HISTORICAL INTRODUCTION.

COMPREHENDING

THE

SUBSTANCE OF SEVERAL LECTURES

DELIVERED BY THE AUTHOR,

BEFORE THE

ROYAL COLLEGE OF PHYSICIANS,

FROM THE

CHAIR OF MATERIA MEDICA,

In the Years 1819—20 and 21.

"*It has been very justly observed that there is a certain maturity of the human mind acquired from generation to generation, in the* MASS, *as there is in the different stages of life in the* INDIVIDUAL *man;— What is history when thus philosophically studied, but the faithful record of this progress? pointing out for our instruction the various causes which have retarded or accelerated it in different ages and countries.*"

Historical Introduction, p. 4.

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HISTORICAL INTRODUCTION.

AN ANALYTICAL INQUIRY INTO THE MORE REMARKABLE CAUSES WHICH HAVE, IN DIFFERENT AGES AND COUNTRIES, OPERATED IN PRODUCING THE REVOLUTIONS THAT CHARACTERISE THE HISTORY OF MEDICINAL SUBSTANCES.

"*Historia quoquo modo scripta delectat.*"

Before I proceed to discuss the particular views which I am prepared to submit to the College, on the important but obscure subject of medicinal combination, I propose to take a sweeping and rapid sketch of the different moral and physical causes which have operated in producing extraordinary vicissitudes, so eminently characteristic of the history of Materia Medica. Such an introduction is naturally suggested by the first glance at the extensive and motly assemblage of substances with which our cabinets* are overwhelmed. It is impossible to cast our eyes over such multiplied groups, without being forcibly struck with the palpable absurdity of some—the disgusting and loathsome nature of others—the total want of activity in many—and the uncertain and precarious reputation of all—or, without feeling an eager curiosity to enquire, from the combination of what causes it can have happened, that substances, at one period in the highest esteem, and of generally acknowledged utility, have fallen into total neglect and disrepute ;—why others, of humble pretensions and little significance, have maintained their ground for so many centuries ; and on what account, materials of no energy whatever, have received the indisputable sanction and unqualified support of the best and wisest practitioners of the age. That such fluctuations in opinion and versatility in practice should have produced, even in the most candid and learned observers, an unfavourable impression with regard to the general efficacy of medicines, can hardly excite our astonishment, much less our indignation ; nor can we be surprised to find, that another portion of mankind

* The College of Physicians may now be said to possess one of the most complete collections of Materia Medica in Europe. That collected by Dr. Burgess, and presented to the College after his death by Mr. Brande, to whom it was bequeathed, has lately been collated with the cabinet of Dr. Coombe, purchased for that purpose. Its arrangement has been directed by a feeling of convenience for reference, rather than by any theoretical views relative to the natural, chemical, and medicinal histories of its constituent parts. Under proper regulations, it is accessible to the studious and respectable members of the profession.

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has at once arraigned Physic as a fallacious art, or derided it as a composition of error and fraud.* They ask—and it must be confessed that they ask with reason—what pledge can be afforded them that the boasted remedies of the present day will not, like their predecessors, fall into disrepute, and in their turn serve only as humiliating memorials of the credulity and infatuation of the physicians who commended and prescribed them? There is surely no question connected with our subject which can be more interesting and important, no one which requires a more cool and dispassionate inquiry, and certainly not any which can be more appropriate for a lecture introductory to the history of Materia Medica. I shall therefore proceed to examine with some attention the revolutions which have thus taken place in the opinions and belief of mankind, with regard to the efficacy and powers of different medicinal agents: such an inquiry, by referring them to causes capable of a philosophical investigation, is calculated to remove many of the unjust prejudices which have been executed, to quiet the doubts and alarms which have been so industriously propagated, and, at the same time, to obviate the recurrence of several sources of error and disappointment.

This moral view of events, without any regard to chronological minutiæ, may be denominated the Philosophy of History, and should be carefully distinguished from that technical and barren erudition, which consists in a mere knowledge of *names* and *dates*, and which is perused by the medical student with as much apathy, and as little profit, as the monk counts his bead-roll. It has been very justly observed, that there is a certain maturity of the human mind, acquired from generation to generation, in the *mass*, as there is in different stages of life in the *individual* man; what is history, when thus philosophically studied, but the faithful record of this progress? pointing out for instruction the various causes which have retarded or accelerated it in different ages and countries.

In tracing the history of the Materia Medica to its earliest periods, we shall find that its progress towards its present advanced state, has been very slow and unequal, very unlike the steady and successive improvement which has attended other branches of natural knowledge; we shall perceive even that its advancement has been continually arrested, and often entirely subverted, by the caprices, prejudices, superstitions, and knavery of mankind; unlike too the other branches of science, it is incapable of successful generalization; in the progress of the history of remedies, when are we able to produce a discovery or improvement, which has been the result of that happy combination of Observation, Analogy, and Experiment,† which has so eminently rewarded the labours of modern sceince? Thus, Observation led Newton to discover that the refractive power of transparent substances was, in general, in the ratio of

* A late foreign writer impressed with this sentiment has given the following flattering definition of our profession: 'Physic is the art of amusing the patient, while Nature cures the disease.' This is a sarcasm which can only be equalled by the churlish and ill-humoured apostrophe of our own Dr. Samuel Johnson, who, in speaking of the profession of physic, exclaims 'It is a melancholy attendance on misery; a mean submssion to peevishness; and a continual interruption of pleasure.'

† Observation, says professor Leslie, is the close inspection and attentive examination of those phenomena which arise in the course of Nature; Experiment, as the term implies, consists in a kind of trial, or artificial selection and combination of circumstances, for the purpose of searching after the remote results.

their density, but that, of substances of equal density, those which possessed the refractive power in a higher degree were inflammable.* Analogy induced him to conclude that, on this account, water must contain an inflammable principle, and Experiment enabled Cavendish and Lavoisier to demonstrate the surprising truth of Newton's induction in their immortal discovery of the chemical composition of that fluid.

The history of Astronomy furnishes another illustration equally beautiful and instructive,—The Astronomer *observed* certain oscillations in the motions of Saturn and Jupiter; by *Analogy* he conjectured that this phenomenon was produced by the influence of a planet still more remote: a supposition which was happily confirmed by a telescopic *experiment*, in the discovery of Uranus, by Herschel.

But it is clear that such principles of research, and combination of methods, can rarely be applied in the investigation of remedies, for every problem which involves the phenomena of life is unavoidably embarrassed by circumstances, so complicated in their nature, and fluctuating in their operation, as to set at defiance every attempt to appreciate their influence; thus an observation or experiment upon the effects of a medicine is liable to a thousand fallacies, unless it be carefully repeated under the various circumstances of health and disease, in different climates, and on different constitutions. We all know how very differently opium, or mercury, will act upon different individuals, or even upon the same individuals, at different times, or under differet circumstances; the effect of a stimulant upon the living body is *not in the ratio of the intensity of its impulse*, but in proportion *to the degree of excitement*, or *vital susceptibility of the individual to whom* it is applied. This is illustrated in a clear and familiar manner, by the very different sensations of heat which the same temperature will produce under different circumstances. In the road over the Andes, at about half way between the foot and the summit, there is a cottage in which the ascending and descending travellers meet; the former, who have just quitted the sultry vallies at the base, are so relaxed, that the sudden diminution of temperature produces in them the feeling of intense cold, whilst the latter, who have left the frozen summits of the mountain, are overcome by the distressing senation of extreme heat.

But we need not climb the Andes for an illustration; if we plunge one hand into a basin of hot, and the other into one of cold water, and then mix the contents of each vessel, and replace both hands in the mixture, we shall experience the sensation of heat and cold, from one and the same medium; the hand, that had been previously in the hot, will feel cold whilst that which had been immersed in the cold water, will experience a sensation of heat. Upon the same principle, ardent spirits will produce very opposite effects upon different constitutions and temperaments, and we are thus enabled to reconcile the conflicting testimonies respecting the powers of opium in the cure of fever: aliments, also, which under ordinary circumstances would occasion but little effect, may in certain conditions of the system, act as powerful stimulants; a fact which is well exemplified by the history of persons who have been enclosed in coal mines for several days without food, from the accidental falling in of the

† The refractive power of an inflammable body bears also a proportion to its perfection, whence it may be sometimes used as a test of its purity; thus Dr. Wollaston found that genuine Oil of Cloves had a refractive power of 1.535, while that of an inferior quality did not exceed 1.498.

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surrounding strata, when they have been as much intoxicated by a basin of broth, as a person, in common circumstances, would have been by two or more bottles of wines.* Many instances will suggest themselves to the practitioner in farther illustration of these views, and I shall have occasion to recur to the subject at a future period.

To such causes we must attribute the barren labours of the ancient empirics, who saw without discerning, administered without discriminating, and concluded without reasoning; nor should we be surprised at the very imperfect state of the materia medica, as far as it depends upon what is commonly called experience, complicated as this subject is by its numberless relations with Physiology, Pathology, and Chemistry. John Ray attempted to enumerate the virtues of plants from *experience* and the system serves only to commemorate his failure. Vogel likewise professed to assign to substances those powers which had been learnt from accumulated experience; and he speaks of *Roasted toad*† as a specific for the pains of gout, and asserts that a person may secure himself for the whole year from angina by eating a roasted swallow! Such must ever be the case, when medicines derive their origin from false experience, and their reputation from blind credulity.

Analogy has undoubtedly been a powerful instrument in the improvement, extension, and correction of the materia medica, but it has been chiefly confined to modern times; for in the earlier ages, Chemistry had not so far unfolded the composition of bodies, as to furnish any just idea of their relations to each other, nor had the science of Botany taught us the value and importance of the natural affinites which exist in the vegetable kingdom.

With respect to the fallacies to which such analogies are exposed, I shall hereafter speak at some length, and examine the pretensions of those *ultra* chemists of the present day who have upon every occasion arrainged, at their self-constituted tribunal, the propriety of our medicinal combinations, and the validity of our national pharmacopœias.

In addition to the obstacles already enumerated, the progress of our knowledge respecting the virtues of medicines has met with others of a moral character, which have deprived us in a great degree of another obvious method of research, and rendered our dependance upon testimony uncertain, and often entirely fallacious. The human understanding, as Lord Bacon justly remarks, is not a mere faculty of apprehension, but is affected, more or less, by the will and the passions; what man wishes to be true, that he too easily believes to be so, and I conceive that physic has, of all the sciences, the least pretensions to proclaim itself independent of the empire of the passions.

* Elizabeth Woodcock, who was buried in the snow for the space of eight days, in the neighbourhood of Cambridge, and whom I frequently visited, died in consequence of the stimulants which she could not resist, and which in her peculiar state of excitement she was unable to bear. In the first volume of the Memoirs of the Philosophical Society of Manchester, a case of a Miner is recorded, who after remaining for eight days without food, was killed by being placed in a warm bed, and fed with chicken-broth.

† For this purpose it appears that the toad was baked alive. The following is the receipt in Colborne's Dispensatory; 'Bufo Præparatus.' Put the toads alive into an earthen pot, and dry them in an oven moderately heated, till they become fit to be powdered."!

