

An account of the life and writings of the celebrated Dr Archibald Pitcairne, delivered as the Harveian oration at Edinburgh, for the year 1781 / by Charles Webster.

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A N
A C C O U N T
O F

THE LIFE AND WRITINGS

OF THE CELEBRATED

DR ARCHIBALD PITCAIRNE,

DELIVERED AS THE

HARVEIAN ORATION AT EDINBURGH,

For the Year 1781.

BY CHARLES WEBSTER, M. D.

PHYSICIAN TO THE PUBLIC DISPENSARY,
OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH,
OF THE ROYAL SOCIETY OF MEDICINE, PARIS, &c.

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T O
DR WILLIAM PITCAIRNE,

F. R. S.

PRESIDENT OF THE ROYAL COLLEGE OF
PHYSICIANS, LONDON, &c.

THIS SMALL TRIBUTE
TO THE MEMORY OF A DISTINGUISHED
KINSMAN

IS MOST RESPECTFULLY INSCRIBED

BY

THE AUTHOR.

or Gifborne wth the author

most respectful Com^{pl}

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ADVERTISEMENT.

THE Harveian Society of Edinburgh was instituted in the year 1778. Its principal object is to encourage, among the students of medicine, a spirit of experimental inquiry. For this purpose, a question is annually proposed, and an honorary reward adjudged to the solution most approved by the society. As a farther incentive, one of the Secretaries is appointed to read a discourse on some exemplary medical character, immediately before delivering the prize to the successful candidate, which is done publicly, on the anniversary of Dr Harvey's birth-day.

The competition hitherto has been considerable, and, in general, productive of discovery. The first medal was obtained by the late ingenious Mr Charles Darwin, for his criterion between mucous and purulent matter, since published by his father

Dr

Dr Darwin of Litchfield *. The second was adjudged to Dr Edward Stevens of St Croix, for experiments tending to shew that the red colour of the blood was owing to phlogiston †. And the third was determined in favour of Dr Arthur Broughton of Liverpool, for his essay proving the increase of the blood's coagulable lymph in inflammatory disease, and the useful inferences he

* From his experiments Mr Darwin concludes thus: "When a person has any expectorated material, the composition of which he wishes to ascertain, let him dissolve it in vitriolic acid, and in caustic alkaline lixivium, and then add pure water to both solutions: and if there is a fair precipitation in each, he may be assured that some pus is present; if in neither a precipitation occurs, it is a certain test that the material is entirely mucus: if the material cannot be made to dissolve in alkaline lixivium by time and trituration, we have also reason to believe that it is pus."

† Dr Stevens, by repeating the experiments on the blood with the mineral acids, which Dr Maclurg had made on the bile, found the results very nearly the same; and hence he infers, that the colour of the former depends on the same principle as that of the latter.

deduce

deduced from that fact. This year indeed
no paper was given in that was thought of
sufficient merit to entitle it to the usual
distinction. The same question was there-
fore continued, and another likewise an-
nounced, as in the Address at the end.

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PHILOSOPHICAE

ET MATHESICAE

IN ACADEMIA SCIENTIARUM

HAERLEMI

ANNO DOMINI 1784

IN ACADEMIA

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HARVEIAN ORATION.

GENTLEMEN,

COMMEMORATIONS in honour of distinguished merit have ever been customary. This laudable practice is founded on sentiments of admiration or of gratitude inspired by the memory of the dead, and tends to produce the most desirable effects by exciting the emulation of the living. With such views the Harveian society instituted the present meeting; and, as one of its secretaries, the task of this day is assigned to me. I am very conscious how unequal I am to the office; but I am persuaded, at the same time, that the subject I have chosen gives me every advantage, and that I may rely on all those

A allowances

of the productions of his leisure and his youth.

After his course of philosophy was finished, some alledge he was destined for the church *. The unpleasant gloom, however, which, at that time, hung over religion and its professors in this country, could not but very ill suit with that native chearfulness of temper and liberality of mind which made him, long after, a mark for the arrows of preciseness and grimace. The law seems to have been his own choice, and to this science he turned his attention. With an ardour peculiar to himself, and an ambition to excel in whatever he undertook, he pursued it with so much intensesness, that his health began to be impaired. On this account, his physicians advised him to set out for the south of France. By the time he reached Paris, he was happily so far recovered, that he determined to renew his studies; but

* Biographia Britannica.

being

being informed that there was no able professor of law in that city, and finding several gentlemen of his acquaintance engaged in the study of physick, he went with them to the lectures and hospitals, and employed himself in this manner for several months, till his affairs called him home.

