanting Insects according to ye matter of their ffollicles, this method was supposed by Sr Richd: Bulkly then present at ye meeting to be impracticable, forasmuch as Insects of ye same Species make use of materials of severall sorts, some of which are used by Insects of other kinds.

The same Gentleman was pleased to entertain ye S: with a farther account of his Calesh, which, he saies, is not onely uneasie, but dangerous for two Persons to ride in at ye same time; but one Person can travaile in it with greater ease to ye horse, than if he were on ye horse's back.

He gave ye S: an acct of his Anemoscope, & presented them with draughts of a monstrous Child mention'd in ye Minutes of —— & lately seen at Dublin.

There being some discourse concerning ye effect bleeding has on ye Eye-sight, arguments were urged from experience both for it's being injurious, & it's being advantageous to ye sight: Bleeding in fulnesse of vessels has cleared ye sight for some time, but frequently administered, & in a weak constitution, has taken from the strength of ye sight.

A Letter* from Dr. Vincent of Clare-Hall, Cambridge, concerning Dr. Papin's water engine (mention'd Transactions no. 173),[1] A Letter from Mr. Over Physitian at Winchester to Mr. Coward of Merton Coll containing two

* The summ of it is printed. No. 177.

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[1] R.S., Nov. 4. Dr. Papin shewed how he had completed a clepsydra after the manner of Mons. Comiers. The glass being to run an eighth of an hour, was made to turn on an axis, the jet d'eau coming to its height without shaking.

[*Description and figure.*]

Birch, iv, p. 427.

cases of Persons in ye small-pox,[1] & a letter from Mr. Derham to Dr. Bathurst concerning some Anatomicall observations in dissecting a Child, were all comunicated & read.

October the 27th, 1685.

The Company being small no papers were read.

November the 3rd, 1685.

A Letter* from Mr. Ash Sec: of ye Dub: Society, dated: Oct: 10th. 85 concerning a girl in Dublin, who has severall hornes growing out of her skin, was read, & ye thankes of ye S: order'd for it.

A Letter† from Dr. Garden of Aberdeen, written at ye request of this S: to Dr. Plott, containing more of his observations concerning weather, was also read; & ye S: ordered their thankes for it.

Another Letter‡ to Mr. Rd. Norris, giving an acct of ye Probleme by him proposed concerning ye Aggregate of Secants was presented by Mr. President.

November the 10th, 1685.

A Letter from Mr. Aston dat: Octob: 31st. 85. another of Nov. 7th. were both read.

* No. 176. † No. 175. ‡ No. 176.

[1] R.S., Nov. 11. Mr. Musgrave communicated a letter from Dr. Derham of Wargrave near Henley concerning a child, who died at a year and a half old, and whom he had opened, and found the pericardium filled with a purulent matter of a greyish colour inclining to yellow, about the quantity of a quart, very sour, and a polypus running from the right auricle through the cava into the subclavians, and one or both of the jugulars. The second letter contained two strange cases of small pox; viz. of a child born full of the small pox, and dying of them, the mother being free of them for six years past; and of a woman dying of the small pox after 16 years, her child half a year old, who lay with her, and sucked her, not being infected.

A Paper* of Mr. Boyle's concerning a Self-moving liquor was read : As also was Dr. Papin's paper† confuting an acct written in french concerning a perpetuall motion.[1]

An *acct of an Ulcer in ye groin, by which ye fæces of ye intestines were evacuated, drawn up by Dr. Ernshaw of Worcestershire, was comunicated & read.

A Caconut was prsented ye S. by Dr. Plot, which, being open'd, yielded ye milk, ye white kernell encompassed by a hard shell, (of which drinking cups are frequently made) & a loose cortex over that an inch & ½ thick, of which linnen is frequently made ; according to ye description given of it.

Mr. Bobart shew'd ye S: a very curious collection of ye leaves & seedes of plants lately brought from St. Christopher's, of which he promises a more full account in writing.

November the 17th, 1685.

Mr. Bobart prsented a Catalogue of ye leaves & seeds of plants lately brought from St. Christopher's & shewn us ye last meeting.[2]

A Letter from Mr. Aston S.R.S. dat: Nov: 12th. 85. was read.

Mr. Pigot Junr informed ye Society, that not long since he opened a dog by entring ye Abdomen a little above ye Os Pubis according to Dr. Lister's direction ; ye dog was kept above a fortnight after this, (in which time he recovered gradually) & then ran away.

Dr. Plot comunicat ye Byssus marinus of a Pinna marina mention'd by Rondelet ; & a Grillo-Talpa or Mole Cricket : He also in ye name of Mr. Barton of Milton

* No. 176. † The summ of it is printed No. 177.

[1] Phil. Transactions, No. 176, p. 1188.
[2] R.S., Dec. 2. Birch, iv, p. 447.

near Sittingborn in Kent presented ye Society with a Latin MS transcribed (as was supposed) about ye year 1200: And in ye name of Wm Kingsly of Xt Church Canterbury, Esqr, he presented ye Tragedies of Seneca in MS, & a MS of miscellaneous Mathematicks written by John Ld Finch, Keeper of ye great Seal in ye time of K. Charles 1st.

Mr. Pigot farther informes ye S: that in a late dissection of a Dog he observ'd Lacteals to rise from ye bottom of the Stomach, contrary to the opinion of some late Anatomists.[1]

November the 24th, 1685.

A Letter from Mr. Aston dat: Nov: 19th was read.

Then an Expmt was tried before ye S: which shewed, that 12 ounces of Water was enough to buoy up a Vessell of more, than two pounds weight, so that ye vessel did plainly swim: This Expmt was made use of to confirme ye 10th Prop: of ye 4th book of Stevinus's Staticks concerning ye different pressure of ye same quantity of Water in Vessels differently shaped.

A Description of a new sort of Pump was read: The Contriver of it has made some tryall of it, & thinkes it will be usefull, where there is occasion to pump much water, & especially in deep pits.[2]

[1] R.S., Nov. 18. Mr. Houghton mentioning, that the price of corn had been observed for 20 years at Oxford, he was desired to procure an account at London, his expences not exceeding five shillings.

[2] R.S., Dec. 2. A letter of Mr. Josua Walker, dated at Oxford, Nov. 26, was read, mentioning an experiment made there, that 12 ounces of water were sufficient to buoy up a vessel, that weighed above 20 lbs. It was made use of to confirm the 10th proposition of the 4th book of Stevinus's statics.

This letter mentioned likewise an experiment of a new sort of pump with two suckers lying in two sockets close at the bottom of a well, etc.

Dr. Plot shew'd us ye Corallium Album Fistulosum of Ferrante Imperato; and another Corall with fine small threads of a dark red not described by any, that we know of.

He also shew'd us an egge of the Sea-Tortoise, which was somewhat bruised, but seemed to have been exactly globular; and a piece of whitish Substance very light, called cream of Soap, said to be made by ye Nuns of Prussia.

December the 1*st*, 1685.

Dr. Bernard gave an account, that the Ecclipse of the Moon the night before, could not be observed here by reason of a thick fogge at that time.

He also gave an account of a fat Man, that liv'd a fortnight together upon Tea alone, & by these meanes cured himself of a fitt of the Gout. Other Instances of fasting were mention'd: One John Scot in ye time of K. Hen: 8th fasted 30 or 40 dayes together in an Abbey at Edenburgh, & 32 daies in ye Castle there: He also did the like at Rome; & fasted 50 daies in prison at London: This is affirmed by Bp Spotswood in his history of Scotland A.D. 1539.

One Cisely de Ridgeway being condemned fasted 40 daies in Prison, & was therefore pardoned: Dr. Plot produced a Copy of her pardon, wherein her fasting 40 daies was mention'd; It was dated Anno 31mo Edv. 3ij Rotul: Pat: part. 1. membr: 11.

Dr. Plot said, he was credibly informed, that a Dog being casually lock'd up in a Study at Canterbury, fasted 24 daies together, & afterwards recovered.

Mr. President said, his Sister told him, she had a Hen, that lived without meat & drink 9 weekes together, being by chance shut up among some faggots, & afterwards

recovered: She was observed to drink much, as soon as she was released.

There was read a paper proposing a way to remember numbers by words, ye vowels whereof may represent figures; with a large scheme of instances in Chronology to that purpose.

Dr. Plot shew'd us ye skins of ye Ottar fish & of ye Canis marinus or dog-Fish, which is not ye same with ye Sharke or Canis Charcharias; He also comunicated a collection of Gold, Silver & Copper coynes to the number of between 300 & 400, most of them Roman found in Westmoreland, & in ye northern partes of England. They were given to ye Musæum by Tho: Brathwait of Ambleside, Esqr. in Com: Westmorl:

December the 8th, 1685.

The Minutes of ye Dublin Society from Octob: 19th to Nov: ye 23d inclusive were read, & thankes order'd to be return'd for them.

Dr. Plot presented a piece of Ebony from St. Christopher's; it is yellow after ye Saw, & blackish after ye plane, & is ye heaviest wood, we have yet seen:

There being some discourse concerning ye antiquity of weighing things in Air & Water, Dr. Bernard was pleased to informe ye Society, that that method is mention'd in ye Misna.

Dr. Plot also shew'd ye S: some little stones found by Mr. Lloyd* on a bank by ye wayside South of Islip Church; they are ye same with those described by Dr. Lister (Transact: no. 100, fig: 31, & § 4 of his discourse of pentagonous plates) onely these had no side indented.

The Circulation of ye blood appearing most evident to

* He calls it *Echinitis laticlavii vitium*, and has found it since in several other places about Oxford.

sense in some partes of ye Lacerta Aquatica view'd thrô a Microscope (which we must in Justice own to have receiv'd first from ye minutes of ye Dublin Society) the tryall of this expmt before this S: was recomended to Mr. Hoy.

Dr. Bernard was pleas'd to acquaint ye S: that a letter, he recd from Mr. Haak, informes him of some Expmts try'd at Norinberg, by which it appeares, that ye variation of the needle was lately found to be ye same, as it was 5 yeares before at ye same place.

This gave occasion to an order, that it be tried, to what deg: ye variation is in this place ; which trouble Dr. Bernard, Mr. Caswell, & Mr. Walker are desired at their leisure to take on them.

There being a report, that ye last Spring-tyde in Novemb: was excessive high in London, an account of it is desired from ye S.R.S.[1]

December the 15*th*, 1685.

A Letter* from Mr. Molyneux to one of ye Sec: of ye R.S. concerning ye circulation of the blood as seen in the Lacerta Aquatica was comunicated & read.

A Letter† of Mr. Flamsteed's concerning ye Ecclipses of Jupiter's satellits in ye year 86 &c. was read.

A Paper† sent from Monsr Arnold of Noremberg to Mr. Haak one of ye Fellowes of ye R.S. was also read : It brought an acct, that ye variation of ye needle was by a late Expmt found to be exactly ye same at that City, as it was 5 yeares before.

Dr. Lane† of Banbury presented a modell or pattern

* Numb. 177. † No. 178.

[1] R.S., Dec. 9. Mr. Aston declared to the Council, that he had laid down his place of secretary. The circumstances are described in a letter of Edmund Halley. Birch, iv, p. 450.

of a stone taken out of ye bladder of Mrs. El: Vernon of Wallingford, aged 63 yeares, Aug; 7. 85. The compasse of it $5\frac{1}{2}$ inches, the length $4\frac{3}{4}$ inches, & then weighed 3 ounces Avoirdupois. This stone was taken out by her Husband without ye Instrument or help of Physitian or Chirurgeon; it came away without blood: She cannot now hold her Water.

Mr. Lloyd communicated some stones like ye Lapides Iudiaci, & others like Shell-fish, which were gathered in this County.

A Paper* of Mr. Baylye's F.R.S. containing an account of the applicaon of a Needle to a piece of Iron held perpendicular, made by one in a voyage crossing ye Line was read.