In our researches to discover and fix the period when remedies were first applied for the alleviation of bodily suffering, we are soon lost in conjecture, or involved in fable; we are unable to reach the period in any country, when the inhabitants were destitute of medical resources, and we find among the most uncultivated tribes, that medicine is cherished as a blessing and practised as an art, as by the inhabitants of New Holland and New Zealand, by those of Lapland and Greenland, of North America, and of the interior of Africa. The personal feelings of the sufferer, and the anxiety of those about him, must, in the rudest state of society, have incited a spirit of industry and research to procure alleviation, the modification of heat and cold, of moisture and dryness, and the regulation and change of diet and habit, must have intuitively suggested themselves for the relief of pain;* and when these resources failed, charms, amulets, and incantations,† were the natural expedients of the barbarian, ever more inclined to indulge the delusive hope of superstition, than to listen to the voice of sober reason. Traces of amulets may be discovered in very early history. The learned Dr. Warburton is evidently mistaken, when he assigns the origin of these magical instruments to the age of the Ptolemies, which was not more than 300 years before Christ; this is at once refuted by the testimony of Galen, who tells us that the Egyptian king, Nechepsus, who lived 630 years before the Christian era, had written, that a green jasper cut into the form of a dragon surrounded with rays, if applied externally, would strengthen the stomach and organs of digestion.‡ We have moreover the authority of the Scriptures in support of this opinion; for what were the ear-rings which Jacob buried under the oak of Sechem, as related in Genesis, but amulets? and we are informed by Josephus, in his Antiquities of the Jews,§ that Solomon discovered a plant efficacious in the cure of Epilepsy, and that he employed the aid of a charm or spell for the purpose of assisting its virtues; the root of the herb was concealed in a ring, which was applied to the nostrils of the Demoniac, and Josephus remarks that he himself saw a Jewish Priest practise the art of Solomon with complete success in the presence of Vespasian, his sons, and the tribunes of the Roman army.‖ Nor were such means confined to dark and barbarous ages; Theophrastus pronounced Pericles to be insane, because he discovered that he wore an amulet about his neck; and,

* The application of the reeking entrails of a recently slain animal, appears to have been one of the earliest methods adopted for the relief of pain.

† The words 'Incantation,' and 'Charm,' appear to have been derived from the ancient practice of curing diseases by Poetry and Music. (Carmen.) Thus Cœlius Aurelianus, decantare loca Dolentia. Democritus says that many diseases are capable of being cured by the sound of a flute, when properly played. Marianus Capellus assures us, that fevers may be cured by appropriate songs; Asclepiades actually employed the trumpet, for the relief of Sciatica, and tells us that it is to be continued until the fibres of the part begin to palpitate, when the pain will vanish.

‡ A similar superstition is still practised by the Indians There is a species of green jasper found in many parts of America, particularly in New Spain, to which the Spaniards have given the name of Piedra de la Hyada, and is used for curing the Colic, by being applied to the navel.

§ Lib. viii. c. 2. 5.

‖ From this Art of Solomon, exhibited through the medium of a ring, or seal, we have the eastern stories which celebrate the Seal of Solomon, and record the potency of its sway over the various orders of Demons, or of Genii, who are supposed to be the invisible tormentors or benefactors of the human race.

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in the declining era of the Roman empire, we find that this superstitious custom was so general, that the Emperor Caracalla was induced to make a public edict ordaining that no man should wear any superstitious amulets about his person.

In the progress of civilization, various fortuitous incidents,* and even errors in the choice and preparation of aliments, must have gradually unfolded the remedial powers of many natural substances; these were recorded, and the authentic history of medicine may date its commencement from the period when such records began.

The Chaldeans and Babylonians, we are told by Herodotus, carried their sick to the public roads and markets, that travellers might converse with them, and communicate any remedies which had been successfully used in similar cases; this custom continued during many ages in Assyria; and Strabo states that it prevailed also amongst the ancient Lusitanians, or Portuguese: in this manner however the results of experience descended only by oral tradition; it was in the temple of Esculapius in Greece that medical information was first recorded; diseases and cures were there registered on durable tablets of marble; the priests† and priestesses, who were the guardians of the temple, prepared the remedies and directed their application, and thus commenced the profession of Physic. With respect to the actual nature of these remedies, it is useless to inquire; the lapse of ages, loss of records, change of language, and ambiguity of description, have rendered every learned research unsatisfactory; indeed we are in doubt with regard to many of the medicines which even Hippocrates employed. It is however clearly shown by the earliest records, that the ancients were in the possession of many powerful remedies; thus Melampus of Argos, the most ancient Greek physician with whom we are acquainted, is said to have cured one of the Argonauts of sterility, by administering the rust of iron in wine for ten days; and the same physician used hellebore as a purge, on the daughters of king Prætus, who were afflicted with melancholy. Venesection was also a remedy of very early origin; for Podalirius, on his return from the Trojan war, cured the daughter of Damethus, who had fallen from a height, by bleeding her in both arms. Opium, or a preparation of the poppy, was certainly known in the earliest ages; it was probably opium that Helen mixed with wine, and gave to the guests of Menelaus, under the expressive name of *nepenthe*,‡ to drive away their cares, and increase their hilarity; and this conjecture receives much support from the fact, that the *nepenthe* of Homer was obtained from the Egyptian

* Let the tradition respecting the discovery of the virtues of the bark serve as an illustration. We are told, that an Indian being ill of a fever, quenched his thirst at a pool of water, strongly impregnated with the bark from some trees having accidentally fallen into it, and that he was in consequence cured.

† As these persons were ambitious to pass for the descendants of Esculapius, they assumed the name of The Asclepiades. The writings of Pausanius, Philostratus, and Plutarch, abound with the artifices of those early physicians. Aristophanes describes in a truly comic manner the craft and pious avarice of these godly men, and mentions the dexterity and promptitude with which they collected, and put into their bags, the offerings on the altar. The patients, during this period, reposed on the skins of sacrificed rams, in order that they might procure celestial visions. As soon as they were believed to be asleep, a priest, clothed in the dress of Esculapius, imitating his manners, and accompanied by the daughters of the god, that is, by young actresses, thoroughly instructed in their parts, entered, and delivered a medical opinion.

‡ Odyss Δ.

Thebes;* and if we may credit the opinion of Dr. Darwin, the Cumæan Sibyl never sat on the portending tripod without first swallowing a few drops of the juice of the *Cherry-laurel.*†

> "At Phœbi nondum patiens, immanis in antro
> Bacchatur Vates, magnum si pectore possit
> Excussisse deum: tanto magis ille fatigat
> Os rabidum, fera corda domans, fingitque premendo."
>
> ÆNEID, l. vi. 78.

There is reason to believe that the Pagan priesthood were under the influence of some powerful narcotic during the display of their oracular powers, but the effects produced would seem to resemble rather those of Opium, or perhaps of Stramonium, than of the Prussic acid. Monardes tells us that the priests of the American Indians, whenever they were consulted by the chief gentlemen, or *casiques* as they are called, took certain leaves of the Tobacco, and cast them into the fire, and then received the smoke, which they thus produced, in their mouths, in consequence of which they fell down upon the ground; and that after having remained for some time in a stupor, they recovered, and delivered the answers which they pretended to have received, during their supposed intercourse with the world of spirits.

The sedative powers of the *Lactuca Sativa*, or Lettuce,‡ were known also in the earliest times; among the fables of antiquity, we read that after the death of Adonis, Venus threw herself on a bed of lettuces, to lull her grief, and repress her desires. The sea onion or *Squill*, was administered in cases of dropsy by the Egyptians, under the mystic title of the *Eye of Typhon*. The practices of incision and scarification were employed in the camp of the Greeks before Troy, and the application of spirit to wounds was also understood, for we find the experienced Nestor applying a cataplasm, composed of cheese, onion, and meal, mixed up with the wine of Pramnos, to the wounds of Machaon.§

The revolutions and vicissitudes which remedies have undergone, in medical as well as popular opinion, from the ignorance of some ages, the learning of others, the superstitions of the weak, and the designs of the crafty, afford ample subject for philosophical reflection; some of these revolutions I shall proceed to investigate, classing them under the prominent causes which have produced them, viz. Superstition—Credulity—Scepticism—False Theory—Devotion to Authority, and Established Routine—The assigning to Art that which was the effect of unassisted Nature—The assigning to peculiar substances Properties, deduced from Experiments made on inferior Animals—Ambiguity of Nomenclature—The progress of Botanical Science—The application, and misapplication of Chymical Philosophy—The Influence of Climate and Season on Diseases, as well as on the properties, and operations of their Remedies—The ignorant Preparation, or fraudulent Adulteration of Medicines—

* Hence, the Tincture of Opium has been called *Thebaic* Tincture.

† The Laurel was sacred to Apollo, with plantations of which his temples were surrounded. Lucan informs us (Pharsal. lib. v.) that the speedy death of the priestess was often occasioned by the ceremony.

‡ Allusions to this plant frequently occur in the medical writings of antiquity; we are told that Galen, in the decline of life, suffered much from morbid vigilance, until he had recourse to eating a lettuce every evening, which cured him.

§ Iliad Δ.

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The unseasonable collection of those remedies which are of vegetable origin,—and, the obscurity which has attended the operation of compound medicines.

SUPERSTITION.

A belief in the interposition of supernatural powers in the direction of earthly events, has prevailed in every age and country, in an inverse ratio with its state of civilization, or in the exact proportion to its want of knowledge. "In the opinion of the ignorant multitude," says Lord Bacon, "witches and impostors have always held a competition with physicians." Galen also complains of this circumstance, and observes that his patients were more obedient to the oracle in the temple of Esculapius, or to their own dreams, than they were to his prescriptions. The same popular imbecility is evidently allegorized in the mythology of the ancient poets, when they made both ESCULAPIUS and CIRCE the children of APOLLO; in truth, there is an unaccountable propensity in the human mind, unless subjected to a very long course of discipline, to indulge in the belief of what is improbable and supernatural; and this is perhaps more conspicuous with respect to physic than to any other affair of common life, both because the nature of diseases and the art of curing them are more obscure, and because disease necessarily awakens fear, and fear and ignorance are the natural parents of superstition; every disease therefore, the origin and cause of which did not immediately strike the senses, has in all ages been attributed by the ignorant to the wrath of heaven, to the resentment of some invisible demon, or to some malignant aspect of the stars;* and hence the introduction of a rabble of superstitious remedies, not a few of which were rather intended as expiations at the shrines of these offended spirits, than as natural agents possessing medicinal powers. The introduction of precious stones into the materia medica, arose from an Arabian superstition of this kind; indeed De Boot, who has written extensively upon the subject, does not pretend to account for the virtues of gems, upon any philosophical principle, but from their being the residence of spirits, and he adds that such substances, from their beauty, splendour and value, are well adapted as receptacles for *good* spirits!†

* The Plague of London was supposed to have arisen from such a cause, as we learn from the writers of that period. I shall quote a passage from a pamphlet by W Kemp, M. A. dedicated to Charles the Second. 'One cause of breeding the pestilence is that corruption of the air, which is occasioned by the influence of the Stars, by the aspects, conjunctions, and oppositions of the Planets, by the eclipses of the Sun and Moon, and by the consequences of Comets. 'Astra regunt homines, sed regit astra Deus.' Hippocrates advises his son Thessalus to study numbers and geometry, ('Epist. ad Thessalum.') because, says he, the rising and setting of the Stars have a great effect upon Distempers. Citois, the historian of the celebrated Colic of Poitou (Colica Pictonum,) which raged with such epidemic fury in that province during the Sixteenth century, drops a hint, apparently with a view to account for the origin of the disease, viz. that to the great astonishment of astrologers, 'a new Star had, in the same year made its appearance in the constellation of Cassiopeia,—(Diatriba de novo et populari, apud Pictones, dolore colico bilioso.)