On his return, he applied himself chiefly to the mathematics. It is not usual to see the briars of this science and the flowers of poetry growing in the same soil. Here however they were happily united; and to this union perhaps was owing that singular command of judgement over one of the liveliest of fancies, which appears in every part of his works. His intimacy with Dr David Gregory, the celebrated mathematical professor, began about the same time; and probably conduced to cherish his natural aptitude for this study. It was then, in a great measure, new to him; it soon became his principal delight; his progress in it was rapid, and correspondent

spondent to his progress in other pursuits. His improvements on the method of infinite series then adopted, which Dr Wallis of Oxford * afterwards published, were a conspicuous and early proof of his abilities in this science.

Had Dr PITCAIRNE continued to prosecute the study of the law, and could he have moulded his principles to the times, the first offices and honours of the state might have been looked for without presumption as the probable reward of such talents as he possessed. Struck, however, with the charms of mathematical truth which had been lately introduced into the philosophy of medicine, and hoping to reduce the healing art to geometrical method, he unalterably determined on this less aspiring profession. At the period when he formed this resolution, the ideas of the medical world, already sufficiently confused, were still farther jumbled by the

* Wallis's Works, vol. 2. cap. xciii.

discovery of the circulation of the blood, which had as yet produced nothing but doubt, uncertainty, and astonishment. In Edinburgh at that time there was no school, no hospital, no opportunity of improvement but the chamber and the shop. He therefore soon after returned to Paris*. Genius and industry are unhappily not often united in the same character: of such a union Dr PITCAIRNE is a celebrated instance. During his residence in France, he cultivated the object of his pursuit with his natural enthusiasm, and with a steadiness from which he could not be diverted by the allurements of that joy which, in his hours of social and festive intercourse, he always felt and always gave. Among his various occupations, the study of the ancient physicians seems to have had a principal share. This appears from a treatise † which he publish-

* This seems to have been about the end of 1675.

† Solutio problematis de inventoribus.

ed some time after his return ; and it shews, that he wisely determined to know the progress of medicine from its earliest periods, before he attempted to reform and improve that science.

On the 13th of August 1680, he received, from the faculty of Rheims, the degree of Doctor ; which, on the 7th of August 1699, was likewise conferred on him by the university of Aberdeen † ; both being attended with marks of peculiar distinction. Other medical honours are said to have been conferred on him in France and elsewhere ; but nothing affords a more unequivocal testimony to his abilities than that which the surgeons of Edinburgh gave, in admitting him, freely and unsolicited, a member † of their college.

† This diploma is deposited in the museum belonging to the society of antiquaries of Scotland.

† His admission is dated 16th October 1701.

None had such opportunities of judging of his merit as a practitioner, and on no physician did they ever bestow the same public mark of respect. He felt the honour that was done him, assisted at their board, and often seemed proud * of the title of Surgeon, as he was, in reality, a very able one. Soon after his graduation at Rheims, he returned to Edinburgh, where, on the 29th of November 1681, the Royal College of Physicians was instituted; and his name, among others, graced the original patent from the Crown †.

In his problem concerning inventors, the treatise above alluded to, he discovers a wonderful degree of medical literature, and makes use of it in a manner that does great honour both to his head and his heart. His object is to vindicate Dr Harvey's claim to the discovery of the circu-

* Pitcarnii Poemata.

† Whether he ever was President does not appear, as the records from 1683 to 1693 are lost.

lation of the blood. The discovery was, at first, controverted by envy, and repro- bated by ignorance. When, at length, its truth was fully established, many invidi- ously attempted to tear the laurels from the illustrious Englishman, and to plant them on the brows of Hippocrates and others. Had the attempt been directed against himself, the generous soul of PIT- CAIRNE could not have exerted more zeal in a defence; and his arguments remain unanswered. Were it necessary therefore to justify the choice of him for the subject of this day's oration, that alone would be sufficient. But as it seems a fact, that the discovery of the circulation was, in some measure, incomplete, without his labours, it is but just that he should share the ho- nour; and since he was so ready, on all oc- casions, to pay tribute to the merits of others, we should be inexcusable, if, in this place, and on this anniversary, we were to be silent in our sense and veneration of his.