Adjourned to ye 12th of Jan: 85–6.[1]

January the 12th, 1685–6.

Two Letters from Mr. Aston, one dated Dec: 10th, ye other 17th Ditto were read.

Mr. Flamsteed's Tide-Table* for ye year 86 was presented to ye S.

†Mr. Lloyd presented a Catalogue of ye Shells in ye Musæum Ashmol:

Dr. Plot comunicated a Table‡ for ye keeping a Diary or Weather-journall by observing ye station of ye Mercury in ye Baroscope, ye place of ye Spirits in ye Thermometer, the points & strength of the Wind; &

* No. 177.

† This catalogue contains about 700 species of shells; and is entitled Cochlearum omnium tam terrestrium quam marinarum quae in hoc Musaeo continentur, Distributio classica juxta figurarum vicinitatem concinnata.

‡ Letter-book B, paper 43.

[1] R.S., Dec. 16. It was ordered that Mr. Musgrave shall have a piece of plate of 60 ounces, with the thanks of the Society and their arms upon it.

ye state of ye Weather : together with an acct of Weather-glasses exactly made & sold (as the table also is) by Mr. Jo: Warner, London.

Part of a letter from Dr. Vincent of Clarehall, Cambridge, F.R.S. concerning Dr. Papin's way of raising water was comunicated, & read.

A Paper* from Dr. Salomon Reiselius concerning ye Wurtenburg Siphon, & Dr. Papin's water Engine was also read.[1]

†An acct of ye effects of a late storme at Portsmouth was comunicated.

Mr. Deedes of Hart hall was proposed by Dr. Smith.

January the 19th, 1685–6.

A Letter‡ from Mr. Molyneux to Mr. Aston, concerning some observations on Mr. Hevelius's Annus Climacterus ; Mr. Hevelius's §acct of ye Lunar Ecclipse on ye 30th of Nov: 85 ; A Letter§ from Mr. Brown to Mr. Aston concerning ye Liver as appearing glandulose in a morbid body open'd at St. Thomas's Hospitall, London ; A Letter§ subscribed W. Tenon concerning Dr. Papin's way of raising water, were all comunicated & read.

Mr. Crouch acquainted ye Society, that in ye Abdomen of Mr. Hodges, who lately died of a dropsie, 7 gallons of a watery humor were found.

Mr. Deedes of Hart-Hall was elected.

* No. 178. † No. 177.
‡ See the Letter-book next after Mr. Cole's of Feb. 6th.
§ No. 178.

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[1] Phil. Transactions, No. 178, p. 1274.

January the 26th, 1685–6.

A Paper * of Dr. Papin's explaining his new way of raising water was presented and read.

Mr. Lloyd communicated a paper containing an acct of some plants, which grow in North Wales, & are omitted in Mr. Ray's catalogue.

Dr. Plot presented an old Almanack sent him out of Somersetshire.

Mr. Deedes of Hart Hall subscribed to ye Articles.

February the 2nd, 1685–6.

* A Letter from Mr. Nicholson to Sr Wm Dugdale concerning the Runic Inscription at Bridekirk was comunicated by Dr. Plot.

* A Paper of Dr. Papin's explaining ye use of his Water Engine was also read.

February the 9th, 1685–6.

* An Abstract of ye book of Fishes compos'd by Mr. Willoughby & Mr. Ray, printed by ye R.S., was read.

* A Letter from Mr. Cole of Bristoll to this S:, giving an acct of his observations on ye Purple Fish, was comunicated & read, & the thankes of ye S: order'd for it.

February the 16th, 1685–6.

Dr. Lister of London & Mr. Coucher of Pemb: Coll: were both proposed in order to be elected.

A Letter from Mr. Ash Phil: Soc: Dub: Sec: dat: Feb: 4th, containing a letter from Mr. Austland to ye Right Honble ye Ld Viscount Mountjoy President of that S: concerning a Woman in ye North of Ireland, who fasted for ye space of 18 weekes, & did not speak in almost all

* No. 178.

that time, was comunicated & read.—This gave Dr. Plott occasion to mention a silent Woman now living at Wanborow in Wilts, who has not spoke in near 20 yeares, of whom he promises to procure a more full Relation.

* An acct of ye Lat: of Constantinople & Rhodes, written by Mr. Greaves to ye most Revd ArchBp Usher, was comunicated to ye S: by ye Revd: Dr. Smith.

February the 23rd, 1685–6.

A discourse concerning sounds & Ecchoes, drawn up by Mr. Walker, was by him comunicated & read. Letter-book B. Pap: 50.

Dr. Plot comunicated some shells, Buccina quorum orbes è dextrâ in sinistram convolvuntur.

Dr. Lister of London & Mr. Coucher of Pemb: Coll: were both elected.

March the 2nd, 1685–6.

Mr. Cowcher of Pemb: Coll: subscribed to ye Articles.

The Dublin Minutes from Nov: 30th. 85. to Feb: ye 8th. 85–6 inclusive were communicated in a letter from Mr. Ash.

These Minutes (particularly those of November ye 30th) mentioning an Experiment made by Mr. Molyneux, who, from ye vibration of a Pendulum ; & ye proportion in which it diminish'd, shewes, that the Air's resistance is not so considerable an Impediment to the flight of Bombes & shot, as is generally supposed ; A more full account of this experiment is desir'd of Mr. Molyneux by this Society.

These Minutes also gave occasion to Mr. Walker to affirme, that some time in Feb: last, ye quicksilver in ye Barometer was observed here at Oxford to be $30\frac{1}{2}$ inches high.

* No. 178.

Dr. Plot shewed ye Society three Suedish Almanacks viz: two Runestocks or Primestocks, & one book Almanack; He shewed also severall old English Almanacks, of which some were for families, others for private Persons; some of Brasse, others of Wood, all perpetuall; the Dr. promises ye Society a more full account of them.

Mr. Anderton brought in his answer* to ye Queries concerning Marg: Parry,† ye Copy of which is entered in ye Letter-Book.

March the 9th, 1685–6.

The 15th Volume of ye Philosophicall Transactions was presented ye S: by the Publisher.

Dr. Plot shew'd ye Society a family-Almanack now in use in Staffordshire, it is a wooden clog.

He communicated a letter from Dr. Lister of London containing a paper of Georgics concerning ye improvement of Sandy land by ye Vicia multiflora nemorensis perennis sive Dumetorum I.B. which is practised both in Yorkshire & Staffordshire.

Mr. Lloyd comunicated a shell, which he names Turbo exiguus sylvaticus, obtusè mucronatus, quinis spiris a sinistrâ in dextram convolutis, it was found in Cumner Woods.

The head of a Catapulta found in Staffordshire; a Securis for sacrificing, the head of an old hunting staffe (all which instruments were of brasse) were communicated by Dr. Plot.

Mr. Anderton comunicated an Anatomicall observation, which is ent'red in ye Letter-Book B, Pap: 20.

* See the Minutes of Oct. 7 84.
† Letter-book B. pap. 19th.

March the 16th, 1685–6.

A Letter from Dr. Garden dated Aberdeen Jan: 28th, 86. was communicated & read; it contained ye Drs. observations on the weather at Aberd: in Octob: Novemb: & Decemb: 85.

Dr. Plot read a discourse, drawn up at ye request of the Society, concerning ye old Almanacks lately comunicated by him; This will be printed in ye Drs. History of Staffordshire.

A Letter (dated Rolleston in Staffordshire March ye 5th. 85–6) from Mr. Tho: Wickam (concerning a Colt foal'd with one of ye feet turned, ye heel standing forward, & ye toe backward, which being broken was set right, & grew together again so well, that ye Colt proved as serviceable a horse, as any of his condition thereabout) was comunicated by Dr. Plot.

March the 23rd, 1685–6.

An Abstract of Mr. Bent's travailes in France, was communicated by Mr. Welsteed, & read. Letter book B, Paper 57.

This Abstract gave Dr. Plot occasion to affirme, that Anchor-Church in Darbyshire was cut out of a Rock, as is ye Baumet at Angiers. After this, there being some discourse concerning ye impregnating water with severall sorts of Salts, Mr. President was pleased to informe ye S: that in some Experiments, which he, together with Dr. Willis, made of this nature, he found, that the water impregnated ad Satietatem with comon Salt, as he remembers, after the dissolution of other Salts in the same water, has dissolved a farther quantity of comon Salt.

Mr. Walker delivered in two papers,* one concerning an Empiricall way of curing ye Cramp by a piece of ye

* See Letter-book B, paper 55.

root of fflag; the other of Second Sighted men in Scotland; concerning whom Dr. Garden is desired to give this S: his opinion.

Mr. Walker related from a Physitian at Marlborough, that, in a village near that place, many families have, within few yeares, been troubled with the Stone, which heretofore was not frequent among them; which is supposed to have proceeded from ye use of Well-Water, their brook being dryed up in ye Summer-time for severall yeares last past.

Mr. Bonnie of St. John's was proposed by Dr. Bernard.

March the 30*th*, 1686.

Dr. Plot comunicated coal from Amrath in Pembrokeshire, which being spit on gave an Ink for writing, as was found true by Expmt before ye S.

A Treatise* *De Moventibus in fluido*, drawn up in a Geometricall manner, was comunicated by Mr. Aston, & read.

April the 6*th*, 1686.

A Letter from Mr. Aston dat: Ap: 1st containing some amendments of ye Treatise *De Moventibus in Fluido*, mention'd in ye minutes of ye preceding week, was comunicated, & read; As also was a letter from Mr. Ash, containing a Demonstration of the 2d & 5th books of Euclide, & ye whole doctrine of proportion done more briefly than heretofore; &c: for both which ye Secretary was ordered to returne ye thankes of ye Society.

April the 13*th*, 1686.

A Discourse† concerning Hydraulic Engines, drawn up by Mr. King of Dublin, was communicated by Mr.

* Letter-book B, paper 56. † See Letter March 27, 86.

Ash: the S: ordered their thankes for this ingenious discourse, both to Mr. Ash, & Mr. King.

Mr. Caswel comunicated a Mathematicall paper containing the Solutions of severall problemes, composed by Mr. Baker of Bishops Nymton in Devonshire.

Mr. Bonnie of St. John's Coll was elected.

April the 20th, 1686.

A letter from Mr. Todd dated March 29th. was communicated by Dr. Plott; it informd the Society that a Terminus or Bona Fortuna, being lately found in ye North of England, will together with some other Curiosityes, if they shall be accepted, be sent to ye Musæum.

Dr. Plott was desired to return an answear suitable to soe kinde a Letter.

Dr. Plott read an account of makeing brasse, as it is practis'd in Holland.*

April the 23rd, 1686.

Order'd that from hence fourth, there be two Secretaries chosen annually, and that this order be entered in ye Minute Book with ye rest of ye Articles.

Then ye Society proceeded to Elections, & chose Dr. Wallis Præsident, Dr. Plott Director of Experiments, Mr. Caswell Treasurer, & Mr. Bainbrig & Mr. Walker Secretaries.

Order'd that ye payments be sunk down to *2s. 6d.* a quarter, for ye year ensueing.

Order'd that Dr. Levet, Dr. Smith, Mr. Pullein & Mr. Charlette, or any 3 of them audit ye Treasurer's accounts, on Tuseday next at one a clock in ye Musæum.

* See Letter-book B, paper 58.

April the 27th, 1686.

The Society gave Mr. Musgrave their thanks for ye care & paynes he has taken in executeing the office of Secretary.

Dr. Bagley's Letter of Nov. 26th. 1683, & Dr. Tyson's of Decemb. 6th. 83, both concerning ye Lumbricus latus were read.

Dr. Plott gave ye 13th. & 14th. volumes of ye *Transactions* to the Society, for which they return'd him thanks.

Dr. Smith communicated part of a Letter from France, wherein some mention was made of young dogs recovered from drowning, by some salts.

Mr. Musgrave communicated a Discourse which he receivd from a freind of his concerning *Dyalling*: Mr. Caswell was desired to give the Society some account of it the next meeting.