† The precious stones were, at first, only used as Amulets, or external charms, but like many other articles of the Materia Medica, they passed, by a mistake in the mode of their application, from the outside to the inside of the body, and they were accordingly powdered and administered as specifics. An analogous case of the perverted administration of a popular remedy is afforded in the history of the Tench; which

Every substance whose origin is involved in mystery,* has at different times been eagerly applied to the purposes of medicine: not long since, one of those showers which are now known to consist of the excrement of insects, fell in the north of Italy; the inhabitants regarded it as Manna, or some supernatural panacea, and they swallowed it with such avidity, that it was only by extreme address, that a small quantity was obtained for a chymical examination.

A propensity to attribute every ordinary and natural effect to some extraordinary and unnatural cause, is one of the striking peculiarities of medical superstition; it seeks also explanations from the most preposterous agents, when obvious and natural ones are in readiness to solve the problem. Soranus, for instance, who was cotemporary with Galen, and wrote the life of Hippocrates !† tells us that honey proved an easy remedy for the aphthæ of children, but instead of at once referring the fact to the medical qualities of the honey, he very gravely explains it, from its having been taken from bees that hived near the tomb of Hippocrates! And even those salutary virtues which many herbs possess, were, in these times of superstitious delusion, attributed rather to the planet under whose ascendancy they were collected or prepared, than to any natural and intrinsic properties in the plants themselves; indeed such was the supposed importance of planetary influence,‡ that it was usual to prefix to receipts a symbol of the planet under whose reign the ingredients were to be collected, and it is not perhaps generally known, that the character which we at this day place at the head of our prescriptions, and which is understood, and supposed to mean *Recipe*, is a relict of the astrological symbol of Jupiter, as may be seen in many of the older works on pharmacy, although it is at present so disguised by the addition of the down stroke, which converts it into the letter ℞, that were it not for its *cloven* foot, we might be led to question the fact of its superstitious origin.

Sennertus describes as a remedy capable of curing the Jaundice, which he allows is effected 'by secret attraction, and the power of amulets.' In the course of time, it became a reputed food in the cure of that disease, and Tench broth was prescribed upon all such occasions.

* Mystery is the very soul of Empiricism; withdraw the veil, and the confidence of the patient instantly languishes; thus Pliny, 'Minus credunt quæ ad suam salutem pertinent, si intelligunt.'

† It was this historian who said, that Medicine was invented by Apollo, improved by Esculapius, and brought to perfection by the physician of Cos.

‡ Paracelsus exclaims, 'Stellas terrenes esse Plantas, quæ celestes plantas, i. e. Stellas, respiciant, ita ut quævis planta suam habeat stellam specificam.'

The Druids of Gaul and Britain, who were both priests and physicians, gathered and cut the *Mistletoe with a golden knife* only when the Moon was six days old, and being afterwards consecrated by certain forms, it was considered as an antidote to poisons, and a preventive of sterility. Plinii. Lib. xvi, c. 44.

The *Vervain*, (Verbena Officinalis,) after libations of honey, was to be gathered at the rising of the dog-star, when neither sun nor moon shone, with the left-hand *only*; when thus prepared, it was said to vanquish fevers, and other distempers, was an antidote to the bite of serpents, and a charm to conciliate friendship. Plin Lib. xxv c. 9. I shall however hereafter show that the medicinal reputation of this herb derived its origin from a source more ancient even than that of Druidism. Magnenus (Exercitat. de Tabaco,) has given us the following precept,—'Tabacum seratur luna *crescente*, colligatur autem *decrescente* luna.'

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A knowledge of this ancient and popular belief in sidereal influence, will enable us to explain many superstitions in Physic ; the custom, for instance, of administering cathartic medicines at stated periods and seasons, originated in an impression of their being more active at particular stages of the moon, or at certain conjunctions of the planets: a remnant of this superstition still exists to a considerable extent in Germany ; and the practice of bleeding at 'spring and fall,' so long observed in this country, owed its existence to a similar belief. It was in consequence of the same superstition, that the metals were first distinguished by the names and signs of the planets ; and as the latter was supposed to hold dominion over time, so were astrologers led to believe that some, more than others, had an influence on certain days of the week ; and, moreover, that they could impart to the corresponding metals considerable efficacy upon the particular days which were devoted to them ;* from the same belief, some bodies were only prepared on certain days in the year ; the celebrated earth of Lemnos was, as Galen describes, periodically dug with great ceremony, and it continued for many ages to be highly esteemed for its virtues ; even at this day, the pit in which the clay is found is annually opened, with solemn rites by the priests, on the sixth day of August, six hours after sunrising, when a quantity is taken out, washed, dried, and then sealed with the Grand Signior's seal, and sent to Constantinople. Formerly it was death to open the pit, or to seal the earth, on any other day in the year. In the botanical history of the middle ages, as more especially developed in Macer's Herbal, there was not a plant of medicinal use, that was not placed under the dominion of some planet, and must neither be gathered nor applied but with obser-

* In later times these heathen symbols were dropped, and others were adopted to propitiate the favour and assistance of heaven; for this purpose the Alchymists stamped the figure of the cross upon the vessel in which they were to obtain their long sought for prize ; a superstitious practice, from which the term *crucible* derived its origin. I am well aware that another explanation has been given, and that the word has been derived from *Crucio*, since in the language of the Alchymists, the crucible was the vessel in which the metals were *tortured* to force them to assume the form of gold.

vances that savoured of the most absurd superstition, and which we find were preserved as late as the seventeenth century, by the astrological herbarists, Turner, Culpepper, and Lovel.

It is not the least extraordinary feature in the history of medical superstition, that it should so frequently involve in its trammels persons who, on every other occasion, would resent with indignation any attempt to talk them out of their reason, and still more so, to persuade them out of their senses; and yet we have continual proofs of its extensive influence over powerful and cultivated minds; in ancient times we may adduce the wise Cicero, and the no less philosophic Aurelius, while in modern days we need only call to our recollection the number of persons of superior rank and intelligence, who were actually persuaded to submit to the magnetising operations of Miss Prescott, and some of them were even induced to believe that a beneficial influence had been produced by the spells of this modern Circe.

Lord Bacon, with all his philosophy, betrayed a disposition to believe in the virtue of charms and amulets; and Boyle* seriously recommends the thigh bone of an executed criminal, as a powerful remedy in dysentery. Amongst the remedies of Sir Theodore Mayerne, known to commentators as the Doctor Caius of Shakspeare, who was physician to three English Sovereigns, and who, by his personal authority, put an end to the distinctions of chymical and galenical practitioners in England, we shall find the secundines of a woman in her first labour with a male child; the bowels of a mole, *cut open alive; mummy made of the lungs of a man who had died a violent death; with a variety of remedies, equally absurd, and alike disgusting.*

It merits notice, that the medicinal celebrity of a substance has not unfrequently survived the tradition of its superstitious origin, in the same manner that many of our popular customs and rites have continued, through a series of years, to exact a respectful observance, although the circumstance which gave origin to them have been obscured and lost in the gloom of unrecorded ages. Does not the fond parent still suspend the coral toy around the neck of her infant, without being in the least aware of the superstitious belief† from which the custom originated? while the chorus of *derry down* is re-echoed by those who never heard of the Druids, much less of the coral hymns with which their groves resounded, at the time of their gathering the mistletoe; and how many a medical practitioner continues to administer this sacred plant, (*Viscus Quercinus*) for the cure of his epileptic patients, without the least sus-

* Mr. Boyle was pre-eminently *credulous* with respect to *specifics*, and contributed very greatly to the encouragement and diffusion of empiricism, by publishing many prescriptions as affording infallible remedies, which were communicated to him by a variety of persons, who either from ignorance or design vouched for their efficacy.

† The Soothsayers attributed many mystic properties to the Coral, and it was believed to be capable of giving protection against the influence of '*Evil Eyes*;' it was even supposed that Coral would drive away Devils and Evil Spirits; hence arose the custom of wearing amulets composed of it, around the neck, and of making crowns of it. Pliny and Dioscorides are very loud in their praises of the medicinal properties of this substance, and Paracelsus says that it should be worn around the necks of infants as an admirable preservative against fits, sorcery, charms, and even against poison. It is a curious circumstance, that the same superstitious belief should exist among the Negroes of the West Indies, who affirm that the colour of Coral is always affected by the state of health of the wearer, it becoming paler in disease. In Sicily it is also commonly worn as an amulet.

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picion that it owes its reputation to the same mysterious source of superstition and imposture? Nor is this the only faint vestige of druidism which can be adduced. Mr. Lightfoot states, with much plausibility, that in the highlands of Scotland, evidence still exists in proof of the high esteem in which those ancient Magi held the Quicken tree, or Mountain Ash, (*Sorbus Aucuparia*) for it is more frequently than any other, found planted in the neighbourhood of druidical circles of stones; and it is a curious fact, that it should be still believed that a small part of this tree, carried about a person, is a charm against all bodily evils,—the dairymaid drives the cattle with a switch of the *Roan* tree, for so it is called in the highlands; and in one part of Scotland, the sheep and lambs are, on the first of May, ever made to pass through a hoop of *Roan wood*.

It is also necessary to state, that many of the practices which superstition has at different times suggested, have not been alike absurd; nay, some of them have even possessed, by accident, natural powers of considerable efficacy, whilst others, although ridiculous in themselves, have actually led to results and discoveries of great practical importance. The most remarkable instance of this kind upon record is that of the *Sympathetic* powder of Sir Kenelm Digby,* Knight of Montpelier. Whenever any wound had been inflicted, this powder was applied to the weapon that had inflicted it, which was, moreover, covered with ointment, and dressed two or three times a-day.† The wound itself in the meantime was di-

* See "Sir Kenelm Digby's Discourse upon the Cure by Sympathy, pronounced at Montpelier, before an assembly of Nobles and learned men. Translated into English, by R. White, Gentleman, and published in 1658." King James the first obtained from Sir Kenelm the discovery of his secret, which he pretended had been taught him by a Carmelite Friar, who had learned it in America or Persia.

The *Sympathetic Powder* was, as we learn from cotemporary physicians, '*calcined green vitriol*.'

† This superstitious practice is repeatedly alluded to by the poets: thus Sir Walter Scott, in the Lay of the Last Minstrel—

"But she has ta'en the broken lance,
And wash'd it from the clotted gore,
And salved the splinter o'er and o'er,
William of Deloraine, in trance,
Whene'er she turn'd it round and round,
Twisted, as if she gall'd his wound,
Then to her maidens she did say,
That he should be whole man and sound."

Canto iii. *St.* xxiii.

Dryden has also introduced the same superstition in his Enchanted Island. Act v. Scene ii.

Ariel. Anoint the sword which pierced him with this
Weapon salve, and wrap it close from air
Till I have time to visit it again.

Again, in Scene 4th, Miranda enters with Hippolito's sword, wrapt up:—

Hip. O my wounds pain me,
[*She unwraps the sword.*]
Mir. I am come to ease you.
Hip. Alas I feel the cold air come to me;
My wound shoots worse than ever.
Mir. Does it still grieve you?
[*She wipes and anoints the sword.*]
Hip. Now, methinks, there's something laid just upon it:
Mir. Do you find no ease?
Hip. Yes, Yes; upon the sudden all this pain
Is leaving me—Sweet heaven, how am I eased

rected to be brought together, and carefully bound up with clean linen rags, but, ABOVE ALL, TO BE LET ALONE for seven days; at the end of which period the bandages were removed, when the wound was generally found perfectly united. The triumph of the cure was decreed to the mysterious agency of the sympathetic powder which had been so assiduously applied to the weapon, whereas, it is hardly necessary to observe, that the promptness of the cure depended upon the total exclusion of air from the wound, and upon the sanative operations of nature not having received any disturbance from the officious interference of art: the result, beyond all doubt, furnished the first hint, which led surgeons to the improved practice of healing wounds by what is technically called the *first intention*.