During

During his residence in Scotland, his reputation became so considerable, that, in the year 1691, the university of Leyden solicited him to fill the medical chair at that time vacant. Such an honourable testimony of respect, from a foreign nation, and from such a university, cannot perhaps be produced in the medical biography of Great Britain. The lustre of such characters reflects honour on their profession, and on the country which has the good fortune of giving them birth; and serves to give the individuals of that country not only a useful estimation in their own eyes, but in those also of the rest of the world. Dr PITCAIRNE's well known political principles excluded him from public honours and promotion at home: he therefore accepted the invitation from abroad *; and, on the 26th of April 1692, delivered, at Leyden, his elegant and ma-

* Drelincourt, Bidloo, and Herman, were his colleagues.

sterly inaugural oration †. In this he clears medicine from the rubbish of the old philosophy ; separates it from the influence of the different sects ; places it on the broad and only sure foundation of experience ; shews how little good inquiries into the manner how medicines operate have done to the art ; and demonstrates the necessity of a sedulous attention to their effects, and to the various appearances of disease.

Nothing marks a superiority of intellect so much as the courage requisite to stem a torrent of obstinately prevailing and groundless opinions. For this the genius and talents of PITCAIRNE were admirably adapted ; and, in his oration, he displays them to the utmost. It was received with the highest commendations ; and the administrators, to testify their sense of such an

† Oratio qua ostenditur medicinam ab omni philosophorum secta esse liberam.

acquisition to their university, greatly augmented the ordinary appointment of his chair.

He discharged the duties of his office at Leyden so as to answer the most sanguine expectations. He taught with a perspicuity and eloquence which met with universal applause. Independently of the encomiums of Boerhaave and Mead, who were his pupils, the numerous manuscript copies of his lectures, and the mutilated specimen of them * which found its way into the world, without his knowledge, shew how justly it was bestowed. At the same time, he was not more celebrated as a professor than as a practical physician; and notwithstanding the multiplicity of his business in both these characters, he found leisure to publish several treatises on the circulation and some other of the most important parts of the animal œco-

* *Elementa Medicinae.*

nomy †. Thus life, which is short only to the lazy, is lengthened by genius and industry seizing and filling up every moment as it passes.

At the close of the session, he set out for Scotland, with an intention of returning in time for the succeeding one. On his marrying * the daughter of Sir Archibald Stevenfon, the object of his journey, her relations would, on no account, consent to part with him again. He was therefore reluctantly obliged to remain; and he wrote the university a polite apology, which was received with the utmost regret. He

† Dr Boerhaave gives the following character of those and some other of Dr Pitcairne's dissertations, which were collected and published at Rotterdam, an. 1701. "Haec scripta optima sunt et perfecta, sive legas Dissertationem de Motu Sanguinis per Pulmones, sive alia opuscula, sive ultimum tractatum de Opio. Methodus studii, ab Hallero edita, p. 569.

* He had been married before to a daughter of Colonel James Hay of Pitfour, by whom he had a son and daughter, who both died young.

even

[21]

even declined the most flattering sollicitations and tempting offers to settle in London. Indeed he soon came into that extensive practice to which his abilities entitled him, and was also appointed titular professor of medicine in the university of Edinburgh.

The uniformity of a professional life is seldom interrupted by incidents worthy of record. Specimens however of that brilliant wit with which he delighted his friends in the hours of his leisure, continue to entertain us * ; and the effects of that eminent skill which he exerted in the cure of disease, still operate to the good of posterity. In attempting to draw his medical character, the state of medicine in his time must be recollected. It would otherwise be unjust to compare what he did with what is now done. Hannibal was certainly a most

* Vide Pitcarnii Poemata.

illustrious

illustrious general, though unacquainted with the modern instruments of war.