Mr. Benbrig communicated a coppy of an old Tuscane Inscription engraven upon an iron Statue at fflorence: Dr. Smith was was desired to give the Society some account of it.

Mr. Walker Master of University Colledge gave Lastanosa's Book of Medals to the Society; for which they order'd Mr. Benbrig to return him their thanks. Mr. Benbrig also communicated part of a Letter from a Gentleman in York, concerning a *Statue* of a Roman Ensignbearer, found lately there, together with an Inscription on it.

May the 4th, 1686.

A Letter from Mr. Hills to Dr. Plott, dated Jan. 23d. was read: it contain'd a receipt for makeing the Lapis de Goa, as approve'd by the Inquisitors of Goa A.D. 1655. though he thinks it is not a true one.

A Letter from Mr. Grail Rector of Lassington near Glocester to Dr. Plott, dated Mar. 6th. was read, wherein he gives an account of the litle stones called *Asteria*, found cheifly in his Parish, which being put in Vinegar, will move towards one an other: if they lie long in vinegar they will wast away, but will keep their starre-like figures notwithstanding their diminution.

Dr. Plott promise'd to try the way of dying with Alcanna.

May the 11*th*, 1686.

The Minutes of the Dublin Society from ffeb. 22d, to Apr. 26th. were read. They gave an account that encouragement being given by ye Ld Leivtenant for forming that Society into a body corporate by the procurement of a Charter, subscriptions for money towards it were made by several.

Mention being made in those minutes of a place between the Tropicks where the *Shadow* goes twise forward upon the Dyal, & twise backward in a day, Mr. Caswell sayd that this thing happens some parts of the year in all places between the Tropicks (except under the Equinoctial) upon a horizontal Dyal, & in other places that are not in the torrid zone, upon an inclining Dyal.

A Letter from Mr. Leigh dated May ye 1st was read; wherein he says he has a *kidney* allmost consumed to a bladder which held a quart of water: he has also a Shell petrifie'd, being one half Shell & the other Stone. He also gives some account of his Salt works in Lancashire.

May the 18*th*, 1686.

A Letter from Dr. ffuller of Sevenoke to Mr. Benbrig was read, containing the heads of several Observations,

which he has made lately; & which he promises to communicate to this Society.

Mr. Præsident gave an account that a *Girl* about 7 years old, was brought before the Royal Society at a late meeting there, who having been lean, & labouring under a very ill habit of body retire'd into the Countrey; & in a little time recover'd & grew very fat; & her countenance was altered as if she had been a woeman of Maturity: had her menses, & was in all respects matura virgo; as her Mother affirmd.

Some of this Society having considered that place of Tacquets Geometry, mention'd in the Minutes of the Dublin Society of March ye 8th. observe'd that there is this difference betwixt Mr. Caswells first Problem & Tacquets; viz. that in each of Tacquets *Triangles* there is one side & 2 Angles given, which is an ordinary case of Trigonometry: But none of Mr. Caswells Triangles has one side & 2 angles, or 2 sides & one angle, or 3 sides given; and this makes a greater difference in the Solutions than that mentiond, in those minutes.

Then was read an account of the *Torricellian* experiment, trie'd on the Mountaines of Snowdon, Cader Idris, &c. with the *heights* of those *mountains* taken by Mr. Caswell.[1]

[1] R.S., June 30. A letter of Mr. John Caswell to Mr. Halley, dated at Hart-hall Oxford, June 29, 1686 (R.S. Letter-book, x, p. 318), was read, giving an account of the heights of some hills in Wales and Shropshire, together with the observations of the heights of the barometer, on the tops of them. He mentioned that Snowdon is 1,240 yards high above the sea, the mercury standing thereon at $25\frac{6}{10}$ inches above the pool: that at Cader idri, the highest mountain in Merionethshire, the mercury stood at $26\frac{43}{100}$ inches; that on both mountains they were in the clouds. That at Slipstones, a hill in Shropshire, the mercury stood at $28\frac{31}{100}$ inches, when at Worthen, a neighbouring place, it stood at $29\frac{64}{100}$; Slipstones being 455 yards higher than Worthen:

Mr. Ashe's Letter of May the 1st was read & Mr. Molyneux's discourse concerning this Problem: why bodys dissolved in menstrua specifically lighter than themselves, *swim* therein. It was observe'd that the viscousnesse of fluids may hinder the descent of Solids in them, but can not raise the Solids.

An account was given of *four children* born at a birth, at Marston near Oxford, the last Mounth.

Adjourne'd till June the 1st.

June the 1*st*, 1686.

Part of a Letter from Dr. Benbrig of Borham, to Mr. Benbrig of University Colledge, was read: it gave an account of a Patient of of his, who being in a violent feaver, was let bloud; & the next day the *Serum* of that bloud, after the Separation from the Masse, retain'd the colour of bloud, being of a deep scarlet dye.

A letter from Mr. Flavel, a Physician in Newberry, to Mr. Anderton, was read: wherein he affirms that opening a great dog, before he was quite dead, in one of his *kidneys* he found a *worm* 16 inches long, & an inch in girth.

Mr. Musgrave gave an account, that a dog dyeing & being opene'd, was found to have a bone that had struck through his intestines: and that in an other dog he found a *Polypus* almost globular, about 2 inches diameter in one of the veins near the spleen, which had a passage for the bloud through the body of it.

Mr. Anderton gave an account, that he has seen a fat Cow's *kidney* allmost reduce'd to a bladder: it was full

that there was indeed twelve hours betwixt these observations; but that he had found, that mercury did not move for three days after; so that he considered the observations as made both at the same time.

of water, & held above a pint : The Butcher told him, the other kidney was sound.

A Letter from Dr. Bagley to Mr. Musgrave was read : it gave an account of some observations made in dissecting three bodys at Leyden, & of a boy cut for the *Stone*.

June the 8th, 1686.

A Letter from Dr. Bagley to Mr. Musgrave was read ; giving an account of the *Dissections* of four bodys.

Dr. Edw. Tyson, Dr. Tankred Robinson, Mr. John Flamstead, ffrancis Ashton Esqr., Mr. St. George Ash of Dublin, & Mr. Christopher Pitt of Wadham Coll. were propose'd in Order to Election.

Dr. Plott shewd the Society, the Curiosities following

1. A peice of Corktree nine foot long, & about five inches diameter, which grew in Cambridgeshire.
2. A Small Stone changing col. according to the different reflections of light, appearing green & sometimes blackish.
3. Oyl of Camphire made with water.
4. A Liquor distill'd from some bituminous strong sented Earth digg'd at Hogsdon in Midlesex.
5. Labdanum liquidum of a greenish colour.
6. An Extract of the same Labdanum of a yellowish colour.

June the 15th, 1686.

A Letter from our President dated Apr. ye 10th. was read ; it gave an account that one Mrs. Hoden had several times before the death of divers of her relations *dreamed* of the losse of two or more of her teeth, having had noe such dreams at other times.

Then was read an Observation communicated by Dr.

Benbrig, concerning a Gentleman who had a violent *paine* in his *ear* caused by maggots in it, a fly haveing blown in it the day before: Some milk being poured into his ear, at least 60 maggots came out, & the pain ceased.[1]

Dr. Edw. Tyson, Dr. Tankred Robinson, Francis Aston Esqr, Mr. John Flamstead, Mr. St. Geo. Ash of Dublin, & Mr. Christopher Pit of Wadham Coll. were elected.

June the 22nd, 1686.

The Minutes of the Dublin Society from Apr. 26, to May 17th were read: Also a discourse of Mr. Caswels, Shewing how the *Shadow* may *goe back* on an Horizonal plane in any latitude, if the Stile point betwixt the Tropics; also on any other plane unlesse the situation thereof keeps the Sun from Shining long enough thereon; together with the calculation of the time & quantity of the Shadow's regression, according to the various Situation, of the Stile & plane.

Mr. Lloyd haveing observ'd that many curious Travellers when they visit the Repository, doe occasionally relate some remarques of their own experience, concerning things of *Nature* & *Antiquity*; he thought it might prove of some consequence to provide a Book that should lye in the Repository; wherein he might breifly set down, the contents of such relations; desireing each Gentleman to Subscribe to what he communicated.

Some of these being read before the Society, 'twas order'd they should be transcrib'd into the Minute Book in ye following method.

[1] R.S., July 21. The minutes of the Oxford Society for the month of June were read, containing several remarkable anatomical observations; and, among others, an account of worms bred in the ear. Birch, iv, p. 495.

De *Lapidibus* ichthyomorphitis, ex relatione ornatissimi viri Dom. Casparis Hogij, Lipsiensis.

Tribus circiter milliaribus à Lipsia urbe remotis; ad montis cujusd radicem, lacus extat varijs piscium generibus refertus: Huic autem lacui quà Septentrionem spectat, rupes imminet præruptis cautibus horrenda. Jn hac rupe omnium piscium qui in lacu subjacenti degunt, vivas imagines natura solers fabricata est. Adeò ut quilibet eos facile dignoscat; dicatq en accuratam lucij piscis effigiem; imo exquifita cyprini, percæ, anguillæ- &c. simulachra: Quinimò de lapidibus hisce ichthyo, morphitis disputationes habitæ sunt coram Academia Lipsiensi, (ubi ipse tunc temporis Musis operam navarem) qæstione scil. propositâ utrum hæ piscium lapideæ icones veri pisces aliquando exbitêre, an sint potiùs lapides sui generis quos natura hac quâ videntur formâ enixa est; ejus fine quantumvis huiúsque nobis incognito.

Varijs ex utráq parte allatis argumentis; conclusum est tandem quod isti lapides a piscibus figuras suas nunquam mutuati sint; nec minùs naturæ partus fuisse quam ipsi pisces quorum imagines præ se ferebant.

29no Maij; A.D. 1686to.

Anterrogatus Dom. Hogius, an illud sibi omninò constaret; nullum dari in hac rupe ichthyomorphitem, nisi qui piscem aliquem vicini lacùs mentitus sit; respondit Sic vulgò esse creditum; et tamen dari insuper lapides aliquot qui Singulas Species dicti lacûs piscium representarent. At super hanc rem, suam fidem nolle periclitari.

De quodam juvene in Scaniâ, cujus cibus et potus ordinarius, per dimidium anni spatium, in *calculos* conversi sunt narratio; quam propriâ manu Scriptam reliquit, Dom. Joachimus ffridericus Creitlovius, Pomeranus.

Posse Naturam adhuc hodiè miracula proponere quæ fidem nostram excedunt, nullatenus ibit inficias qui sequentem perpenderit historiam. Est enim Senator aliquis cui nomen Mecklenborg in urbe Malmogiensi, Metropoli Scaniæ, qui habebat filium duodecim circiter annorum, miserè ægrotantem, qui nequicquam medicorum ope imploratâ, post decursum aliquot mensium, varios varij coloris calculos, quales intermixtos ad maris littus reperire solemus, parire cæpit: postea verò mutatis eorum formâ et colore, tantæ magnitudinis lapides edidit, at quinq sex, imò septem et dimidiam uncias superarent; nec prius desijt quam triginta duabus libris impletis; quippe quod per dimidium annum, omnis cibus et potus in ejusmodi lapides fuerit conversus; et deindè per ordinariam urinæ viam egestus; paucis saltem lapillis exceptis, qui vel per os, vel per eam corporis partem qua reliqua sedendo moles innititur exitum quæsiverunt. Ubi novum quasi accessit miraculum, quod dolores senserit longè acerbiores, ex parvis quam magnis lapidibus, qui non in longitudinem sed latitudinem voluti meatum quærentes, angulis nimis acutis virgam disrupêre. Nihilominùs tamen iste homo jam vivit et valet, circiter octodecem annos natus, majori præ reliquis hominibus, corporis pollens robustate; dicente ejus patre.