The rust of the spear of Telephus, mentioned in Homer as a cure for the wounds which that weapon inflicted, was probably *Verdegris*, and led to the discovery of its use as a surgical application.

Soon after the introduction of Gunpowder, *cold water* was very generally employed throughout Italy, as a dressing to gunshot wounds; not however from any theory connected with the influence of diminished temperature or of moisture, but from a belief in a supernatural agency imparted to it by certain mysterious and magical ceremonies, which were duly performed immediately previous to its application: the continuance of the practice, however, threw some light upon the surgical treatment of these wounds, and led to a more rational management of them.

The inoculation of the *smallpox in India, Turkey, and Wales*, observes Sir Gilbert Blane, was practised on a superstitious principle, long before it was introduced as a rational practice into this country. The superstition consisted in buying it—for the efficacy of the operation, in giving safety, was supposed to depend upon a piece of money being left by the person who took it for insertion. The members of the National Vaccine Establishment, during the period I had a seat at the board, received from Mr. Dubois, a missionary in India, a very interesting account of the services, derived from superstitious influence, in propagating the practice of vaccination through that uncivilized part of the globe. It appears from this document, that the greatest obstacle which vaccination encountered was a belief that the natural smallpox was a dispensation of a mischievous deity among them, whom they called MAH-RY UMMA, or rather, that this disease was an incarnation of the dire Goddess herself, into the person who was infected with it; the fear of irritating her, and of exposing themselves to her resentment, necessarily rendered the natives of the East decidedly averse to vaccination, until a superstitious impression, equally powerful with respect to the new practice, was happily effected; this was no other than a belief, that the Goddess MAH-RY UMMA had spontaneously chosen this new and milder mode of manifesting herself to her votaries, and that she might be worshipped with equal respect under this new shape.

HYDROMANCY is another superstition which has incidentally led to the discovery of the medicinal virtues of many mineral waters; a belief in the divining nature of certain springs and fountains is, perhaps, the most ancient and universal of all superstitions. The Castalian fountain, and many others amongst the Grecians, were supposed to be of a prophetic nature; by dipping a fair mirror into a well, the Patræans of Greece received, as they imagined, some notice of ensuing sickness or health. At this very

day, the sick and lame are attracted to various hallowed springs; and to this practice, which has been observed for so many ages and in such different countries, we are no doubt indebted for a knowledge of the sanative powers of many mineral waters. There can be no doubt, moreover, but that in many cases, by affording encouragement and confidence to a dejected patient, and serenity to his mind, whether by the aid of reason or the influence of superstition, much benefit may arise; for the salutary and curative efforts of nature, in such a state of mind, must be much more likely to succeed; equally evident is it, that the most powerful effects may be induced by the administration of remedies which, from their disgusting nature, are calculated to excite strong and painful sensations of the mind.* Celsus mentions, with confidence, several medicines of this kind for the cure of Epilepsy, as *the warm blood of a recently slain Gladiator*, or a certain portion of *human*, or *horse flesh!* and we find that remedies of this description were actually exhibited, and with success, by Kaw Boerhaave, in the cure of Epileptics in the poor house at Haerlem. The powerful influence of confidence in the cure and prevention of disease, was well understood by the sages of antiquity; the Romans, in times of pestilence, elected a dictator with great solemnity, for the sole purpose of driving a nail into the wall of the temple of Jupiter—the effect was generally instantaneous—and while they thus imagined that they propitiated an offended deity, they in truth did but diminish the susceptibility to disease, by appeasing their own fears. Nor are there wanting in modern times, striking examples of the progress of an epidemic disease having been suddenly arrested by some exhilarating impression made upon the mass of the population.

In the celebrated siege of Breda, in 1625, by Spinola, the garrison suffered extreme distress from the ravages of Scurvy, and the Prince of Orange being unable to relieve the place, sent in, by a confidential messenger, a preparation which was directed to be added to a very large quantity of water, and to be given as a specific for the epidemic; the remedy was administered, and the garrison recovered its health, when it was afterwards acknowledged, that the substance in question was no other than a little colouring matter.

Amongst the numerous instances which have been cited to show the power of faith over disease, or of the mind over the body, the *cures performed by Royal Touch*† have been generally selected; but it would appear, upon the authority of Wiseman, that the cures which were thus

* At the same time it must be acknowledged that many of these revolting applications have actually produced benefi by a physical operation; we need only mention the nauseous remedies recommended by many writers on Midwifery to expedite delivery, which induced the desired effect by producing nausea, or vomiting. Hartman says (Opera. Fol p 72) that he has often witnessed amongst the poor, that difficult labour has been accelerated by a draught of the husband's urine! and, he adds, that horse dung infused in wine is efficacious in expelling the Placenta. Sarah Stone, a midwife, who published some cases in 1737, mentions several instances of women in labour, to whom was given the juice of leeks, mixed with their husband's urine, in order to strengthen the pains. Nauseous remedies have always enjoyed the confidence of the vulgar; this prejudice would seem to be the result of a species of false reasoning, by no means uncommon, that as every thing medicinal is nauseous, so must every thing that is nauseous be consequently medicinal.

† Edward the Confessor was the first English king who *touched* for the Evil, but the foolish superstition has been wisely laid aside, ever since the accession of the House of Hanover.

effected, were in reality produced by a very different cause; for he states, that part of the duty of the Royal Physicians and Serjeant Surgeons was to select such patients, afflicted with scrofula, as evinced a tendency towards recovery, and that they took especial care to choose those who approached the age of puberty; in short, those only were produced whom nature had shown a disposition to cure; and as the touch of the king, like the sympathetic powder of Digby, secured the patient from the mischievous importunities of art, so were the efforts of nature left free and uncontrolled, and the cure of the disease was not retarded or opposed, by the operation of adverse remedies. The wonderful cures of Valentine Greatracks, performed in 1666, which were witnessed by cotemporary prelates, members of parliament, and fellows of the royal society, amongst whom was the celebrated Mr. Boyle, would probably upon investigation admit of a similar explanation; it deserves, however, to be noticed, that in all records of extraordinary cures performed by mysterious agents, there is a great desire to conceal the remedies and other curative means, which were simultaneously administered with them; thus Oribasius commends in high terms a necklace of *Pœony root*, for the cure of Epilepsy; but we learn that he always took care to accompany its use with copious evacuations, although he assigns to them no share of credit in the cure. In later times we have a good specimen of this species of deception presented to us in a work on Scrofula, by Mr. Morley, written, as we are informed, for the sole purpose of restoring the much injured character and use of the *Vervain;* in which the author directs the root of this plant to be tied with a *yard of wide satin ribband, around the neck*, where it is to remain until the patient is cured; but mark,—during this interval he calls to his aid the most active medicines in the materia medica!

The advantages which I have stated to have occasionally arisen from superstitious influence, must be understood as being generally accidental; indeed, in the history of superstitious practices, we do not find that their application was exclusively commended in cases likely to be influenced by the powers of faith or of the imagination, but, on the contrary, that they were as frequently directed in affections that were entirely placed beyond the control of the mind. Homer tells us, for instance, that the bleeding of Ulysses was stopped by a charm:* and Cato the censor has favoured us with an incantation for the reduction of a dislocated limb.

* This superstitious notion is not confined to the ancients, but is even cherished at this day, in some of the more remote districts of the kingdom; and we find frequent allusions to it in the popular poetry of the seventeenth century.

"Tom Pots was but a serving man,
But yet he was a doctor good;
He bound his 'kerchief on the wound,
And *with some kind words* he stanch'd the blood."

Sir Walter Scott, in his "Lay of the last Minstrel"—

"She drew the splinter from the wound,
And with a *charm* she stanch'd the blood."

The reader will also find the enumeration of several charms for this purpose, in Reginald Scott's Discovery of Witchcraft, p. 273

We learn also from Sennertus, that the older Surgeons had recourse to prayers and magic for the extraction of foreign bodies from wounds; a very interesting summary of their superstitions, and peculiar notions concerning wounds, will be found in this author, under the head, "De Rebus alienis e vulnere eximendis." Lib. v. Pars. iv. Practicæ Medicinæ.

In certain instances, however, we are certainly bound to admit that the pagan priesthood, with their characteristic cunning, were careful to perform their superstitious incantations, in such cases only as were likely to receive the sanative assistance of Nature, so that they might attribute the fortunate results of her efforts, to the potent influence of their own arts. The extraordinary success which is related to have attended various superstitious ceremonials will thus find a plausible explanation; the miraculous gift, attributed by Herodotus to the Priestesses of Helen, is one amongst many others of this kind that might be adduced; the Grecian historian relates, that when the heads of ugly infants were adjusted on the altar of this temple, the individuals so treated acquired comeliness, and even beauty, as they advanced in growth: but is not such a change the ordinary and unassisted result of natural developement? Those large and prominent outlines which impart an unpleasing physiognomy to the infant, when proportioned and matured by growth, will generally assume features of intelligence in the adult face.

I shall conclude these observations, by remarking that, in the history of religious ceremonials, we sometimes discover that they were intended to preserve useful customs or to conceal important truths; which, had they not been thus *embalmed* by superstition, could never have been perpetuated for the use and advantage of posterity. I shall illustrate this assertion by one or two examples. Whenever the ancients proposed to build a town, or to pitch a camp, a sacrifice was offered to the gods, and the Soothsayer declared, *from the appearance of the entrails*, whether they were propitious or not to the design. What was this but a physiological inquiry into the salubrity of the situation, and the purity of the waters that supplied it? for we well know that in unwholesome districts, especially when swampy, the cattle will uniformly present an appearance of disease in the viscera, which an experienced eye can readily detect; and when we reflect upon the age and climate in which these ceremonies were performed, we cannot but believe that their introduction was suggested by principles of wise and useful policy. In the same manner, *Bathing*, which at one period of the world, was essentially necessary, to prevent the diffusion of Leprosy, and other infectious diseases, was wisely converted into an act of religion, and the priests persuaded the people that they could only obtain absolution on washing away their sins by frequent ablutions; but since the use of linen shirts has become general, and every one has provided for the cleanliness of his own person, the frequent bath ceases to be so essential, and therefore no evil has arisen from the change of religious belief respecting its connexion with the welfare and purity of the soul. Among the religious impurities and rules of purification of the Hindoos, we shall be able to discern the same principle although distorted by the grossest superstition. The ancient custom of erecting "*Acerræ*" or Altars, near the bed of the deceased, in order that his friends might daily *burn Incense* until his burial, was long practised by the Romans. The Chinese observe a similar custom: they place upon the altar thus erected an image of the dead person, to which every one who approaches it bows four times, and offers oblations and *perfumes*. Can there be any difficulty in recognising, in this tribute to the dead, a wise provision for the preservation of the living? The original intention was, beyond doubt, to overcome any offensive smell, and to obviate the dangers that might arise from the emanations of the corpse.