The discovery then of the circulation, while, in some measure, it exploded the chemical and Galenical doctrines, tended to introduce mathematical and mechanical reasoning in their stead. Of this theory † Dr PITCAIRNE was the principal support, and the first who introduced it into Britain. The laws of mechanics began then to be better understood. Mathematical calculations were happily applied to the heavenly bodies, but it was the taste of the times likewise to apply them to sciences with which they had little connection. When it was shewn that the blood was carried from the heart to all the parts of the body by the arteries, and returned by the veins, the animal system was immediately considered as a hydraulic machine; and it was supposed that health depended almost en-

† Borelli, Bellini, &c. espoused the same. Vide Dr Sims's discourse before the medical society of London.

[25]

tirely on the freedom with which the fluids circulate through the tubes of which the body is mostly composed. From the human arm having a resemblance to the lever, the teeth to wedges, the digastric muscle to a rope running over its pulley; from the head seeming to turn on its axle, and the glands to raise their fluids in the manner of a water screw; it was imagined that every thing relative to the animal body was performed by the mere force of the mechanical powers, and that it derived all its properties from its peculiar construction. Most of the functions were explained from mechanical pressure and attrition, as they had been, a little before, from salts and ferments. The aliment, according to this theory, was ground in the stomach by muscular force, farther elaborated into chyle by the motion of the intestines, and this chyle converted into blood by the incessant action of the heart and lungs. The blood-vessels, as elastic, were supposed to react on the blood pushed into them by the alternate contrac-

tions of the heart. Animal heat was ascribed to an attrition of the particles of the blood against one another, and against the sides of the vessels, thus abrading and repairing successively; and the secretions were considered as mere mechanical separations of the different parts of the blood.

In order to put in motion the elastic solids, a very subtle fluid was thought to be secreted by the brain, which, inflating the supposed cells of the muscular fibres, and thereby shortening them, produced what is called muscular contraction, and, passing along the nerves, with a mechanical action on the different organs, occasioned all the phenomena of motion and sense; while the sympathy of particular parts was said to arise from connections between nerves in their progress. The measurement of muscular force was not confined to the muscles of the extremities, but was carried on through the vital and involuntary functions; and it was attempted to subject

to

to inflexible demonstration the most inconstant appearances of nature.

The pathology and cure were explained on the same mechanical principles. The loss of equilibrium between the solids and fluids, the obstacles and derangements of the circulation, were viewed as the principal causes of disease. The language of physicians then, like that of the methodic sect before, was confined to the lax and rigid fibre, the stricture or the relaxation of the vessels, the fluids too thick or too thin; while to brace or to relax, to dilute or to thicken, were the usual indications of cure. Metals too opened obstructions by their weight, poisons occasioned death by their spiculæ, and certain foods nourished in proportion as they required less trituration from the stomach.

Such are the outlines of those doctrines which characterize the mechanical physicians of the last century. A system so

simple, drawn from a science so certain, was sufficiently flattering, and promised fair to lay the foundation of an invariable theory and practice. A mathematical turn of mind, and a wish for mathematical certainty in medicine, biased Dr PITCAIRNE to this theory, which, with great ability, he supported and pushed to its utmost extent. One is at a loss whether most to admire or regret such a waste of talents in propping a theory which, though subversive of former ones, was to fall before others but a little more satisfactory than itself. Mechanical physicians expected more from geometry than that science could grant. They made it the foundation instead of an auxiliary to their inquiries, and applied it to parts of nature not admitting mathematical calculations. By paying more attention afterwards to the supreme influence of the living principle, the source of all the motions and functions of the body, it was found that these could not be explained by
any

any laws of chemistry or mechanism. They are still however involved in obscurity, and, notwithstanding the numberless improvements which have taken place in the sciences connected with medicine, will perhaps remain inscrutable while man continues in his present stage of existence.