Interfuerunt huic negotio Medici ejus loci; et inter illos Dom. D. Rustius Professor tunc temporis Lundinensis: item Ministri verbi divini, manibus suis excipientes egressos lapides. Quin et magistratus urbanus suo id ipsum testimonio Regi Sueciæ confirmavit. Sane conquisita fuere varia Eruditorum judicia quæ huc transcribi tempus non patitur. Hoc saltem dido quod cupientibus adhuc videndi copia non denegetur, et quod ego hisce meis oculis viderim et adolescentem et lapides; manibusq meis contrectaverim, oculatus testis.

16to Junij. A.D. 1686.

June the 29th, 1686.

Mr. Caswell communicated part of a letter from Mr. Hally, wherein he acquaints him that he intends to try some experiments concerning the Specific gravity of the aer. A discourse of Dr. Listers read, concerning the improvement of *Agriculture*.

July the 6th, 1686.

Some of ye Society gave an account that about noon that day, they saw *Venus* near ye Moon without ye help of a Telescope, when the Sun shone very clearly, & that many people in ye streets observe'd ye same thing.

Then was read a Specimen writ by Mr. John Adams (who has allready spent diverse years in a general Survey of England) concerning the *description* of particular *parishes*, who desired ye opinion and advise of ye Society what therin may be fit to pursue, what to omit of it, or what other remarks to adde.[1]

July the 13th, 1686.

Two letters from Mr. Hally, one to Mr. President, ye other to Mr. Caswel, were read. In ye 1st he promises to send an Extract of ye Journal of ye Royal S. for ye time we want it, & for ye future to send us once a fortnight what shall occur there. In ye 2d he gives an account that ye R.S. will allow him 50 lb. to measure a *degree* of ye earth, & that he intends to take ye latitudes with an instrument of 20 foot radius, with Telescopic

[1] R.S., July 7. A letter of Dr. Wallis to Mr. Halley, dated at Oxford, July 2, 1686 (R.S. Letter-book, x, p. 321), was read, tendering his respects to the Society and offering to continue the correspondence formerly held with the Oxford Society; which he was desired to do.

sights. He adds that he has seen a Calico *shirt* brought from India which is *woven* without a seam all of one peice.

November the 2nd, 1686.

The Society haveing adjourn'd dureing ye long vacation, this day met again, & design constantly to continue their meeting.

An account from Mr. J. Keogh Member of ye Dublin Society concerning the nature of *letters* & *Characters* of Syllables, in order to an universal use, was communicated. See Letter Book B, p. 24 Sub fin.

An account from Dr. Wallis of a child which had on each hand 6 *fingers*, & on each foot six toes.[1]

A discourse of Mr. Bakers concerning ye construction of *equations* of the 5th & 6th Power by a Paraboloid, was communicated by Mr. Caswel.

A Specimen from Dr. Lane of a strange *earth* which has a strong scent like Oyl of Turpentine, & upon distillation yeilds a good quantity of Chymical Oyl.

November the 16th, 1686.

Mr. President in the Chair. An account of one Mrs. Brown in Oxford who dyed of a *dropsie*, Octob. ye 3d.

[1] R.S., Nov. 24. A letter from Dr. Wallis to Mr. Halley, dated at Oxford, Nov. 8, 1686 (R.S. Letter-book, x, p. 331), was read, wherein he mentions to have seen a child, whose hands and feet were each articulated with 5 fingers and toes besides the thumbs and great toes ; and those not at all monstrous, but as well proportioned as the four ordinarily are.

This letter gave likewise an account of an uncommon dropsy in a maid, out of whose belly was taken 63 quarts of water by measure ; and approved of Mr. Hooke's remarks on the China characters. . . .

86. out of whose body was taken by measure *16 gallons of water wanting a quart, all contained in one great bag which was continued with the Ovarium.

An account from Mr. Halley Novemb. 13th. of a relation sent to the Royal Society of a *little man*, lately presented to the French King, being 37 years old, & with a great beard, & yet but 16 inches high.

Likewise of a transparent Substance lately invented in France, made out of Hogs *bladders*, fit to be used instead of coach glasses because it will not break.

He tels us also that Mr. Papin hath shew'd ye experiment of ye engin that consumes *Smoak*, before ye Society with Successe.[1]

An account of an Experiment made at the Spire of the Cathedral in new Sarum, Nov. 84. with the *Baroscope* by Colonel Windham & Mr. Warner.

November the 23rd, 1686.[2]

Mr. President in the Chair. An account from Mr. R. P. vicar of Kildwick in Yorkshyre of a Strange *eruption of waters*, June 1686. in Craven in ye C. of York

* Vide Cl. Willisii Pharmaceut., 2 partem 2 dam. cap. de Ascite.

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[1] Birch, iv, p. 500.

[2] R.S., Dec. 1. A letter of Dr. Wallis to Mr. Halley, dated Oxford, Nov. 25, 1686 (R.S. Letter-book, x, p. 340), was read, giving an account of what passed in the Society at Oxford. The letter was as follows:

"Our secretary, Mr. Bainbrig, being not yet returned, I send you this account of what we have been doing. Yours I communicated to our company; who were well pleased with it. The name of the child, I mentioned in my last, is David Richardson, son of John Richardson, a barber, lately in St. Martin's lane, London; but now dead. The mother carries the child from place to place to shew; expecting to be gratified for so

An account from one Tho. Wells in Oxford who cures himself of the *Gout* by drinking Beer, wherein mustard-seed has been Steeped.

An account communicated by Mr. Musgrave of a

doing. He hath not two thumbs on one hand (as, I guess by yours, you did mistake me) but on each hand one (as we have) and five other fingers instead of our four, all in good proportion (at least if the thumbs be not, as they seemed to me, somewhat too little ;) and manageable (for ought I discerned) as ours are, with the advantage of one finger more on each hand : the six toes on each foot just as our five are.

" The experiment I proposed in my last, we find (upon discourse of it here) to have been tried amongst the Florentine experiments, number 12 of projected bodies ; and that the horizontal projection doth but little (if at all) hinder the perpendicular descent. Somewhat it seems to do : and the like we find to be in swimming and flying.

" Beside the case of Mr. Brown, we had here (the last year) in Mr. Hodges (parson of Wightam) of Baliol-college, who died there of a dropsy, seven gallons of water taken out of his body : which was then thought very much ; till that of 15¾ gallons taken out of Mr. Brown. We made preparation for observing the eclipse last Friday ; but the weather was such, that no moon was to be seen all night. We hope it proved better with you.

" We had a particular account of an observation made at Salisbury in November, 1684, by Colonel Windham, and Mr. Warner, of the altitude of quicksilver in a baroscope, at several hights between ground to the top of the spire ; and at what proportions it decreased.

" Dr. Plot gave us an account of a strangely great cucumber, measured by himself, this summer, August 27, in the garden of Dr. Jacob (a physician there) in length 3 feet 10¼ inches (which is more than an ell long) and in compass at the greatest part nine inches ; near the stalk six inches. A giant to your little man of France. He measured it again September 18, when it was somewhat less, in length three feet 9⅝ inches : In compass

Physician in ye countrey who cures a *Rheumatisme* by prescribing a Strong vomit to be taken each day for 4 or 5 days together : & that he had this relation from one who was thus cured by him.

He likewise gives us an account of the great *herring*

nine inches in the biggest part, and $5\frac{7}{8}$ near the stalk : And October 13, much the same measure. He takes it to be the cucumis anguinus of botanists.

" We had an account of Mr. Wells here in Holywell, a cook about sixty-seven years old, who has been troubled with the gout twenty-five years. He constantly cures himself by drinking beer or ale, in which mustard-seed is steeped : and the same hath been found beneficial to others. Into a gallon of table beer he puts half a pint of mustard-seed, and lets it stand nine or ten days.

" Dr. Plot informs, that Sir William Rook near Canterbury, in a deplorable condition by a dropsy, was at length advised to steep four cloves of garlic in each quart of ale he drank at meals or otherwise ; and was thereby restored to perfect health in about a month's time.

" Mr. Musgrave informs from a physician in the country, that he cured a rheumatism by giving a strong vomit each day for four or five days together.

" He informs of a new fishing trade of herrings, begun in Somersetshire : the coming of herrings up the Severn not known before this year ; and now in great quantities.

" A copy of a letter from R. P. vicar of Kildwick in Yorkshire gives account of an extraordinary eruption of water in June last ; whereby the inhabitant of Kettlewell and Starbotten in Craven in Yorkshire suffered great damage. It was after a great clap of thunder : the rock on the east side of them was seen by divers eye-witnesses visibly to open, and water to spout up in the air as high as an ordinary steeple : and the current of water thence continued for about an hour and half violently down the hill, as in one intire body, with a breast, as if it would drown the whole towns. Several houses were quite demolished, and

fishing trade lately begun in Summersetshire, by ye coming of the Herrings up the Severn which was not known before this year. Mr. Molyneux's book of Dyalling presented by Dr. Plot.

All things were prepared by Mr. Caswell for Observing ye Eclipse on the ffriday night, but the cloudinesse of the night hindred him from makeing any Observations.

Sr. John Floyer was proposed in order to Election.

Dr. Plot informd the Soc. that Sr. Willm. Rook of St. Laurence's near Canterbury was cured of a *Dropsie* by steeping 4 cloves of Garlick in each quart of ale that he should have occasion to drink at meals, or otherwise. Letter Book 103.

He also communicated an account of a monstrous *Cucumber* growing in the Garden of Dr. Wm. Jacob at Canterbury. Ibid. ye length was 3 foot ten inches and a Quarter, ye girth circumference 9 inches.

November the 30*th*, 1686.

The Minutes of the Dublin Society from May ye 1st, to Octob. ye 25th inclusive were read.

Dr. Plot communicated ye following Curiosities.

1. A large Shell which had its turnings from ye left to ye right contrary to allmost all Shells hitherto describd. In the Catalogue of Shells preserv'd in ye Ashmolean

not a stone left; others gravelled up to the chamber-windows, and great rocks thrown down from the hill into the valley, and thereby immoveable: and much more damage of goods, cattle and meadows. Since that first flood, there have been two others, but not so great and dangerous. These are the chief, of what hath occurred to us since my last. I am yours to serve you,

"JOHN WALLIS."

Repository 'tis call'd Buccino-cochlea atrorubens, à Sinistra in dextram obvoluta, mucrone obtuso, lutescenti.

2. A Sort of amphibious Crabfish from ye Island of Barbados, which when they return to Sea, keep their course soe directly forward, that they usually climb over rocks, houses, & what other obstacles soever; rather than take any compasse.

3. Arêka i.e. ye Kernel of an Indian Nut, having a Smart aromatic tast, of frequent use among ye Indians in Several distempers, & eaten by them with their Betel.

4. The fruit of the Plant Rotang or Bamboo Cane described in ye Appendix of Piso p. 188.

The Society desired an acct. of ye number of Christenings & burials in Paris & London in ye years 70 & 71. & order'd their thanks to be returnd to the Dublin Society for their correspondence.

December the 7th, 1686.

Mr. President in the Chair.

The Minutes of ye last meeting being read: an *Arabic MS.* entitul'd Albumazar given to the University Library of Mr. Palmer of Summersetshire, was presented to the view of the Society.

Part of a Letter from Mr. St. George Ash, Fellow of Trin. Coll. Dublin, to Mr. Benbrig, was read; together with an observation of a *Lunar Ecclips* made there by Mr. Smyth & himself Nov. 19th. 86.

A letter from Dr. Antony Nuck, Anatomy Reader at the Hague to Mr. Benbrig; wherein he promises to communicate to this Society, what Curiosities fall under his Observation.

An observation of ye Reverend Mr. Peck, Minister of Mayfeild in Sussex concerning a Gentleman who had been long in the East Indies, & about a Mounth after

that he took Ship from thence, was taken with a fainting *feaver*, & various indisposition, had a vein open'd; the *bloud* was sqeez'd out, & did accumulate like drops of melted wax: this gave releif but about 3 weeks or a Month after, his distemper returnd; he was bled again; & thus his distemper & his bleeding continue'd for some years. In ye intervals he was well.