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These instances are sufficient to show the justness of my position; if time and space would allow, many others of a striking and interesting character might be adduced.*

CREDULITY;

Although it is nearly allied to Superstition, yet it differs very widely from it. Credulity is an unbounded belief in what is possible, although destitute of proof and perhaps of probability; but Superstition is a belief in what is wholly repugnant to the laws of the physical and moral world. Thus, if we believe that an inert plant possesses any remedial power, we are *credulous;* but if we were to fancy that, by carrying it about with us, we should become invulnerable, we should in that case be *superstitious.* Credulity is a far greater source of error than Superstition; for the latter must be always more limited in its influence, and can exist only, to any considerable extent, in the most ignorant portion of society; whereas the former diffuses itself through the minds of all classes, by which the rank and dignity of science are degraded, its valuable labours confounded with the vain pretensions of empiricism, and ignorance is enabled to claim for itself the prescriptive right of delivering oracles, amidst all the triumphs of truth, and the progress of philosophy. This is very lamentable; and yet, if it were even possible to remove the film that thus obscures the public discernment, I question whether the adoption of such a plan would not be outvoted by the majority of our own profession. *In Chili,* says Zimmerman, the physicians blow around the beds of their patients to drive away diseases, and as the people in that country believe that physic consists wholly in this wind, their doctors would take it very ill of any person who should attempt to make the method of cure more difficult—*they think they know enough, when they know how to blow.*

But this mental imbecility is not characteristic of any age or country. England has, indeed, by a late continental writer,† been accused of possessing a larger share of credulity than its neighbours, and it has been emphatically called "*The Paradise of Quacks,*" but with as little truth as candour. If we refer to the works of Ætius, written more than 1300 years ago, we shall discover the existence of a similar infirmity with regard to physic. This author has collected a multitude of receipts, particularly those that had been celebrated, or used as *Nostrums,*‡ many of which he mentions with no other view than to expose their folly, and to inform us at what an extravagant price they were purchased. We accordingly learn from him that the collyrium of Danaus was sold at Constantinople for 120 numismata, and the colical antidote of Nicostratus for two talents; in short, we shall find an unbounded credulity with respect to the powers of inert medicines, from the elixir and *alkahest* of Paracelsus and Van-Helmont, to the tar water of bishop Berkeley, the metallic tractors of Perkins, the animal magnetism of Miss Prescott, and

* The reader will find this subject treated more fully in the Introduction to our work on "MEDICAL JURISPRUDENCE."

† See a Tour through England, by Dr. Nemnich of Hamburgh.

‡ *Nostrum,* (our own.) This word, as its original meaning implies, is very significant of this characteristic attribute of quackery. See the note under the article 'Linum Anii Sedativus,' in vol. 2.

may I not add, with equal justice, to the nitro-muriatic acid bath of Dr. Scott? The description of Thessalus, the Roman empiric in the reign of Nero, as drawn by Galen, applies with equal fidelity and force to the medical Charlatan of the present day; and, if we examine the writings of Scribonius Largus, we shall obtain ample evidence that the same ungenerous selfishness of keeping medicines secret, prevailed in ancient no less than in modern times; while we have only to read the sacred orations of Aristides to be satisfied, that the flagrant conduct of the Asclepiades, from which he so severely suffered,* was the very prototype of the cruel and remorseless frauds, so wickedly practised by the unprincipled Quack Doctors and advertising "*Medical Boards*" of our own times: and I challenge the apologist of ancient purity to produce a more glaring instance of empirical effrontery and success, in the annals of the nineteenth century, than that of the sacred impostor described in the Alexander of Lucian, who established himself in the deserted temple of Esculapius, and entrapped in his snares some of the most eminent of the Roman senators.

SCEPTICISM.

Credulity has been justly defined, *Belief without Reason.* Scepticism is its opposite, *Reason without Belief*, and is the natural and invariable consequence of credulity: for it may be generally observed, that men who believe without reason, are succeeded by others whom no reasoning can convince; a fact which has occasioned many extraordinary and violent revolutions in the *Materia Medica*, and a knowledge of it will enable us to explain the otherwise unaccountable rise and fall of many useless, as well as important articles. It will also suggest to the reflecting practitioner, a caution of great moment, to avoid the dangerous fault imputed to Galen by Dioscorides, of ascribing too many and too great virtues to one and the same medicine. *By bestowing unworthy and extravagant praise upon a remedy, we in reality do but detract from its reputation,*† *and run the risk of banishing it from practice*; for when the sober practitioner discovers by experience that a medicine falls so far short of the efficacy ascribed to it, he abandons its use in disgust, and is even unwilling to concede to it that degree of merit to which in truth and jus-

* Aristides was the dupe and victim of the Asclepiades for ten successive years; he was alternately purged, vomited, and blistered; made to walk barefooted, under a burning sun in summer, and in winter he was doomed to seek for the return of health, by bathing his feeble and emaciated body in the river. All this severity, he was made to believe, was exercised towards him by the express directions of Esculapius himself, with whom he was persuaded to fancy that he conversed in his dreams, and frequently beheld in nocturnal visions. Upon one occasion, the god, fatigued with the importunities of his votary, ordered him to lose 120 lbs. of blood; the unhappy man not having so much in his body, *wisely* took the liberty of interpreting the oracle in his own way, and parted with no more than he could conveniently spare.

† As we are here investigating the follies of Physic, it will not be foreign to the subject to state, that the above observation may with as much truth and force be applied to medical writings as to medical substances. Nothing is more fatal to the permanent success and character of an author, than the extravagant and unmerited encomiums of timeserving reviewers. It would be invidious to illustrate this truth by examples, or we might adduce some striking instances where the inappropriate wreath has strangled the object which it was intended to adorn. It is a matter of deep regret that the *Magnates* of our profession do not combine in supporting a respectable medical Review.—'Munus Apolline dignum.'

tice it may be entitled; the inflated eulogiums bestowed upon the operation of *Digitalis* in pulmonary diseases, excited, for a time, a very unfair impression against its use; and the injudicous manner in which the antisyphylitic powers of *Nitric Acid* have been aggrandized, had very nearly exploded a valuable auxiliary from modern practice.

It is well known with what avidity the public embraced the expectations given by *Stöerk* of Vienna in 1760, with respect to the efficacy of *Hemlock;* every body, says Dr. Fothergill, made the extract, and every body prescribed it, but finding that it would not perform the wonders ascribed to it, and that a multitude of discordant diseases refused to yield, as it was asserted they would, to its narcotic powers, practitioners fell into the opposite extreme of absurdity, and declaring that it could do nothing at all, dismissed it at once as inert and useless. Can we not then predict the fate of the *Cubebs*, which has been lately restored to notice with such extravagant praise and unqualified approbation? May the sanguine advocates for the virtues of the Colchicum derive a useful lesson of practical caution from these precepts: it would be a matter of regret that a remedy which, under skilful management, certainly possesses considerable virtue, should again fall into obscurity and neglect from the disgust excited by the extravagant zeal of its supporters.

There are, moreover, those who cherish a spirit of scepticism, from an idea that it denotes the exercise of a superior intellect; it must be admitted, that at that period in the history of Europe, when reason first began to throw off the yoke of authority, *it required superiority of understanding as well as intrepidity of conduct, to resist the powers of that superstition which had so long* held it in captivity; but in the present age, observes Mr. Dugald Stewart, "*unlimited scepticism is as much the child of imbecility as implicit credulity.*" "He who at the end of the eighteenth century," says Rousseau, "has brought himself to abandon all his early principles, without discrimination, would probably have been a bigot in the days of the league."

FALSE THEORIES,
AND ABSURD CONCEITS.

He who is governed by preconceived opinions, may be compared to a spectator who views the surrounding objects through coloured glasses, each assuming a tinge similar to that of the glass employed; thus have crowds of inert and insignificant drugs been indebted to an ephemeral popularity, from the prevalence of a false theory; the celebrated hypothesis of Galen respecting the virtues and operation of medicines, may serve as an example; it is a web of philosophical fiction, which was never surpassed in absurdity. He conceives that the properties of all medicines are derived from what he calls their elementary or *cardinal* qualities, Heat, Cold, Moisture, and Dryness. Each of these qualities is again subdivided into four degrees, and a plant or medicine, according to his notion, is cold or hot, in the first, second, third, or fourth gradation; if the disease be hot, or cold in any of these four stages, a medicine possessed of a contrary quality, and in the same proportionate degree of elementary heat or cold, must be prescribed. Saltness, bitterness, and acridness depend, in his idea, upon the relative degrees of heat

and dryness in different bodies. It will be easily seen how a belief in such an hypothesis must have multiplied the list of inert articles in the materia medica, and have corrupted the practice of physic. The variety of seeds derived its origin from this source, and until lately, medical writers, in the true jargon of Galen, spoke of the *four* greater and lesser *hot* and *cold* seeds; and in the London Dispensatory of 1721, we find the powders of *hot* and *cold* precious stones, and those of the *hot* and *cold* compound powders of pearl. Several of the ancient combinations of opium, with various aromatics, are also indebted to Galen for their origin, and to the blind influence of his authority for their existence and lasting reputation. Galen asserted that opium was *cold in the fourth degree*, and must therefore require some corresponding hot medicine to moderate its frigidity,*

The Methodic Sect, which was founded by the Roman physician Themison,† a disciple of Asclepiades, as they conceived all diseases to depend upon *overbracing*, or on *relaxation*, so did they class all medicines under the head of *relaxing* and *bracing* remedies; and although this theory has been long since banished from the schools, yet it continues at this day to exert a secret influence on medical practice, and to preserve from neglect some unimportant medicines. The general belief in the relaxing effect of the *warm*, and the equally strengthening influence of the *cold* bath, may be traced to conclusions deduced from the operations of hot and cold water upon parchment and other inert bodies.‡

The Stahlians, under the impression of their ideal system, introduced *Archæal* remedies, and many of a superstitious and inert kind; whilst, as they on all occasions trusted to the constant attention and wisdom of nature, so did they zealously oppose the use of some of the most efficacious instruments of art, as the Peruvian *bark;* and few physicians were so reserved in the use of general remedies, as bleeding, vomiting, and the like; their practice was therefore imbecile, and it has been aptly enough denominated, "*a meditation upon death.*" They were however vigilant in observation and acute in discernment, and we are indebted to them for some faithful and minute descriptions.

The Mechanical Theory, which recognized "*lentor and morbid viscidity of the blood*," as the principal cause of all diseases, introduced attenuant and diluent medicines, or substances endued with some mechanical force; thus Fourcroy explained the operation of mercury by its specific gravity,§ and the advocates of this doctrine favoured the general introduction of the preparations of iron, especially in schirrus of the

* This theory is still cherished in the preservation of the formula for Pilulæ Opiatæ, in the Edinburgh Pharmacopœia.

† The practice of this physician does not appear to have been very successful, if we may credit Juvenal.—

"Quot Themison ægros autumno occiderit uno."

‡ See 'An Experimental Inquiry into the effect of Tonics, and other Medicines, on the cohesion of the Animal fibre.' By Dr. Crawford.

§ Van Swieten, in his Commentaries on the Venereal disease, has an aphorism founded on the same hypothesis, 'Render the blood and lymph more fluid, and you will have destroyed the virus.' Sect. 1477.

In the first volume of the Transactions of the Royal College of Physicians, there is a paper to the same effect, entitled, 'On the Operation of Mercury, in different diseases and constitutions, by Edward Barry, M. D. F. R. S.' Read at the College, July 13, 1767.