In a science so slowly progressive as that of medicine, Dr PITCAIRNE did a great deal. Besides the works which he published himself, he enriched those of others † by his observations. By labouring in vain for truth in one road, he saved many the same drudgery, and thereby shewed the necessity of another. He not only exploded many false notions of the chemists and Galenists which prevailed in his time, but many of those too of his own sect. In particular, he shewed the absurdity of

† Archibaldus Pitcairne dictus est inter physiologos, iatro-mathematicus, ex celebrioribus, Bellini amicus, praeceptor Boerhaavii, qui multa ab eo recepit. Meth. Stud. ab Hallerø. *Vide Mead's Works.*

referring all diseases and their cures to an alkali or an acid *. He refuted the idea of secretion being performed by pores differently shaped †, Bellini's opinion of effervescences in the animal spirits with the blood, and Borelli's of air entering the blood by respiration ‡. He proved the continuity of the arteries and veins ||, and seems to have been the first who shewed that the blood flows from a smaller capacity into a larger, that the aorta, with respect to the arterial system, is the apex of a cone §. In this therefore he may be considered as the latent spring of the discoveries respecting the powers moving the

* Pitcarnii Dissertationes, Edinb. edit. 1713. De opera quam praestant corpora acida vel alcalica in curatione morborum.

† De circulatione sanguinis per vasa minima.

‡ De diversa mole qua sanguis fluit per pulmones.

|| De circulatione sanguinis per vasa minima.

§ De circulatione sanguinis in animalibus genitis et non genitis.

blood.

blood. He introduced a simplicity of prescription, unknown in pharmacy before his time * ; and such was the state of medicine in this country, that scarcely have the works of any contemporary or preceding author been thought worthy even of preservation †. As to the errors of his philosophy, let it be remembered, that no theory has as yet stood the test of many years in an enlightened period. His own hung very loosely about him ‡, and the present generally received practice differs from his very little in reality. He treated inflammatory and hæmorrhagic diseases by bleeding, purging, and blistering, as has been done uniformly

* *Elementa Medicinæ, lib. i. cap. 11. et passim.*

† The first medical publication which distinguished this country, after Dr Pitcairne's, was that of the *Edinburgh Medical Essays*, in the year 1732.

‡ Patet, says he, *medicinam esse memoriam eorum quæ cuilibet morbo usus ostendit fuisse utilia. Nam notas non esse corporum intra venas fluentium aut consistentium naturas, adeoque sola observatione innotescere quid cuique morbo conveniat, postquam sæpius eadem eidem morbo profuisse comperimus. De Div. Morb.*

and

and solely on the different theories since. His method of administering mercury and the bark is observed at this day; and with respect to febrile, nervous, glandular, and dropfical affections, they seem to be as often the opprobriums of the art now, as they were then.

Dr PITCAIRNE was universally considered as the first physician of his time. No one appears ever to have had so much practice in this country, or so many consultations from abroad; and no one, from all accounts, ever practised with greater sagacity and success. The highest thought themselves honoured by his acquaintance, and the lowest were never denied his assistance and advice. The emoluments of his profession must have been great; but his charities are known to have been correspondent. The possession of money he postponed to more liberal objects: He collected one of the finest private libraries in the world, which was purchased, after his death,

death, by the Czar of Muscovy. Notwithstanding the fatigues he underwent in the exercise of his profession, his constitution was naturally delicate*. About the beginning of October 1713, he became affected with his last illness. He bore it with a resignation which, at such a crisis, a good man only can experience. He seemed more anxious about his family than himself. The night before his death, he called his children around his bed, to receive his last benediction; and, on the 23d of October, he died, regretted by science as its ornament, by his country as its boast, and by humanity as its friend.

Of the numberless encomiums bestowed on him while living, and of those with which the press teemed at his death, I beg

* There is an elegant portrait of him, by Sir John Medina, in Surgeons-Hall, Edinburgh, and another in the possession of Dr Pitcairne of London. He was of the middling size, well made, and his countenance full of character.

leave to read one from the celebrated Dr Mead. It is contained in a letter which he wrote to Mr Walpole, afterwards Earl of Orford, in behalf of Dr PITCAIRNE's only son, then a prisoner in the Tower for the part he had taken in the civil war of the year 1715. Dr Mead intercedes thus :