He was cured by chewing Rhubarb.

Mr. Musgrave gave ye Soc. an account of a young mayd, who was troubled with Convulsive fits; which returnd exactly at a certain distance of time. After many medicines tryed in vain she was cure'd by marriage.

Sr. John Floyer of Leichfeild was unanimously chosen Member of the Society.

December the 14*th*, 1686.

Mr. President in ye Chair.[1]

The Minutes of ye Royal Society were read, which gave

[1] R.S., Dec. 22. A letter of Dr. Wallis to Mr. Halley, dated at Oxford, Dec. 14, 1686 (R.S. Letter-book, x, p. 349), was read, giving his sentiments concerning the reason of the trade winds, and accompanying the minutes of the Philosophical Society at Oxford of November 30, and December 7. His letter was as follows:

'SIR,

"Your's I received of December 11, with the inclosed minutes of Nov. 24, and Dec. 1, and the two problems of Mr. Newton; all which I have communicated to our Society here.

"The minutes we have ordered to be transcribed, and the original sent you back as you desired. And if you desire Mr. Newton's papers to be returned, that shall be done also. By these papers of Mr. Newton, I find he hath considered the measure of the air's resistance to bodies moved in it; which is the thing I suggested in one of my late letters, and thereby saves me the labour of doing the same thing over again. For I should have proceeded upon the same principle; that the resistance (cæteris paribus) is proportional to the celerity (because in such proportion is the quantity of air to be removed in equal times) nor do

an account of some Cubical *Stones* of a Substance resembling a marchasite. Dr. Plot tells us they are ye Ludus of Van Helmont, & that he has great variety of them by

I know from what more likely principle to take my measures therein. His computation from this principle I have not yet had leisure to examine ; but do presume, a person of his accuracy hath not failed in his computation or reductions from it. Upon reading that passage about the cubical grains of marchasites, found in Yorkshire, it was suggested, that they are found in many other parts of England ; and divers of them have been here shewed to us. They are known by the name of *ludus Helmontii* ; and an account is given of them in Dr. Plot's history of Staffordshire. Concerning the monsoons and trade-winds ; so good account as to matter of fact cannot but be acceptable ; and the causes thereof worth inquiring into. Upon discourse thereof (at least to some of us) it seemed, 1. That the earth's diurnal motion from east to west (whereby the air, if not fully keeping pace with it, will represent an easterly wind) is not wholly to be laid aside : (as likewise that of the water in order to the tide, first taken notice of by Galileo). For though this alone does not answer all the phænomena, yet it goes a great way : and where this fails, we are to seek a subsidiary reason of such failure. 2. The other reason assigned, from the air's rarefaction (by the vertical sun) whereby it becomes lighter, and thereupon the heavier, or less rarefied air rusheth in upon it to preserve the æquilibrium, seems to be a pursuance of the same notion with that of Doctor Garden, in his letter printed in the *Philosophical Transactions* (Numb. 175.) who there argues from the same principle. 3. But there is this difficulty in it, that the same notion may as well be urged (and perhaps stronger) for a west-wind, as for as an east-wind. For while the rarefied air mounts upwards (as smoke and air in a chimney) and doth perhaps spread itself (above) over what is heavier and less expanded (which is that on the western not the eastern side) this western air (rather than the eastern) will (underneath) rush into the place of the rarefied air ; in like manner as the air, which feeds the fire in a chimney. What else hath occurred to us of late, you will find in our minutes, which are ordered to be transcribed and sent with this. You may be pleased, with this to present my respects and service to the Society ; and particularly to the hon. our new president, to whom I wish much joy and happiness in that employment. I am, Sir,

" yours to serve you,
" JOHN WALLIS."

him, which have been found in Staffordshire, Pembrokshire, Merionydhshyre, & Carnarvonshyre; & that in his History of Staffordshyre he has mention'd them.

An account communicated by Mr. Caswell, how & in what proportion the Quicksilver may stand at different heights, reckond on ye Plates of different *Baroscopes*, thô filld in ye same place, & with Quicksylver equally free from aer.

Some Observations of ye *weather* in ye Hottest week of ye last Summer 1686 made joynlly with ye Barroscope & thermoscope at several Hours of the day, in Order to finde how much heat affects ye Barroscope. By Mr. Caswell.

A peice of *Tin oar* usually called Shoad found above ground: & native Copper as found in the West of Cornwall, communicated by Dr. Plot.

December the 21st, 1686.

A Letter from Dr. Bagley to Mr. Musgrave was read: it gave an account of the dissection of ye *Hedghog*, male & female.

An account of a *horn* growing on the head of one Mary Davies of Soughal, of Wyrehall Hundred in Cheshire. Ano. Ætat. 71. Ano. Dni. 1668. The compasse of the horn at the root was 3 inches & more than half [3^{7}] the length of the horn layd out streight 5 inches & a half [5^{5}].

An account of the Duke of Tuscany's *Diamond*, which weigh's 138 Carats.

An account given by Dr. Plot of *ale* made with *Wallnut leavs* instead of Hops in Staffordshire: there being great scarcity of these, last Summer; he says 'twas pleasant & kept very well.

The Society resolvd that *Aristarchus* be printed in Greek & Latin at ye charge of this Society; Dr. Plot

having promised to provide paper, & Mr. Deeds to collate the MSts.

A resolution of a question of compound *Interest*, at one operation of Logarithms, likewise a Solution of this problem viz. from the different weights of the same heavie body in different fluids; to find ye proportion of ye *Specific gravities* [i.e. ye intensive gravities or degrees of Gravity] of those fluids one to another: both by Dr. Wallis in two letters to Mr. Boyl.*

The Society adjournd their meeting to the 11th of Jan.

January the 11*th*, 1686–7.

Mr. Pit communicated an account of the peristaltic motion of the Stomach, observd in a dog in July 1685. & also of lacteals arising from the Stomach.

A letter from Mr. Halley was read, which brought ye Minutes of the Royal Society for Dec. 8. & 15.

Mr. Pit was desired to try if he could discover any lacteal veins in Birds.

Mr. Musgrave gave an account that in the Christmasse holydays Ano. 86, there was shewn at Oxford a Castling, taken out of the belly of the dead Dam; which castling had 2 heads & necks: the vasa umbilicalia came out through the Spinebone, in which there was a hollow passage for that purpose. This monster was design'd to be more throughly examin'd; but the frowardnesse of those to whom it belong'd would not give way to it.

Mr. President was pleasd to communicate some Papers concerning the measure of the aers resistance to bodys mov'd in it.

* Decemb. ye 21st. Mr. Praesident also observd that ye rarefaction of the aer by the Sun (which Mr. Halley assignes for the cause of the Trade-winds) may as well be urged for a Westwinde as for an East wind.

January the 18th, 1686–7.

A letter from Mr. Peck of Mayfeild in Sussex, was read. It gave a large account of the man sick of a Feaver mentiond in the Minutes of Dec. the 7th. with some other cases in Physic very remarkable. A Transcript of this Letter is enter'd. Letter Book 118.

Mr. Præsidents letter to Mr. Halley concerning the cause of the Trade-winds, was read.[1]

[1] R.S., Jan. 12, 1686–7. A letter of Dr. Wallis, dated at Oxford, January 14 (R.S., Letter-book, xi, p. 57), was read, wherein he farther insisted on the diurnal motion to be a principal cause of the general or trade winds. The letter was as follows :

" SIR,

" Yours of January 1 I did (at our first meeting after our adjournment for the holidays) communicate to our company here ; to whom it was very acceptable. As to that in the beginning of it, concerning the trade-winds and monsoons, you have certainly done very good service in giving so full an account of the matter of fact : which affords good opportunity for the inquisitive, to seek after the causes thereof : And as to these (though I list not to contend, but am willing to allow every one the liberty of their own sentiments) yet I am still of opinion, that (whatever other concurrent causes there are) that of the earth's diurnal motion, assisted by that of the annual and menstrual of the earth and moon, and the obliquity of both to the diurnal, are not to be excluded from an influence on the tides and trade-winds, (for reasons which I have elsewhere given) nor would I wholly exclude that other notion, which Dr. Garden and you pursue, of the air's rarefaction by the vertical sun. The objection from the monsoons strikes (at least) as hard against the latter notion, of an eastern blast from the rarefaction by the sun's meridional heat, as against the other from the diurnal motion, and must be accounted for from some other concurrent causes, and not from either of these singly. And the other objection, for a western rather than an eastern blast from such rarefaction, seems yet to me of weight. For if from a fire-hearth in the middle of a large hall heated air do move upwards, (as we find it doth ;) the heavier air from all parts must needs rush in upon it ; and on that side most (if any be) on which it is most heavy, and therefore most pressed : which is, in our present case, not

February the 1*st*, 1686–7.

An account communicated by Mr. Musgrave of a way to preserve beef for three quarters of a year, & then ½ a year more after roasting.

An account of 2 high tides at London Jan. ye 28th. one 5 hours after the other.

An account of several extraordinary productions of a *fœtus*, bred out of a Cat & a Rat; the cat being the Dam. This fœtus is now to be seen at the Earl of Abingdons, as likewise a Hirco-cervus bred of a Goat & a Deer at ye same place.

that on the eastern side, (which was heated just before and is not yet cold :) but that rather on the western side, which is not yet heated: which should rather resemble a western than an eastern blast. What is argued from the sun's being vertical, at several seasons, sometimes on the southern and sometimes on the northern side of the æquator, may as well be argued from the obliquity of the earth's diurnal motion to the annual. But these things I represent only, leaving it free for others to judge from thence as they shall see cause. Our minutes for some days will be sent with this, and some other things soon after as I can get leisure. This at present from yours,

" John Wallis."

This letter was accompanied with the minutes of the Oxford Society, wherein, among other things, mention is made of an extraordinary horn, that grew on the head of one Mary Davis in Cheshire; the circumference of the root of which was three inches $\frac{7}{10}$, and the length laid out strait was 5½ inches: likewise an account of very good ale brewed in Staffordshire with walnut leaves instead of hops, which tasted pleasant and kept very well: that Dr. Bagley had lately dissected an hedge-hog male and female: and that the grand Duke's diamond weighs 138 carats.

It was ordered, that in the next letter to Oxford some of the most remarkable particulars of the dissection of the hedge-hog be desired.

Upon occasion of the horn growing on the woman's head, Mr. Lodwick said, that he had seen a woman in London, who had a horn on her head wreathed like a ram's horn, the wreath of which was about an inch diameter.

An account of several productions of a colour different from that of their species: v.g. of a white Ouzle or Black-bird, of white mice at one Mr. Tillyards an Apothecary in Oxford; of white Woodcocks, Partridges, Phesants, &c. seen by several of the Society.

February the 15*th*, 1686–7.

A Letter from Dr. Bagley from Leyden Dec. ye 9th giveing an account of these particulars. 1st. of a woeman that had 3 Children at one Birth, then 15 weeks old, & all alive and in good health. 2. Of a very litle woeman at Leyden who had 4 live Children in an hours space, and also a Souterkey, as likewise a description of the Souterkey. 3. An observation made by Dr. Schacht of a plum stone vomitted by a Girl which had a tender sprout of more than one inch long. 4. Of a Cow which had been fatted for 3 years & at last grew very lean, dissected by Dr. Drelincourt, in which were several observabls.

A Letter from Dr. Garden of Aberdeen Dec. 8. to Dr. Plot, which gives an account of ye generation of ye Small Caterpiller, which infests blossoms of Peares & Aples, & destroys ye fruit. Viz. that they are not bred of mists & Dews as Geodartius thinks, but of eggs; from whence he draws several other inferences.

February the 22*nd*, 1686–7.