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spleen or liver, upon the same hypothetical principle; for, say they, whatever is most forcible in removing the obstruction, must be the most proper instrument of cure; such is *Steel*, which, besides the attenuating power with which it is furnished, has still a greater force in this case from the *gravity* of its particles, which, being seven times specifically heavier than any vegetable, acts in proportion with a stronger impulse, and therefore is a more powerful deobstruent. This may be taken as a specimen of the style in which these mechanical physicians reasoned and practised.

The Chymists, as they acknowledged no source of disease but the presence of some hostile acid or alkali, or some deranged condition in the chymical composition of the fluid or solid parts, so they conceived all remedies must act by producing chymical changes in the body. We find Tournefort busily engaged in testing every vegetable juice, in order to discover in it some traces of an acid or alkaline ingredient, which might confer upon it medicinal activity. The fatal errors into which such an hypothesis was liable to betray the practitioner, receive an awful illustration in the history of the memorable fever that raged at Leyden in the year 1699, and which consigned two thirds of the population of that city to an untimely grave; an event which, in a great measure, depended upon the Professor Sylvius de la Boe, who having just embraced the chymical doctrines of Van Helmont, assigned the origin of the distemper to a prevailing acid, and declared that its cure could alone be effected by the copious administration of absorbent and testaceous medicines; an extravagance into which Van Helmont, himself, would hardly have been betrayed:—but thus it is in philosophy, as in politics, that the partisans of a popular leader are always more sanguine, and less reasonable, than their master; they are not only ready to delude the world, but most anxious to deceive themselves, and while they warmly defend their favourite system from the attacks of those that may assail it, they willingly close their own eyes, and conceal from themselves the different points that are untenable; or, to borrow the figurative language of a French writer, they are like the pious children of Noah,* who went backwards, that they might not see the nakedness which they approached for the purpose of covering.

Unlike the mechanical physicians, the chymists explain the beneficial operation of iron by supposing that it increases the proportion of red globules in the blood, on the erroneous† hypothesis that iron constitutes the principal element of these bodies. Thus has iron, from its acknowledged powers, been enlisted into the service of every prevailing hypothesis; and it is not a little singular, as a late writer has justly observed, that theories however different, and even adverse, do nevertheless often coincide in matters of practice, as well with each other as with long established empirical usages, each bending as it were, and conforming, in order to do homage to truth and experience. And yet iron, whose medicinal virtues have been so generally allowed, has not escaped those vicissitudes in reputation which almost every valuable remedy has been doom-

* Genesis ix. 23.

† The animal nature of the colouring matter of the blood was first pointed out by Dr. Wells, but Fourcroy and Vauquelin considered it to be owing to subphosphate of iron. Mr. Brande, in 1812, demonstrated the fallacy of this opinion, and proved, by satisfactory experiments, its title to be considered as a peculiar animal principle; the subsequent experiments of M. Vauquelin have confirmed Mr. Brande's results.

ed to suffer: at one period the ancients imagined that wounds inflicted by iron instruments, were never disposed to heal, for which reason Porsenna, after the expulsion of the Tarquins, actually stipulated with the Romans that they should not use iron, except in agriculture; and Avicenna was so alarmed at the idea of its internal use as a remedy, when given in substance, that he seriously advised the exhibition of a magnet* after it to prevent any direful consequences. The fame even of Peruvian bark has been occasionally obscured by the clouds of false theory; some condemned its use altogether, "because it did not evacuate the morbific matter," others, "because it bred obstructions in the viscera," others again, "because it only bound up the spirits, and stopped the paroxysms for a time, and favoured the transiation of the peccant matter into the more noble parts." Thus we learn from Morton,† that Oliver Cromwell fell a victim to an intermittent fever, because the physicians were too timid to make a trial of the bark. It was sold first by the Jesuits for its weight in silver;‡ and Condamine relates that in 1690, about thirty years afterwards, several thousand pounds of it lay at Piura and Payta for want of a purchaser.

Nor has Sugar escaped the venom of fanciful hypothesis. Dr. Willis raised a popular outcry against its domestic use, declaring that it "contained within its particles a secret acid—a dangerous sharpness,—which caused scurvies, consumptions, and other dreadful diseases."§

Although I profess to offer merely a few illustrations of those doctrines, whose perverted applications have influenced the history of the Materia Medica, I cannot pass over in silence that of John Brown, "the child of genius and misfortune." As he generalized diseases, and brought all within the compass of two grand classes, those of *increased* and *diminished* excitement, so did he abridge our remedies, maintaining, that every agent which could operate on the human body was a *stimulant*, having an identity of action, and differing only in the degree of its force; so that according to his views, the lancet and the brandy bottle were but the opposite extremes of one and the same class: the mischievous tendency of such a doctrine is too obvious to require a comment.

But the most absurd and preposterous hypothesis that has disgraced the annals of medicine, and bestowed medicinal reputation upon substances of no intrinsic worth, is that of the DOCTRINE OF SIGNATURES, as it has been called, which is no less than a belief that *every natural substance which possesses any medicinal virtue, indicates by an obvious and well-marked external character, the disease for which it is a remedy, or the*

* The Magnet, or Loadstone, in powder, entered also as an ingredient in several plasters, to draw bullets, and heads of arrows, out of the body, as in the 'Emplastrum Divinum Nicolai,' the 'Emplastrum Nigrum' of Augsburg, the 'Opodeldock' and 'Attractivum,' of Paracelsus, with several other preparations, to be found in the Dispensatory of Wecker, and in the practice of Sennertus.

† PYRETOLOGIA, p. 17, A. D. 1692.

‡ Sturmius, in his 'Febrifugi Peruviani Vindiciæ,' published in 1658, observes that he saw twenty doses of the powder sold at Brussels for sixty florins, in order to be sent to Paris, and that he would willingly have been a purchaser of some doses, even at that price; but the Apothecary was unable to supply him: an anecdote not more illustrative of the reputation of the bark, than of the honesty of the vender.

§ This produced a pamphlet from Dr. Slare, entitled 'A Vindication of Sugars against the charge of Dr. Willis and others: dedicated to the ladies.' 1715.

*object for which it should be employed!** This extraordinary monster of the fancy has been principally adopted and cherished by Paracelsus, Baptista Porta, and Crollius, although traces of its existence may be certainly discovered in very ancient authors. The root of the *Mandrake*, from its supposed resemblance to the human form, was esteemed as a remedy for sterility: thus did Rachel demand from her sister the Mandrakes *(Dudaim)* which Reuben had gathered in the field; impressed, as it would appear, with a belief in the efficacy of that plant against barrenness.† There would moreover appear in this case to have been some idea of additional virtue arising from the person who gathered it, for great stress was laid upon this circumstance, "*my son's* Mandrakes:" such a notion is by no means uncommon in the history of charms. The supposed virtues of the *Lapis Ætites*, or *Eagle stone*,‡ described by Dioscorides, Ætius and Pliny, who assert that if tied to the arm it will prevent abortion, and if fixed to the thigh forward delivery, were, as we learn from ancient authority, solely suggested by the manner in which the nodule contained within the stone moves and rattles, whenever it is shaken. "*Ætites lapis agitatus, sonitum edit, velut ex altero lapide prægnans.*" The conceit however did not assume the importance of a theory until the end of the fourteenth century, at which period we find several authors engaged in the support of its truth, and it will not be unamusing to offer a specimen of their sophistry; they affirm, that since man is the lord of the creation, all other creatures are designed for his use, and *therefore*, that their beneficial qualities and excellencies must be expressed by such characters as can be seen and understood by every one; and as man discovers his reason by speech, and brutes their sensations by various sounds, motions, and gestures, so the vast variety and diversity of figures, colours, and consistencies, observable in inanimate creatures, is certainly designed for some wise purpose. It *must be*, in order to manifest these peculiar qualities and excellencies, which could not be so effectually done in any other way, not even by speech, since no language is universal. Thus, the lungs of a fox must be a specific for asthma, *because* that animal is remarkable for its strong powers of respiration. *Turmerick* has a brilliant yellow colour, which indicates that it has the power of curing the jaundice; by the same rule, *Poppies* must relieve diseases of the head; *Agaricus* those of the bladder; *Cassia fistula* the affections of the intestines, and *Aristolochia* the disorders of the uterus: the polished surface and stony hardness which so eminently characterise the seeds of the *Lithospermum Officinale* (Common Gromwell) were deemed a certain indication of their efficacy in calculous and gravelly disorders; for a similar reason the roots of the *Saxifraga Granulata* (White Saxifrage) gained reputation in the cure of the same disease; and the *Euphrasia* (Eye-bright) acquired fame, as an application in complaints of the eye, because it exhibits a black spot in its corolla resembling the pupil.

In the curious work of *Chrysostom Magnenus*, we meet with a whimsical account of the *Signature* of Tobacco. "In the first place," says

* This conceit did not escape the notice of the metaphysical poets of the seventeenth century; Cowley frequently availed himself of it to embellish his verse.

† Genesis xxx. 14.

‡ This mineral derives its name from the ancient belief that it was found in the nest of the eagle. It is a variety of iron ore.

he, "the manner in which the flowers adhere to the head of the plant indicates the *Infundibulum Cerebri*, and *Pituitary Gland*. In the next place, the three membranes of which its leaves are composed announce their value to the stomach which has three membranes."*

The blood-stone, the *Heliotropium* of the ancients, from the occasional small specks or points of a blood red colour exhibited on its green surface, is even at this day employed in many parts of England and Scotland, to stop a bleeding from the nose; and nettle-tea continues a popular remedy for the cure of *Urticaria*. It is also asserted that some substances bear the SIGNATURES of the humours, as the petals of the red rose that of the blood, and the roots of rhubarb and the flowers of saffron, that of the bile.†

I apprehend that John of Gaddesden, in the fourteenth century, celebrated by Chaucer, must have been directed by some remote analogy of this kind, when he ordered the son of Edward the First, who was dangerously ill with the smallpox, to be wrapped in scarlet cloth, as well as all those who attended upon him, or came into his presence, and even the bed and room in which he was laid were covered with the same drapery; and so completely did it answer, say the credulous historians of that day, that the Prince was cured without having so much as a single mark left upon him.

In enumerating the conceits of Physic, as relating to the Materia Medica, we must not pass over the idea, so prevalent at one period, that *all poisonous substances possess a powerful and mutual elective attraction for each other;* and that, consequently, if a substance of this kind were suspended around the neck, it would, by intercepting and absorbing every noxious particle, preserve the body from the virulence of contagious matter. Angelus Sala, accordingly, gives us a formula for what he terms his *Magnes Arsenicalis*, which he asserts will not only defend the body from the influence of poison, but will, from its powers of attraction, draw out the venom from an infected person. In the celebrated plague of London, we are informed that amulets of arsenic were upon this principle suspended over the region of the heart, as a preservative against infection.

There is yet to be mentioned another absurd conceit which long existed respecting the subject of Antidotes,—a belief that every natural poison carried within itself its own antidote; thus we learn from the writings of Dioscorides, Galen, and Pliny, that the *virus* of the *Cantharis Vesicatoria* existed in the body of the fly, and that the head, feet, and wings, contained its antidote; for the same potent reason were the hairs of the rabid dog esteemed the true specific for Hydrophobia.‡

* 'Chrysost. Magneni Exercit. de Tabaco.'

† For a further account of this conceit, see Crollius, in a work appended to his "BASILICA CHYMICA," entitled, 'De Signaturis internis rerum, seu de vera et viva Anatomia majoris et minoris mundi.'

‡ In various black-letter works on Dæmonology we are assured that three scruples of the ashes of the witch, when she has been *well and carefully burnt* at a stake, is a sure Catholicon against all the evil effects of witchcraft! The popular author of WAVERLEY alludes to this superstition in his ABBOT.