“ Sir, I know not whether I shall offend
 “ in presuming once more to write in be-
 “ half of a poor prisoner ; and yet, after
 “ I shall have mentioned his name, I flat-
 “ ter myself you will rather commend my
 “ zeal than accuse my indiscretion. Sir,
 “ he is one Pitcairne, a young fool under
 “ age, son to a great father now in hea-
 “ ven, to whom I owe so much, that I
 “ cannot but think I should ill deserve the
 “ favours you have honoured me with,
 “ could I cease to remember Dr PIT-
 “ CAIRNE, or neglect to pay this just debt
 “ to his memory ; for to him is the me-
 “ rit due, if ever I have had the good for-
 “ tune to deserve well of Mr Walpole as
 “ a physician. To him it is that Dr Mead
 “ owes

“ owes the solid foundation of that emi-
 “ nent esteem he now is in; so that by
 “ him, though dead, even the throne and
 “ royal family may be said to be defend-
 “ ed. But how much that worthy phyfi-
 “ cian has deserved of all mankind, you
 “ cannot but hear the learned and inge-
 “ nious every day proclaim. If, for these
 “ reasons, you can pardon this my last of
 “ the kind, and so comply with it as to
 “ take pity on an unhappy son of such a
 “ father, you will not deny your cordial ad-
 “ vice to the distressed mother *, at whose
 “ desire I have written this, and who, I
 “ suppose, may be in waiting while you
 “ are pleased to give it a reading.” It is dif-
 ficult to say whether this letter does great-
 er honour to Dr Mead’s candour or to Dr
 PITCAIRNE’s worth. Dr Mead obtained
 his request. Mr Pitcairne received a par-
 don, and went into the service of the States

* This Lady died in the year 1754, and is re-
 membered by her acquaintance with sentiments of the
 highest respect and esteem.

of Holland, where, on account of his own merit and the memory of his father, he would probably have arrived at great promotion, had he not died soon after.

Dr PITCAIRNE left four daughters, who inherited the virtues of their parents, and for whom, in his elegant verses, he breathes all the feelings and wishes of a father. One of them only now survives. The present noble family of Kelly are his grandchildren; and from him perhaps the present Earl * inherits that brilliant vein of wit and genius for which he is so distinguished, and which indeed runs through the family.

In fine, Dr PITCAIRNE possessed every endowment of the mind, and every sensi-

* That accomplished Prince, James the First of Scotland, whose compositions in music Tassoni mentions as models even to the Italians, and Lord Kelly, who is allowed to be one of the first composers of the age, seem to be the only names in that science of which this country can boast,

bility

bility of the heart, in a degree above the ordinary level of our nature. His apprehension was singularly quick, his understanding vigorous, his imagination lively, his memory tenacious, his knowledge various and deep †, his feelings keen, his affections glowing and benevolent. He was distinguished for his filial, parental, and conjugal attachments ; nor was he less remarkable as the constant friend of poverty and distress, the avowed enemy of hypocrisy and vice, the unwearied patron of science and of virtue. Without being a bigot to the complexion of the times, he died a worthy and religious man, leaving an example to the world of indefatigable industry united with transcendent abilities, and of both so employed as to merit the grateful veneration of posterity.

† Some anonymous publications are attributed to Dr PITCAIRNE, particularly a treatise *De Legibus Historiae Naturalis*, &c. but the only ones he thought proper to legitimate are his *Dissertationes Medicae*, and a short essay *De Salute*,

policy of the State is a degree above the
ordinary level of our nation. His
vision was the deepest, his under-
standing vigorous, his imagination lively,
his memory retentive, his knowledge va-
rious and deep, his feelings keen, his
affections glowing and benevolent. He
was distinguished for his liberal parental
and conjugal affections, and was be-
lieved as the constant friend of po-
verty and distress, the devoted enemy of
tyranny and vice, the unflinching patron
of temperance and virtue. Without being
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an example to the world of indefatigable
industry united with benevolent abili-
ties, and of high repute as to merit
the grateful remembrance of posterity.

† Some authorities have attributed to
the first of these the name of the Republic.
The name of the Republic is not the same
properly to the Republic of the United States,
and the name of the Republic is not the same

A D D R E S S
T O T H E
S T U D E N T S O F M E D I C I N E,

On delivering the Prize for the year 1780
to Dr ARTHUR BROUGHTON, after
Dr DUNCAN's Oration on the late Dr
MONRO.