A letter from Mr. Hally was read which gave an account 1 of Mr. Hook's hypothesis concerning ye Changes which seem to have happen'd in ye Surface of ye earth, from the Shells in beds found petrified in the Alps, & other Hills far from, & above the Sea; & again Sea Sand & Shells, found at great Depths underground.[1] 2. Of an

[1] Birch, iv, p. 521.

Experiment of Flint & Steel in Vacuo; which was that there were noe Sparks visible from ye Collision; tho they were very vivid in ye same receiver when the aer was admitted. 3. An account from France of a very strange effect of lightning viz. that som'thing in it peirced thro a peice of glasse, makeing some holes about the bignesse of Pistol Bullets, & melting the edges of the glasse makeing it smooth like the edges of a cup or drinking glasse. 4. that ye French in Canada have found a whole mountain of Lead Oar, which lies bare; soe that there is noe need of mineing.

Whereas Mr. Hook thinks that there are not extant any Authentic Records of the latitudes of places sufficiently to evince ye fixation of the Poles; Dr. Bernard observes that Gassendus in vita Pieriskij gives us ye latitude of Marseils, taken by Pythius an ancient Astronomer in the time of Alexander the Great. whereby it appears to be the same as 'tis now. and that in the latter end of Julius ffirmicus, he hath ye Observation of the latitude of Oxford, taken by one about 100 years since.

The Model of a Stone taken out of ye bladder of a Spaniel, communicated by Dr. Plot.

Mr. Lhwyd communicated ye following Curiosities.

1. Testæ Ovariæ Raiæ piscis Rondeletij p. 342. Viz. These are like litle bags or purses, of an oblong square figure, haveing a string at each corner; they are of a shining bla. colour, of a coriaceous substance, & striated texture; & are common on most shoars in England & Wales. In Wales they are calld Cîst y Môr i.e. Cista marina.

2. Caniculæ Ova ejusd. p. 380. These are in figure, like ye former; & in substance, colour &c. they exactly resembly horn of a Lanthorn. their corner strings are not playn as in the former but curld exactly like ye Capreoli or Claspers of Vines & Leguminous plants.

3. Favus marinus Sibbaldi Lib. Prodr. Hist. Nat. Scotiæ Lib. 3. p. 55.

4. Fucus longissimo, latissimo, crassóque folio Casp. Bauhini in Prodromo. Consult Dr. Ray Historiam Plant. Tom. 1. pag. 74. This had a faceing of fine silk in appearance; & was all over garnishd with small filaments standing upright, abt $\frac{1}{8}$ of an inch long; much resembling ye Stamina of flowers. This surface was easily scraped of, & was supposed to adhere to this plant after ye same nature that Mosses, Lichenes, fungi, & such ether vegetables adhere to stones, trees, bones, hornes &c.

5. Husks of a sort of Sea Insects call'd in Wales Chwaun y Môr i.e. Pulices marini. These husks were of ye bignesse & figure of ye stem of a Tobaccopipe, hollow, very thin, of a scalie surface to appearance, & place'd one in an other, soe that it appeard geniculated like Eqisetum nudum.

These Curiosities were sent out of ye Isle of Anglesey together with a collection of Sea plants & Shells.

March the 1*st*, 1686–7.

Upon mentioning of Mr. Hooks Discourse about the changes which he supposes to have been made upon the Surface of the earth, Mr. President observd that if any soe great changes had happen'd it is probable Tygris & Euphrates would not have continued to be the same rivers ever since the Creation. This Subject of Mr. Hook's, of the change of the latitudes of places, as Mr. Caswel observd, is fully handled by *Ricciolus* in his Geography & Almagest. Mr. President farther observ'd that the latitude of Oxford is not sensibly altered in these four hundred or five hundred years last past, as appears by the Alphonsine Tables & some MSts. in Oxford, in which tho there may be about one minute more, or one

minute lesse than ye present latitude, yet that may well be attributed to the unaccuratenesse of the Observations.

A Stone sayd to be taken out of the Maw of a Rhinoceros was communicated by Dr. Plot.

Part of an Epitaph at Collingbourn, Kingstone 8 miles from Hungerford, communicated by Mr. Charlet; viz. Pray for the Soul of Constantine Darrel Esqr. who died A.D. 1400. & . . . . . his wife who died A.D. 1495. This occasiond ye mentioning of one Mother George now liveing in Oxford, who according to her own account, & the account of her Neighbours (which is also confirmd by some other circumstances) is about one hundred & eleven years old.

March the 8th, 1686.

Pretia rerum tempore Regis Johannis ex libro MSto. inter Dugdaleanos in Bibliotheca Ashmoleana, per Dr. Plot.

A Stone taken by a midwife out of ye body of one Mrs. Cole of Bedhamton in Hampshire, who livd 20 years after: communicated by Dr. Plot.

A letter writ by Mr. President to Mr. Halley containing several arguments against Mr. Hooks late Hypothesis of the change of the Surface of ye earth.

April the 23rd, being St. George his Day.

The Election was of Dr. Wallis President, Mr. Musgrave Director of Experiments, Mr. Caswell Treasurer, Mr. Coucher & Mr. Pit Secretaries.

April the 27th [1687].

Mr. Præsident was pleasd to communicate a Discourse concerning the Regulation of Easter, for 2000 years, &

the moveable feasts according to the computation of the Church of England.

Mr. Caswell gave an account of some bodys weighd. Hydrostatically, by weighing them in aer & water. 'Twas observd by him that the Calculus humanus is lighter in specie than any known sort of Stones.

May the 3rd [1687].

An account of ye Solar eclips May ye 1st 1687 was communicated by Mr. Caswel.

A letter from Mr. St. George Ash was communicated, giveing an account of,

1st. The strength of ye Imagination upon ye Fœtus, in produceing a substance like a Cows teat near ye eye of one Elizabeth Dooly.

2. Of the Heigth of ye Mercury after a great thunder, being 28 inch & $\frac{4}{10}$.

3. Of ye Occultation of Saturn by ye moon.

4. That 'tis fabulous that ye Irish Herb calld Makinbuoy (i.e. Tithymalus montanus Hybernicus Cat. Oxon) purges by being carried in the Pocket

5. Of a Quarry of Marble near Antrim.

The Dublin Minutes from Nov. 15. to April ye 7th were read; speaking of a new Engin invented by Mr. Ash to raise water with an inconsiderable Power.

That Dr. Moline had found several passages & communication in ye ears of Birds, yet undescribd.

That 'tis usual in Turkie to cure ye bites of Scorpions by bruising a live one on ye wound. That Serpents abt. Aleppo are killd by ye smell of Tobacco. Of preventing ye spreading of poyson in a pigeon, by running in a hot iron.

A strange case of one voyding several bladders & afterwards recovering; One being as big as an Ox bladder.

A farther account of ye petrifieing of Lough Neagh.

A toad kept for 8 mounths in Dublin, not withstanding ye Opinion that noe venemous creature would live there.

Of ye effects of imagination; ye same with that from Mr. St. George Ash.

A discreption of a sea plant (Muscus marinus elegantissimus N.D.) by Dr. Molline.

Of ye Cause of extraordinary burning in a burning glasse sooner than a furnace; & why.

Guns are soe hot after ye 6th Shot, tho lesse than a second passes in making all ye Shots.

Of hares & rabbits growing white by Snow.

That Partriges are generally white on ye Alpes.

Orderd that ye next meeting ye Accounts of ye Treasurer be examine'd before ye Society.

Orderd that ye qarterly payments be continued as ye last year at 2*s*. 6*d*.

A discourse was given in to the Society, being a confirmation of Dr. Molines Observation of ye communication between ye ears of Birds, by Mr. Pit.

May the 20th [1687].

A continuation of experiments of ye Specific gravitie of bodys, was presented to ye Society by Mr. Caswel.

Mr. President was pleasd to communicate a letter from Mr. Halley, which gives an account of

1. Mr. Newtons Book de Systemate Mundi now in ye presse, giving an account of ye reasons of ye Celestial motions &c.

2 Mr. Hooks finding ye meridian line with great exactnesse by the help of a Small constellation near ye Pole.

3. Of an Hermaphrodite, from Tholouse, &c.

4. A Solution of a problem of ye Suns apparent magnitude, near ye Horizon is desired.

Mr. Præsident communicated also a Letter writen by him in answear to Mr. Hallys, giving an account of ye reasons, why he can not be of Mr. Hooks his opinion, concerning the figure of ye earth.

The accounts of Mr. Caswell were audited & approvd of.

Orderd that a Troy pound & case for ye Scales of the Society be bought.

The Meeting adjournd till Tuseday fortnight.

May the 31*st*, 1687.

Dr. Bernard in the Chair.

An Extract out of a Discourse of Signior Redi about factitious Salt, taken out of the Giurnale di Literati, was read. In which he has Observ'd

1. That all Salts have a peculiar figure which they allways keep, tho' never soe often resolvd & congeald again.

2. The great difference there is in Qantity of Salts rendere'd from several Species of Plants & from other things; viz from the Heads of Old Garlic there was very litle; from 30 lb. of Frumentum or Wheat flower noe Salt at all could be gatherd.

3. That ye purgeing faculty which belongs universally to Salts is also of eqal foarce & Energy in all Salts notwithstanding the Salts are gatherd from different things; or are themselves of different figures.

Dr. Plot shewd the Society a peice of Marble stone brought out of the Morea, which when rubd or scraped yeilded a strong ungratefull smel.

Mr. Caswel gave in a Table shewing ye difference between Kirchius his Ephemer. & ye London latin Ephemeris for ye present year 1687.

Dr. Lister's Book de cochleis Exoticis was presented

to the Society in which he observes Terram ad Testacea generanda non esse minùs aptam quam Aqa.

The thanks of the Society were orderd to be returnd Dr. Lister for this Present, & his book to be enterd in ye Catalogue of Books belonging to the Society.

Mr. Thomas Ludford Fellow of Magdalen Coll. was proposd to be elected.

June the 7th, 1687.

Dr. Bernard in the Chair.

A letter from Mr. Humphrey to Mr. Lloyd dat. Lhandowhyn May the 26. 87. giving an account of some Natural Curiosities from Anglisy was communicated.

Mr. Lloyd desired to return the thanks of the Society to Mr. Humphrey.

Mr. Molineux his letter to Dr. Plot desiring some accompt of the great fall of Thames near London Bridge on May the 10th which occasion'd the Dr. to inform the Society that himself saw horses & also boys of 12 or 14 years of Age pass ye River; that 3 pts. of ye Channel was without water. The manifest cause of which was ye violence of the Winds which then blew at S.W.

Nux. de Bhen yeiled an oyl much used by Painters. Semen Macalep, used in perfuming of Gloves both from E. Indies communicated by Dr. Plot.

Mr. Ludford Fellow of Magd. Coll. was elected into the Society.

June the 14th, 1687.

Dr. Plot in the Chair.

The following relations attested by one Mr. Birckerod ex Fronice Daniae Insula; and written by his own hand at Oxon March 17th, 1687 :

1°. De cuculo ovum suum alteri Aviculae fovendum

supponente, in relation to what Pliny and Aristot. have left concerning that Bird.

2°. De Lumbrico in Aure humanâ reperto.

3°. De viribus Cicutae, quae Anno 1684to, solito noxiores compertae fuêre: prae nimio (fortasse) istius aestatis ardore.

4°. De Cati Narwaht cum diversis cornibus.

Dr. Plot informed ye Society that he found on the sea shore of Kent among sands some small Plates of Gold of different shapes and figures; that he had presented of the same to his Majesty: who having sent it for tryal to the Tower, it was found but $\frac{1}{8}$th worse than the Guenea Gold. There have been noe Gold (that ever we have been informed) found of the like figure, and after the same manner give us reason to believe its native.

Mr. Ludford observ'd that at Newton, Glamorganshire is a well 3 miles distant from the Severan, that is at lowest, when the Severan is at high tide, & e contra.

Adjourned till Tuesday the 28th instant And thence adjourned till Michs. Terme.

The society having adjourned dureing the long Vacation this day being November the 8t. 87. met again.