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DEVOTION TO AUTHORITY, AND ESTABLISHED ROUTINE.

This has always been the means of opposing the progress of reason—the advancement of natural truths—and the prosecution of new discoveries; whilst, with effects no less baneful, has it perpetuated many of the stupendous errors which have been already enumerated, as well as others no less weighty, and which are reserved for future discussion.

To give general currency to a hypothetical opinion, or medical reputation of an inert substance, requires only the talismanic aid of a few great names; when once established upon such a basis, ingenuity, argument, and even experiment, may open their ineffectual batteries. The laconic sentiment of the Roman Satirist is ever opposed to our remonstrance—"Marcus dixit?—ita est."

> "Did Marcus say 'twas fact? then fact it is,
> No proof so valid as a word of his."

A physician cannot err, in the opinion of the public, if he implicitly obeys the dogmas of authority; in the most barbarous ages of ancient Egypt, he was punished or rewarded according to the extent of his success, but to escape the former, it was only necessary to show that an orthodox plan of cure had been followed, such as was prescribed in the acknowledged writings of Hermes. *It is an instinct in our nature to follow the track pointed out by a few leaders*; we are gregarious animals, in a moral as well as a physical sense, and we are addicted to routine, because it is always easier to follow the opinions of others than to reason and judge for ourselves. "The mass of mankind," as Dr. Paley observes, "act more from habit than reflection." What, but such a temper, could have upheld the preposterous system of Galen for more than thirteen centuries; and have enabled it to give universal laws in medicine to Europe—Africa—and part of Asia?* What, but authority, could have inspired a general belief, that the sooty washings of rosin† would act as a universal remedy? What, but a blind devotion to authority, or an insuperable attachment to established custom and routine, could have so long preserved from oblivion the absurd medicines which abound in our earliest dispensatories? for example, the "*Decoctum ad Ictericos*," of the Edinburgh College, which never had any other foundation than the doctrine of signatures, in favour of the *Curcuma* and *Chelidonium Majus*;‡ and it is only within a

* Massaria, a learned Professor of Pavia in the sixteenth century, absolutely declares that he would rather err with Galen than be in the right with any other physician!

† This practice of Bishop Berkeley has been ridiculed with great point and effect, in a pamphlet entitled 'A Cure for the Epidemical Madness of drinking Tar Water,' by Mr. Reeve; in which, addressing the Bishop, he says, "thus, in your younger days, my Lord, you made the surprising discovery of the unreality of matter, and now in your riper age, you have undertaken to prove the reality of a universal remedy; an attempt to talk men out of their reason, did of right, belong to that author who had first tried to persuade them out of their senses." Tar water was also at one period considered to possess very considerable efficacy in Syphylis.

‡ The Euphrasia Officinalis, or Eye-bright, which is indebted for its celebrity to the doctrine of Signatures, as before stated, is actually employed at this time in cases of dimness of sight. See a Paper upon the efficacy of this plant by Dr. Jackson, in the London Medical and Physical Journal, vol. 23, p. 104.

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few years, that the *Theriaca Andromachi*, in its ancient absurd form, has been dismissed from the British Pharmacopœia.* The CODEX-MEDICAMENTARIUS of Paris, recently edited, still cherishes this many-headed† monster of pharmacy, in all its pristine deformity, under the appropriate title of "*Electuarium Opiatum Polupharmacum.*"

It is, however, evidently indebted for this unexpected rescue from oblivion to a cause very remote from that which may be at first imagined; not from any belief in its powers or reliance upon its efficacy, but from a disinclination to oppose the torrent of popular prejudice, and to reject what has been established by authority and sanctioned by time. For the same reason, and in violation of their better judgment, the editors have retained the absurd formula of Diest for the preparation of an extract of opium; which, after directing various successive operations, concludes by ordering the decoction to be boiled incessantly for six months, supplying the waste of water at intervals! Many of the compound formulæ in this new CODEX, it is frankly allowed, possess an unnecessary and unmeaning, if not an injurious complexity; and yet, such force has habit, and so paramount are the *verba magistri*, that the editors are satisfied in distinguishing the more important ingredients by printing them in *Italics*, leaving the rest to be supplied at the whim and caprice of the dispenser, and thus are the grand objects and use of a national Pharmacopœia defeated, which should above all things insure uniformity in the strength and composition of its officinal preparations.

* Its rejection was proposed by the late Dr. Heberden, and upon the College dividing on the question, there were found to be *thirteen* votes for retaining, and *fourteen* for rejecting it.

† This preparation consists of 72 ingredients, which are arranged under 13 heads—viz. ACRIA, of which there are 5 species. AMARA, of which there are 8. STYPTICA vulgo ASTRINGENTIA, 5 in number. AROMATICA EXOTICA, 14. AROMATICA INDIGENA, 10. AROMATICA EX UMBELLIFERIS, 7. RESINOSA ET BALSAMA 8 GRAVE-OLENTIA, 6. VIROSA, *seu quæ Narcosin inducunt*, under which head there is but one species, viz. Opium. TERREA INSIPIDA ET INERTIA; this comprises only the *Lemnian Earth*. GUMMOSA, AMYLACEA, &c. 4 species. DULCIA, *liquorice and honey*. VINUM, *Spanish*.

Upon no principle of combination can this heterogeneous farrago be vindicated. It has, however, enjoyed the confidence of physicians for many ages, and is therefore entitled to some notice. It was supposed to have been invented by Mithridates, the famous king of Pontus, the receipt for which was said to have been found among his papers after his defeat by Pompey, at which time it was published in Rome under the title of "Antidotum Mithridatium," but the probability is, says Dr. Heberden, that Mithridates was as much a stranger to his own antidote as several eminent physicians have since been to the medicines that are daily advertised under their names. It was asserted, that whoever took a proper quantity in the morning, was insured from poison during the whole of that day, (Galen de Antidot. Lib. 1.) and it was further stated, that Mithridates himself was so fortified against all baneful drugs, that none would produce any effect when he attempted to destroy himself. (Celsus, lib. 5 c. 23.) In the course of ages it has undergone numerous alterations. According to Celsus, who first described it, it contained only 35 simples; Andromachus, Physician to Nero, added vipers, and increased the number of ingredients to 75; and when thus *reformed*, he called it Γαλήνη—but in Trajan's time it obtained the name of *Theriaca*, either from the vipers in it, or from its supposed effect in curing the bites of venomous animals. Damocrates gave a receipt for it in Greek Iambics, which has been preserved by Galen. It appears then that its composition has hardly remained the same for a hundred years; it is, says Dr. Heberden, a farrago, that has no better title to the name of Mithridates than, as it so well resembles, the numerous undisciplined forces of a barbarous king, made up of a dissonant crowd collected from different countries, mighty in appearance, but in reality, an ineffective multitude, that only hinder each other. ΑΝΤΙΘΗΡΙΑΚΑ, by W. Heberden, M. D. 1745.

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The same devotion to authority which induces us to retain an accustomed remedy for pertinacity, will always oppose the introduction of a novel practice with asperity, unless indeed it be supported by authority of still greater weight and consideration. The history of various articles of diet and medicine will prove in a striking manner, how greatly their reputation and fate have depended upon authority. It was not until many years after *Ipecacuan* had been imported into Europe, that Helvetius, under the patronage of Louis XIV. succeeded in introducing it into practice: and to the eulogy of Katharine, queen of Charles II, we are indebted for the general introduction of Tea into England.*

That most extraordinary plant,† *Tobacco*, notwithstanding its powers

* The consumption of Tea has greatly increased in England during the last thirty years. In 1787 the total amounted to sixteen millions of pounds, whereas in 1821, it exceeded twenty-two millions.

† Hernandez de Toledo sent this plant into Spain and Portugal in 1559, when Jean Nicot was ambassador at the Court of Lisbon from Francis II. and he transmitted, or carried either the seed, or the plant to Catharine de Medicis: it was then considered as one of the wonders of the new world, and was supposed to possess very extraordinary virtues. this seems to be the first authentic record of the introduction of this plant into Europe. In 1589 the Cardinal Santa Croce, returning from his nunciature in Spain and Portugal to Italy, carried thither with him Tobacco, and we may form some notion of the enthusiasm with which its introduction was hailed, from a perusal of the poetry which the subject inspired; the poets compare the exploit of the holy Cardinal with that of his progenitor who brought home the wood of the true cross.

> ——————"Herb of immortal fame!
> *Which hither first with Santa Croce came,*
> *When he, his time of nunciature expired,*
> Back from the Court of Portugal retired;
> Even as his predecessors, great and good,
> Brought home the cross."———

In England, it is said that the smoking Tobacco was first introduced by Sir Walter Raleigh on his return from America. James the First wrote a philippic against it, entitled a "COUNTERBLASTE TO TOBACCO," in which the royal author, with more prejudice than dignity, informs his loving subjects that 'it is a custom loathsome to the eye, hateful to the nose, harmful to the brain, dangerous to the lungs; and in the black stinking fume thereof, nearest resembling the horrible Stygian smoke of the pit that is bottomless.' In 1604 this monarch endeavoured by means of heavy imposts to abolish its use in this country, and in 1619 he commanded that no planter in Virginia should cultivate more than 100 lbs. It must be confessed that some legislative enactment was necessary at this period for restricting the custom of smoking Tobacco, for we are told in the *Counterblaste*, that many persons expended as much as five hundred pounds per annum in the purchase of this article, which in those days was an enormous amount.

In 1624 Pope Urban the VIIIth published a decree of excommunication against all who took snuff in the church. Ten years after this, smoking was forbidden in Russia, under the pain of having the nose cut off: in 1653 the Council of the Canton of Appenzel cited smokers before them, whom they punished, and they ordered all innkeepers to inform against such as were found smoking in their houses. The police regulations of Bern made in 1661 was divided according to the Ten Commandments. in which the prohibition of smoking stands immediately beneath the command against adultery; this prohibition was renewed in 1675. and the Tribunal instituted to put it into execution—viz.; CHAMBREAU TABAC—continued to the middle of the eighteenth century, Pope Innocent the XIIth, in 1690, excommunicated all those who were found taking snuff or tobacco in the church of St. Peter at Rome; even so late as 1719 the Senate of Strasburgh prohibited the cultivation of Tobacco from an apprehension that it would diminish the growth of corn; Amurath the IVth published an edict which made smoking Tobacco a capital offence; this was founded on an opinion that it rendered the people infertile. Those who are curious to learn more of the history of this extraordinary plant, I beg to refer to a very interesting paper by 'Medicus,' in the 24th volume of the 'London Medical and Physical Journal,' page 445.