GENTLEMEN,

THE] object of this annual meeting is not only to commemorate the illustrious dead, but to confer the rewards of genius on the living. Establishments thus friendly to emulation almost universally prevail. They have given birth to some of the most brilliant discoveries; the first names in philosophy and the arts have honoured them by their competition; and from them the happiest effects have redounded to every department of science.

Of

Of the utility of the present institution another proof is now added to those formerly given by a Stevens* and a Darwin †. The prize for the question announced last year is adjudged to a gentleman already distinguished in the line of experiment. In his review of former tests between mucous and purulent expectoration, he has discovered fallacies till then undetected, and

* This gentleman, in his inaugural dissertation, has thrown very considerable light on the process of animal digestion, shewing, from experiments, that it is not performed by heat, triture, putrefaction, or even by fermentation alone, but by the gastric juice, an active menstruum, secreted in the stomach, which he likewise found to retard fermentation and putrefaction. In his investigation into the dietetic part of medicine, he shews that vegetables are less digestible than animal food, and the olera less than the farinacea; that fish is more soluble than flesh, quadrupeds than fowls, old animals than young, and that all kinds of food are more easily digested when dressed than when raw. The experiments were made on the Hungarian who passed through this country some years ago, earning a subsistence by making a shew of himself in swallowing stones.

† See his experiments and account of the retrograde motions of the absorbent vessels, &c.

pointed

pointed out a criterion which appears to be equally simple and just ‡.

In the present essay, he has given a clear and concise detail of every thing relating to the coagulable lymph of the blood, and a demonstration of the increase of that substance in inflammatory disease. He has likewise formed some probable conjectures of the cause of this increase, and drawn several inferences useful in the practice of physic.

It is therefore with much satisfaction I now deliver to him this medal, with the works of the illustrious Harvey; and I

‡ From a review of Mr Darwin's experiments, Dr Broughton was led to the following tests: 1. Sputum being mixed and agitated with a little water, no change takes place, if it be mucus; but if any pus is present, the mixture becomes turbid. 2. If the sputum is dissolved in an equal part of caustic alkaline lixivium, it is mucus; but if it be rendered more viscid, or somewhat like the white of an egg, it is pus.

F . . . sincerely

sincerely wish, that future competitors may do equal honour to the institution.

The subject of the blood does not appear to be yet exhausted. Controversies respecting its parts still subsist. It is a fluid of such importance in the animal oeconomy, that every remaining doubt concerning it must be matter of regret.

The inquiry, therefore, of this year, is into the nature and ingredients of the serum. The saline matter which this contains is still the subject of dispute. Whether its viscid part be coagulable lymph dissolved in the serosity, requires demonstration and the existence of mucus in it does not seem to be ascertained. Closely connected with this investigation is the theory of purulence. The experiments of Pringle and Gaber have, of late, been much controverted: so that, in every view, the field for inquiry is considerable; and will, I hope, fully repay the labour bestowed*.

* Besides this, another prize was announced, at last meeting, for the best dissertation on the bile.

No arguments, surely, are necessary at this day to recommend experimental pursuit. No one is now ignorant, that it is the only road to genuine science; and that nothing is entitled to the denomination of philosophy, which rests not on this foundation. Had it not been that taste for experiment so happily introduced by the immortal Bacon, and since so successfully cultivated, we might have been still dragging the car of Aristotle, still toiling in the trammels of the schools.

Though even random experiment may have sometimes struck out truths of moment, yet a fund of knowledge, and a collected attention, are certainly the surest guides, not only to bare discovery, but to principles of extensive application. The leaves of trees had been falling unheeded from the beginning of the world: it was the attentive eye and comprehensive mind of Newton alone that could seize this com-

mon appearance, and from it explain the constitution of the universe.

Indeed the very habit of experiment tends to awaken and improve those faculties of the mind, on which success most generally depends. It begets attention, rivets knowledge, and expands the powers of comprehension.

Allow me then, Gentlemen, to recommend such pursuits to your zealous regard. They are peculiarly adapted to that quickness of perception, which those of your years so commonly enjoy. Once begun, they will recommend themselves to your own feelings. By no other method can you more effectually serve the interests of humanity and your profession; by none so assuredly hope for the reputation of a Harvey, a Pitcairne, or a Monro.

F I N I S.