The Minutes of November the 8th, 1687.

Mr. President shew'd the Society the edition of Aristarchus de magnitudinibus & distantijs Solis & Lunæ, in Greek and Latine, the care of which he had taken at the desire of this Society; he also read a Preface thereto, ffor all which the Society gave him their thanks.

It was debated what other little Book might be added to Aristarchus. Then Dr. Smith gave an account of what mathematical manuscripts were in Magd. Coll. Library viz. these ffollowing:

Athenaei *περὶ μηχανημάτων* fragmentum.

Bitonis *κατασκευαὶ πολεμικῶν ὀργάνων καὶ καταπελτικῶν.*
Heronis Ctesibij *χειροβαλλίστρας κατασκευὴ καὶ συμμετρία.*
Ejusdem *βελοποικά.*
Apollodori *πολιορκητικά.*
Julij Africani *κεστοί.*
Excerpta *ἐκ τῶν στρατηγικῶν παρατάξεων.*
Leonis Imperatoris *τακτικά.*
Nicephori Imperatoris *περὶ παραδρομῆς.*

In altero volumine continentur.
Heronis Alexandrini fragmenta,
περὶ σωλήνων sive de Siphonibus.
περὶ αὐτοματοποιητικῆς.
περὶ στατῶν αὐτομάτων.

A Letter of Mr. Everards to Dr. Wallis was read, containing some questions about Gaging, with the Drs. Solutions of them. It also gives an account of a woman who having been suspected of witchcraft, after that her husband had hang'd him self, was found dead before her door, and on her breast under her cloaths was found sew'd up between two pieces of cloath a piece of parchment, with several odd inscriptions, the words were Hebrew, Latine, English, several crosses, and characters of the signs &c. The Drs. opinion was desired herein.

The Minutes of November the 15*th*, 1687.

A letter was read from Dr. Garden to Mr. Musgrave being ingenious discourse concerning the Formation of Animals. In which he reconciles the Opinions concerning the Formation ex Animalculis and ex ovo, in these positions: first Animals are formed ex Animalculis, 2d that these Animalculà are in semine Marium et non in fæminis; 3dly that the ovum fæminarum is this nidus requisite to the production of the Animals.

There was also read a relation of a dismall Tempest at Hullavington communicated by Mr. Cole of Bristoll.

November the 22nd, 1687.

Some Letters were read from Mr. Cluver with Mr. Presidents answers concerning the squaring the Circle, and Parabola.

Some Moulds of old Coins were communicated by Mr. Musgrave sent by Mr. Hughs out of Somersetshire.

Some stones communicated by Mr. Musgrave taken out of the Ureters of a man ; being 7. small ones, and one very larg being an inch long, and above an inch round.

An account of the dissection of Mr. Castillion who dyed of a universalle Tabes, and cancer of the Stomach communicated by Mr. Musgrave.[1]

March the 6th, 1687–8.

An account of what appear'd to Mr. Pit upon the *Dissection* of a *Dog*, that had Mercury injected into one of the *Jugulars*.

The *Mercury* was thrown out of the *Blood* into the *Cavity* of the *Abdomen*, as likewise some appearance of it in the other *Cavitys* of the *Body*. All the *Glandules* were very turgent, and full of Liquor, especially in the *Ventricles* of the *Brain*, and all round there was a great Quantity of *Serum*, the *Brain* was perfectly sogg'd. This may be called a true Hydrocephalos. It being a Chance *Dog*, and having noe notice what had been done on him,

[1] R.S., Dec. 14. The President signed an order for the delivery of a piece of plate of sixty pounds value to Mr. William Musgrave, being a gratuity given him by an order of council of Decemb. 16, 1685.

I could not so well observe whether it would work on him by *Salivation*, whether it made him duller than ordinary, or how Long the *Quicksilver* had been in his body.

March the 13*th*, 1687–8.

Mr. President in the Chair.

Dr. Plot communicated a discourse from Mr. Cole of Bristoll concerning the *Descent* of *Spiders* with their Webs, taken in the County of Wilts in Septemb. and October 1686. with an occasionall *Discourse* about *Spontaneous Generation* wherein is given allso an account of people that have been Witnesses of the raining of *Frogs* & *Crabs*.

Mr. President communicated a letter of his to Mr. Aston, in which he shews the book that goes in Aristarchus's name was imposed on the world by Robervalt and Mersenne.

Mr. President gave an account, that some Country men had given him an account of some *Frogs* leaping in their Carts after rain.

March the 20*th*, 1687–8.

A *Relation* sent by Mr. Cole of a Delivery where the *Vagina Uteri* was closed up.

March the 27*th*, 1688.

Some Curiosities communicated by Mr. Lhwyd viz.

1. Several Roman Coyns found at Craig Lhan y Mynych Denbigshire.

2. Some curious Pearles from the River Teivi Cardiganshire.

3. Large Chrystalls from Creigiau'r Eryn in Carnarvon-

shire of the usual figure of other Chrystalls with both ends entire.

4. Very small Chrystalls from Cardiganshire, of the same figure with the former, but much clearer.

Mr. Chris. Codrington presented the Society with a very larg China Orange, which was (before it decay'd) 17½ Inches in Circumference. It shrink'd in a very short time allmost 2 Inches.

An account of the Posture Master, who has such an absolute command of all his Muscles and Joints; that he can disjoint allmost his whole body.

Dr. Plot gave Society the sight of a Paper written for his Majestys use, about felling Timber in Staffordshire, where they bark their Trees in the Spring and cutt them down in Winter, which hardens the Timber, soe that the outside is as hard as the Heart of the Tree. For felling wood in Winter he brings the Authority of the Antients, Pliny, Theophrastus, Cato &c. for the Advantage of it. And then he shews how the Barking of it in the Summer farthers the hardening by closing the Pores in the Evaporation of the Juice by the Heat of the Sun.

The Dr. adds he can find no objection against it but that t'will be more troublesome to fell the Timber so hardened, and to bark it standing, and so dearer, but that the goodness will sufficiently answer the price.

Order'd that thanks of the Society be return'd to the Dr.

April the 3rd, 1688.

Mr. Pullen is desir'd to get an account of the variety of the Coyns that were found at Wandsdike nigh Cricklade.

Mr. Walker shew'd the Society some drop Microscop's, and the Manner of makeing them.

A Peice of *Rust* from the Hinge of Wadham Coll Gate wa's shewn of a great thickness, which was as thick again as the Iron, that answer'd it of the other side, which no doubt it was like at first.

Mr. President presented the Society an *Edition* of a *Fragment* of Pappus GL. never Printed, before.

The Society order'd thankes to be return'd to Mr. President for his Care and Pains.

Mr. Charlet acquainted the Society of a *Cock* with three *Legs*, and two *Anus's* at Wm. Greenhills Esqr. at Abbots Langley near St. Albans.

Mr. President give the Society a sight of ye Dean of Worcester's *Saxon* Grammar, that is now committed to the Press; to which will be added a *Catalogue* of *Saxon Manuscripts*.

Several formed Stones were shewed the Society viz. *Cornua Ammonis, Mytiloides, Solenites, Conchites*; several *Stones* called St. *Cutberth-beads*, and other Stones exactly of the figure of a *Cocks Spur*, which, as Dr. Plot related, are only the pointes of those Stones called St. Cutberth-beads most of which were found in the *Quarry's* on the side of Wotton-under-hedg-Hill in Glocestershire as also a great hollow *Mass* of *Iron Oar*, brought from St. *Vincents Rock's* near Bristoll, which in the Concave was beset with *hexangular Crystalls*; as also some Masses of *Lead Oar*. Oar found on Lye-Down near Bristoll, from which t'is said they extracts *Silver* in a Cup alle standing under the aforesaid Down.

Upon the sight of which the President acquainted the Society that at Stanton-Prior Cornua Ammonis were the Naturall Stones of ye Place.

Mr. Awbrey mentioned something supposed to be *Vinegar* to ferment with *Free-stone dust*. He's certain twill do so with *Sp.* of *Wine*. The fresher the dust the better.

April the 10*th*, 1688.

Several Roman Coyns found at Wandsdike near Cricklade shewed the Society by Mr. Pullen, of all which the inscriptions and weights are subscribed.

	Weights. PW.	Gr.
Hadrianus Augustus On the Reverse Cos. III.	2	5
Cæs. Augustus Nero Custos Agrorum	1	22
Caisar Augustus Domitianus Cos. V	1	23
Imp. Trajan. Ger. Dac. P.M. TR.D. Optimo principi	1	21
Vespasianus Aug. Caisar.	2	1
M. Antonius Aug. Imp. II° Consul. III° Tr. P. XVIII	2	4
Diva Faustina æternitas	2	2
Diva Faustina Ceres	2	0
Trajano Aug: German. P.M. Tr.P.	2	3
Lucilla Augusta Pudicitia	2	6½
Imp. Nerva Cæsar Aug. P.M.T.PC. Cos. II P.P. Æquitas Augusti	2	7
Imp. Cais. Trajan. Hadriano Aug. Pietas	2	4
Imp. Trajano Aug. Germ. Dac. P.M. TRP. Cos. V° P.P. SPQR. Optimo Princ.	2	3
Antoninus Aug. Pius P.P. TRP. XI. Cos. IV.	2	5½
Imp. Trajano Aug.	2	3
Hadrianus Aug. Cos. III	2	1½

	Weights. PW.	Gr.
Julianus PP. Aug. Votis X. Mult. XX	1	2
D.N. Constantius P.P. Aug. Votis XXX. Mult. XXXX.	1	2

Of the quantity of wine, corn, and Ale Gallons examin'd by Dr. Bernard, Mr. Walker and Mr. Caswell. The Standards of these 3 Gallons kept at St. Marys, were filled with Pump-water, and then weighed, and were found to weigh of Avoirdupois as follows

	lb.	oz.	dr.
Wine—Gallon-	8	6	2
Corn—Gallon-	9	12	4
Ale—Gallon	10	2	1

These weights compar'd with a former experiment by this Society of the weight of a cubic foot of water, give the quantitys of these Gallons in Cubic Inches, &c.

Wine—Gallon-	232 : 00	cubic Inches.
Corn—Gallon-	270 : 43	
Ale—Gallon	280 : 15	

The variation of the Needle at Oxford July 22d 1687 found to be 5°20′ West.

Dr. Bernard presented the Society with his Book de Ponderibus et Mensuris Antiquis ; for which the Society return'd their thanks.

April the 23rd, 1688.

April 23th being the annual day of Election The Society meet, Dr. Plot in the Chair, and chose the Officers for the ensueing year, as follows.

Dr. Bathurst President.
Mr. Musgrave Director of Experiments.
Mr. Entwissle Treasurer.
Mr. Coucher, Mr. Pitt } Secretarys.

Ordered that the Treasurers Accounts be Audited to morrow fortnight by Dr. Beeston, Dr. Levet, Mr. Pullen and Mr. Walker.

May the 8th, 1688.

The Treasurers accounts were Audited, according to a former order, and approved off.

May the 22nd, 1688.

Dr. Plot communicated a letter from Mr. Moleneux, giving an account of the Inhabitants of the Barony of Forth in the County of Wexford, who are the Progeny of the first English Planters that came over with Fitzstephen and conquer'd Ireland in H. 2ds Time. Till the Times of their late confusions in Ireland (he says) they retain'd in great Measure their Antient Language, neither good English nor Irish, but easyer understood by a Perfect Englis man then Irish. That till of late they allways kept their Marriages intire amongst themselves. That they, and all the Creatures that belong to them go to sleep about midday in summer, and their Hens tho removed into other places will go to roost about that time.

A figure of the Pillar of Edward ye 1st set up by the Duke of Norfolk upon Burgh-sands sent by Mr. Hugh Todd was presented the Society by Dr. Plot.

June the 12th [1688].

A Certificate from Mr. Morgan Jones a Minister, dated at New York Mar. 10th 1685–6. was read concerning some Natives of the West Indies near Cape-Ahas that understand the British Tongue.

A letter from Mr. Hillyer to our President dated Jan. 3. 1687–8. was read, which gave a large account of the Country of Cape Corse in Guinea & of some Customes of the Natives there.

Dr. Plot communicated a stone that was brought out of Cornwall called the Soap-stone.

Mr. Musgrave gave an account that a very good sort of Vinegar is made thus; put 2 lb. of the best Mallaga Raisons cleansed into a Gallon of spring water in an earthen Jar covered with a Slat and set in the sun for about 2 months in the heat of sumer or till it is sharp enough, then draw it off with a Syphon without Jogging.

Mr. Walker said he was told that in severall places good vinegar was wont to be made with Goosberries.

Mr. Pullen communicated an impression of a leaden seal belonging to the Parish of St. Peters in the East usually kept in a chest in the Church with this inscription round, Sī. Coē. Parochianōr Eccē S. Pet oriental Oxon. In the middle is a hand holding a Key erected.

June the 26th, 1688.

The Thanks of the Society are return'd to Mr. President, for a Letter communicated by him from Mr. Hillyer, being a farther account of Customs and Religion of ye Indians.

In consideration of the great pains and trouble Dr. Wallis has been at in the care of Printing Aristarchus, the Society give order that their thanks be return'd to the Dr.

Ordered that an Aristarchus be sent to Dr. Garden, one to Dr. Middleton. To the Vniversitys of Aberdeen, & Gloscow, Edinborough and St. Andrews. To Mr. Molineux, and the Provost and Library of Dublin. To Mr. Ash. To Mr. Jessop. To Dr. Lister. To the Secretarys of the Royall Society, and the Library of the Society, and the President of the R.S. To Dr. Chamberlain. To Mr. Flamstead. To Dr. Pitt. To the Vice chancellor and publick Library. To Mr. Hally. Ordered that Mr. Charlet deliver one from the Society to Mr. President.

The Tutenage of Japan was shewed to the Society, being used for Paper to wrap up goods, or make sacks: Of the same sort being thicker are made the Tea-pots. It is a Metall finer than Lead or Tin, but neither the one nor the other.

The thanks are returned to Dr. Hide for his communication of the heads of some Japan matters he has communicated to ye Society.

April the 23rd, 1690.

Dr. Bathurst, Mr. President, in the Chaire.

Mr. Henry, Mr of Arts of Ch. Church was elected a member of this Society.

Mr. Thomas Sykes, B.D. of Trinity Coll: was elected a member of this Society.

The Honourable Sr. George Mackenzy elected a member of this Society.

Dr. Richard Parsons, Chancellor of Glocr: elected.

The worshipfull Theophilus Leigh Esq., elected.

Ordered by the Society, that all members of the Society who have paid their arrears or. Lady Day, 1688, are to receive such six books, of Aristarchus, printed at the charge of the Society.

Officers for the ensuing yeare.

Dr. Bathurst President,

Mr. Pit
Mr. Hans } Secretaries.

Dr. Musgrave, Director of Experiments.

Mr. Pullen, Treasurer.

Ordered that the Accounts be audited on Fryday next at one a clock.

By { Dr. Bernard.
Dr. Plot.
Mr. Charlet.

Ordered that the company be desired to meet on the first Tuesday of every moneth.

It was proposed by Mr. President that Sr Thomas Willoughby & Dr. Maw be elected members of this Society.

May the 6th, 1690.

Dr. Plot in ye Chair.

An Account of ye Weather for 1688 at Cape Corse in Guinea by Mr. Hillyer was presented to ye Society by Mr. President.

A Project of making all ye high-ways and streets perfectly good and smooth at ye charge of what 3 years expence as ye present amounts to; after which they may be kept in Repair for ever with very little charge or trouble by the use of Rollers instead of Wheels.

Dr. Plot is desir'd to take this Paper into consideration.

Ordered that one Aristarchus be presented bound to ye Vniversity Library.

A transparent Stone called by ye Welch Maen cawod, (that is) shower stone from Bishops Itchington (Warwick) by Dr. Wills.

Several other figured stones found near Oxford; such as

1. Glossopetra fossilis tricuspis Listeri *Philos. Transact.*, found in ye rubble Quarry under Shotover.

2. Glossopetrae of other shapes found in ye Stone pits near Garzington.

3. Bufonites minimus scutellatus, coloris anthracini; found in a Quarry at Witney.

4. Conchites laevissimus vulgam referens, seu Sacculus lapideus found in ye same Quarry.

4. Bufonites majusculus atrorubeus. From ye Stone pits near Garzington.

5. Trochi majoris Listeriani simulachrum lapideum. *Ibid.*

6. Lapis siliqam Lupini referens, versicolor. At Witney.

7. Cornu Ammonis minimum, clavellatum, coloris anthracini. At new Parks, but very sca. [? scarce].

June the 3rd, 1690.

Mr. President in ye Chair.

Sir George Mackenzy observ'd that ye highest, and coldest hills in Scotland had ye greatest quantitys of Shelly Concretions.

The Figures of the Runic Stones were presented to ye Society by Dr. Plot: The Inscriptions being,

Of ye 1st. Thorstin lit gera merki ftir Suin Fathur sin, uk ftir thori Brothur sin thir huaru hut til Gi-ika. uk iftir Ingithurn Mothur sin. Ubir risti.

Thorstinus notas fieri fecit in memoriam Suini patris sui, et in memoria Thori fratris sui. Geti profecti sunt in Graeciam. Et in memoriam Ingithurn matris suae. Ubir incidit.

Of ye 2d. Lithsmathr lit akva stin afti Gulbirn fath. Lithmarus incidi fecit saxum in memoriam Gulbirini patris.

A Golden Meddall presented to Lilly by Gustavus Adolphus K. Sweden for his fore-telling his passing over the Sea upon ye Ice. This is presented to ye Musaeum.

Sr Thomas Willoughby } chosen a Member of this
Dr. Man of Cambridge } Society.

Mr. Bently's admission was proposd.

Twas propos'd that ye Number of 9 that is necessary to make up an Election be altered to 7.

Agreed to adjourn to Tuesday Fortnight.

[THE END.]

[*Note added later.*]

Dr. Plot communicated a letter he had receiv'd from one Mr. Owen dated Nant Frankon, Carnarvonshire, giveing some account of ye long age of ye inhabitants of that countrey; also of the Pearles found in ye river Conwy; & some animadversions on la Place in Dr. Bernards Epistle before his Etymologicon Britannicum, where ye Dr. says that ye British Language as it is in Dr. Davies his Lexicon is borrow'd, one half of it from the Latin, & one 4th part of it from ye English. This gentleman endeavouring to prove that one sixth part of ye words of that Lexicon are not derived from ye Latin, & not a fortieth part of it from ye English.

End of Minute Book B.

MS. Ashmole 1811.

INDEX

TO THE MINUTE BOOKS AND LETTER BOOKS OF THE PHILOSOPHICAL SOCIETY OF OXFORD BY WILLIAM MUSGRAVE, 1686

Adapted and extended, 1925.

WILLIAM MUSGRAVE'S INTRODUCTION

It seem'd necessary to premise some short account of this Index; partly for the ease of such as shall have occasion to peruse it, and partly that whichever therein shall seem erroneous, may be avoided for the future.

1. Several things which I remember'd to be allready printed in ye Philosophical Transactions or elsewhere, and but barely hinted in these books, are omitted.

2. Where I met with proposals of experiments etc., I thought it not necessary to take notice of 'm in ye Index, in expectation of finding afterwards some account of their successe.

3. The Transactions of ye Oxford Society, when at any time mention'd in the Dublin Minutes, are seldom referd to; & soe vice versâ: but the Transactions of each Society to their own Minutes.

4. Books presented to ye Society are not mentiond in this Index, in regard I thought their number would soon be soe considerable, as to reqire a particular catalogue.

5. I thought it not impertinent to note in this Index, such remarkables as are but barely hinted in ye Minutes of ye R.[oyal] Society. & that of Dublin; since they that desire farther information may have recourse to their registers.

6. I thought it necessary to be a little more copious than Indexes of this nature commonly are: For instance its usual

under ye word [tree v.g.] to refer the reader to twenty several pages where he may meet with Observations relateing to trees. But his desire being to be satisfied in some particular ; he shall not finde it probably till he has read several pages, & perhaps not at all. I have therefore attempted to specifie as briefly as I could, the several particulars under each head.

7. I have most commonly writ under their several places of Alphabet as many Synonymous words as I could think of ; Supposing it might prove of some consequence for ye more speedy findeing out of anything required. For example *Nigrica fabrilis* may be found out under ye several names of *Wadt, Kellon, bla. lead,* & black Ochre.

8. Although to reduce things under certain Classes, with respect to what relation they bear to each other, seem ye most usefull & agreable rule of division ; yet it being my buysinesse to compose an Alphabetical Index, I could have but small regard to that method. Soe that all Observations in Anatomy, ex. gr. will not be found together under that head ; but under those several parts to which they more particularly relate ; as ye heart, ye lungs, ye kidneys etc. Where moreover it may not be amisse to observe that ye Terms of Anatomie are most usually in Latin : but its easie to judge which may be expected in Latin & which in English.

9. In vewing ye Index, several things may appear to be somewhat improperly refer'd, but such things are allso most commonly if not allways to be met with under those heads they more strictly belong to. The reason hereof was partly because I often doubted whither most properly to refer them, & therefore thought it best to put them under their several heads ; & partly for ye rendring ye Index more copious & consequently perhaps lesse tedious to the Perusers.

10. In ye order of Alphabet it may seem that Provision is made for words which noe Latin or English Dictionaries doe affoard ; & that consequently noe words may be expected to supplie such vacances : But that was done with respect to forreign languages, particularly Indian, in which many words did occur in ye Perusal of these Books allready ; & much more may be expected as the result of the discoveries dayly made in those parts. The words here mean't are such as *Bdellium, Rhandu-Guacu,* &c.

11. Several words that I judg'd obscure are interpreted by some others better known ! Such as v.g. *Presbuough* [Napus agrestis], *Makinboy* [Tithymalus montanus Hibernicus], *Lassington Stones* [Asterias], *St. Cuthbert's Beads* [Entrochus lapis] &c.

12. Sometimes ye same account of things is given in ye Letter book & Minute book, which when I remember'd, I refer'd ye reader onely to the Letter book, as being the more copious : but I finde that sometimes through negligence, reference is made to both, though there be noe difference.

13. Altho when I had orders to draw up this Index, 'twas thought unnecessary to mention therein, ye Authors of any Discourse ; yet they are often mention'd partly thro inadvertency & partly for distinction, as when two or more have discours'd on ye same Subject.

14. It may be necessary to observe that several things are sometimes mention'd in distinct paragraphs of ye same page ; tho after some interruption of other discourse.

AL signifies Letter book A. [Referred to as *a* in the index] [1]

MA Minute booke A.

LB Letter book B. [Referred to as *b* in the index] [1]

MB Minute book B.

B Some pages being Skip'd over in figureing ye Books are (for avoiding the trouble of pageing all again) mark'd with the figure of the page immediately preceding and distinguishd with ye letter B.

&c, subjoynd to any figure denotes a continuation of the same discourse in one or more pages than ye figure directs to.

Ve Vide.

2.1 denote that ye words so markd are transpos'd.

N.D. Nondum descriptus.

NOTE

In the following Index, Musgrave's references to the Minute Books, MA and MB, have been superseded by numbers referring to pages of this volume. His references, AL and LB, to the numbered letters in the old Letter Books A and B, are contracted for the sake of brevity to *a* and *b*, followed by his number of the letter. Unfortunately some of these letters are now missing, and all of them are disarranged and are renumbered in pencil, so that reference is not easy.

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[1] The letters are now contained in a single volume known as " Dr. Plot's Letters " or as MS. Ashmole 1813.

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