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of fascination, has suffered romantic vicissitudes in its fame and character; it has been successively opposed, and commended by physicians—condemned, and eulogised by priests and kings—and proscribed, and protected by governments; whilst at length this once insignificant production of a little island, or an obscure district, has succeeded in diffusing itself through every climate, and in subjecting the inhabitants of every country to its dominion. The Arab cultivates it in the burning desert—the Laplander and Esquimaux risk their lives to procure a refreshment so delicious in their wintry solitude—the seaman, grant him but this luxury, and he will endure with cheerfulness every other privation, and defy the fury of the raging elements; and in the higher walks of civilized society, at the shrine of fashion, in the palace, and in the cottage, the fascinating influence of this singular plant commands an equal tribute of devotion and attachment. The history of the Potato is perhaps not less extraordinary, and is strikingly illustrative of the omnipotent influence of authority; the introduction of this valuable plant received, for more than two centuries, an unexampled opposition from vulgar prejudice, which all the philosophy of the age was unable to dissipate, until Louis the XVth wore a bunch of the flowers of the potato in the midst of his court, on a day of festivity; the people then for the first time obsequiously acknowledged its utility, and ventured to express their astonishment at the apathy which had so long prevailed with regard to its general cultivation; that which authority thus established, time and experience have fully ratified, and scientific research has extended the numerous resources which this plant is so wonderfully calculated to furnish; thus, its stalk, considered as a textile plant, produces in Austria a cottony flax—in Sweden, sugar is extracted from its root—by combustion its different parts yield a very considerable quantity of potass,—its apples, when ripe, ferment and yield vinegar by exposure, or spirit by distillation—its tubercles made into a pulp, are a substitute for soap in bleaching,—cooked by steam, the potato is the most wholesome and nutritious, and at the same time, the most economical of all vegetable aliments,*—by different manipulations it furnishes two kinds of flour, a gruel, and a parenchyma, which in times of scarcity may be made into bread, or applied to increase the bulk of bread made from grain,—to the invalid it furnishes both aliment and medicine: its starch is not in the least inferior to the Indian arrow root, and Dr. Latham has lately shown that an extract may be prepared from its leaves and flowers, which possesses valuable properties as an anodyne remedy.†

The history of the warm bath‡ presents us with another curious instance of the vicissitudes to which the reputation of our valuable resources are so universally exposed; that which for so many ages was es-

* What other discovery or invention ever produced such political consequences as the introduction of the potato as an article of food? From its operation as the main constituent of national sustenance the population of Ireland has advanced from little more than one million to near seven millions, within the last century and a half!

† Med. Trans. of the College of Physicians, vol. vi. p. 92.

‡ That the *warm* and not the *cold* bath was esteemed by the ancient Greeks, for its invigorating properties may be inferred from a dialogue of Aristophanes, in which one of the characters says, 'I think none of the sons of the gods ever exceeded Hercules in bodily and mental force,'—upon which the other asks 'Where didst thou ever see a *cold* bath dedicated to Hercules?'

teemed the greatest luxury in health,* and the most efficacious remedy in disease, fell into total disrepute in the reign of Augustus, for no other reason than because Antonius Musa had cured the Emperor of a dangerous malady by the use of the *cold* bath. The most frigid water that could be procured was, in consequence, recommended on every occasion: thus Horace in his epistle to Vala, exclaims—

"———Caput ac stomachum supponere fontibus audent,
Clusinis, gabiosque petunt, et frigida rura."

Epist. xv. *Lib.* 1.

This practice, however, was doomed but to an ephemeral popularity, for although it had restored the Emperor to health, it shortly afterwards killed his nephew and son-in-law, Marcellus; an event which at once deprived the remedy of its credit, and the physician of his popularity.

The history of the Peruvian Bark would furnish a very curious illustration of the overbearing influence of authority in giving celebrity to a medicine, or in depriving it of that reputation to which its virtues entitle it. This heroic remedy was first brought to Spain in the year 1632, and we learn from Villerobel that it remained for seven years in that country before any trial was made of its powers, a certain ecclesiastic of Alcala being the first person in Spain to whom it was administered in the year 1639; but even at this period its use was limited, and it would have sunk into oblivion but for the supreme power of the Roman church, by whose auspices it was enabled to gain a temporary triumph over the passions and prejudices which opposed its introduction; Innocent the Tenth, at the intercession of Cardinal de Lugo, who was formerly a Spanish Jesuit, ordered that the nature and effects of it should be duly examined, and upon being reported as both innocent and salutary, it immediately rose into public notice;† its career, however, was suddenly stopped by its having unfortunately failed in the autumn of 1652 to cure Leopold, Archduke of Austria, of a Quartan Intermittent; this disappointment kindled the resentment of the prince's principal physician, Chiefletius, who published a violent philippic against the virtues of Peruvian Bark, which so fomented the prejudices against its use, that it had nearly fallen into total neglect and disrepute.

Thus there exists a fashion in medicine, as in the other affairs of life, regulated by the caprice and supported by the authority of a few leading practitioners, which has been frequently the occasion of dismissing from practice valuable medicines, and of substituting others less certain in their effects and more questionable in their nature. As years and fashions revolve, so have these neglected remedies, each in its turn, risen again into favour and notice, whilst old receipts, like old almanacks, are abandoned until the period may arrive, that will once more adapt them to the spirit and fashion of the times. Thus it happens that most of our "*New Discoveries*" in the Materia Medica have turned out to be no more than the revival and adaptation of ancient practices. In the last century, the root of the *Aspidium Filix*, the Male Fern, was retail-

* The prohibition of the bath was numbered amongst the mortifications to which certain priestesses in Greece were bound by the rigid rules of their order.

† T. Bartholini Hist. Anat. et Med. cent v. Hafniæ. Med. Transactions, vol. 3. p. 177.

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ed as a secret nostrum by Madame Nouffleur, a French empiric, for the cure of tape worm; the secret was purchased for a considerable sum of money by Louis XV. and the physicians then discovered that the same remedy had been administered in that complaint by Galen.*

The history of popular medicines for the cure of Gout, will also furnish us with ample matter for the illustration of this subject. The celebrated Duke of Portland's Powder was no other than the *Diacentaureon* of Cælius Aurelianus, or the *Antidotos ex duobus Centaureæ generibus* of Ætius.† the receipt for which a friend of his Grace brought from Switzerland; into which country it had been probably introduced by the early medical writers, who had transcribed its virtues from the Greek volumes soon after their arrival into the western parts of Europe. The active ingredient of a no less celebrated remedy for the same disease, *the Eau Medicinale*,‡ has been discovered to be the *Colchicum Autumnale* or Meadow Saffron; upon investigating the properties of this medicine, it was observed that similar effects in the cure of the gout were ascribed to a certain plant, called *Hermodactyllus*,§ by Oribasius and Ætius, but more particularly by Alexander of Tralles,‖ a physician of Asia Minor in the fourth century; an inquiry was accordingly instituted after this unknown plant, and upon procuring a specimen of it from Constantinople, it was actually found to be a species of *Colchicum*.

The use of Prussic acid in the cure of Phthisis, which has been lately proposed by Dr. Majendie, and introduced into the *Codex Medicamentarius* of Paris, is little else than the revival of the Dutch practice in this complaint; for Linnæus informs us, in the fourth volume of his "*Amœnitates Academicæ*," that distilled Laurel water was frequently used in Holland for the cure of pulmonary consumption.

The celebrated fever powder of Dr. James was evidently not his original composition, but an Italian nostrum invented by a person of the name of Lisle, a receipt for the preparation of which is to be found at length in *Colborne's Complete English Dispensatory for the year* 1756.

The various secret preparations of Opium, which have been extolled as the invention of modern times, may be recognized in the works of ancient authors; for instance, Wedelius in his *Opiologia* describes an acetic solution; and the *Magisterium* of Ludovicus, as noticed by Etmuller, was a preparation made by dissolving Opium in vinegar, and precipitating

* Madame Nouffleur's Receipt is as follows. Three drachms of the root of the *Male Fern*, reduced to a fine powder, and mixed with water—this constitutes one dose. Two hours after taking the powder, a bolus of Calomel, Scammony, and Gamboge, is to be administered.

† Duke of Portland's Powder for the Gout.—Equal quantities of the roots of *Gentian*, and Birthwort, (*Aristolochia rotunda*,) the tops and leaves of Germander, (*chamædrys*,) Ground Pine, (*Chamæpitys*,) and lesser Centaury, (*Chironea Centaurium*,) powdered and mixed together.—As this is a combination of bitters, it might, without doubt, be serviceable in certain cases of Gout.

‡ This medicine was brought into vogue by M. Husson, a military officer in the service of France, about fifty years ago.

§ So popular was this plant that it acquired the title of 'Anima articulorum.' It formed the basis of the Dia Articulorum, the Pulvis Arthriticus Turneri, and the Vienna Gout Decoction.

‖ Alexander's Prescription consisted of Hermodactylls, Ginger, Pepper, Cummin seed, Anniseed, and Scammony; which, says he, will enable those who take it to walk immediately.

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with Salt of Tartar:* Van Helmont recommends a preparation, similar to the black drop, under the title of *Laudanum Cydoniatum*: then again we have Langelott's Laudanum, and Le Mort's "*Extract out of rain water*," preparations which owe their mildness to the abstraction of the resinous element of opium.

The works of Glauber contain accounts of many discoveries that have been claimed by the chymists of our own day; he recommends the use of muriatic acid in sea scurvy, and describes an apparatus for its preparation exactly similar to that which has been extolled as the invention of Wolff; he also notices the production of *Pyro-acetic Acid* under the title of "*Vinegar of Wood*," so that the fact of the identity of this acid and vinegar, so lately announced by Vauquelin as a *new discovery*, was evidently known to Glauber nearly two centuries ago.

We have within the last few years heard much of the efficacy of Henbane fumigations in the toothach, an application which may be easily shown to be the revival only of a very ancient practice.†

But while we might thus proceed to annul many other claims for originality, we ought not to close our eyes to the fallacies to which such investigations are peculiarly exposed. Nothing is more easy than to invest the doubtful sentence of an obscure author with an interpretation best adapted for the support of a favourite theory, and instances might be adduced where the medical antiquarian‡ has by violence and distortion forced the most contradictory passages into his service; treating, in short, the oracles of physic just as Lord Peter treated his father's will in the *Tale of a Tub*,—determined to discover the word "*Shoulder Knots*," he *picks it out*, letter by letter, and is even at last obliged to substitute c for k in the orthography.

Nor has fashion confined her baneful interference to the selection of remedies; she has ventured even to decide upon the nature of diseases, and to change and modify their appellations according to the whim and caprice by which she is governed. The Princess, afterwards Queen Anne,

* "Magisterium Opii fit solvendo Opium in aceto, et præcipitando cum sale tartari.——"

† This was the favourite remedy of Dr. Andrew Boorde, who practised physic in Hampshire, and in his work printed in the black letter in London, entitled a 'Breviarie of Health,' he advises for a toothach depending upon worms, 'a candell of waxe with Henbane seeds, which must be lighted so that the perfume of the candell do enter into the tooth.' This said Dr. Andrew Boorde is too important a personage to be passed over without some farther notice in this place, being no less than the Founder of that dignified class of the medical fraternity, better known by the name of *Merry Andrews*. Dr. Andrew Boorde lived in the reigns of Henry VIII, Edward VI, and Queen Mary, and was in the constant habit of frequenting fairs and markets, at which he harangued the populace *publicly*: his speeches were extremely humourous and occasioned considerable mirth; his successors in this same line naturally endeavoured to imitate his bright example, and hence this class of itinerant quacks obtained the generic appellation of MERRY ANDREWS. Since the humiliating triumph of Quackery displayed at the Freemason's tavern under the presidency of the member for Coventry, and more recently at Margate, there is reason to believe that this class of itinerant mountebanks will assume a new and more dignified appellation, and that in commemoration of the services of their *philosophical* president, the worthy member above stated, they will in future be designated by the name of RANTING PETERS.

‡ I have been lately much amused with the lucubrations of a classical friend, who by way of casting ridicule upon such researches, undertakes to prove to my satisfaction, that WARREN'S BLACKING is no other than the νασμος μελανυγης, "*Black flowing Splendour*," described in the Hecuba of Euripides.

was subject to hypochondriacal attacks, which her physicians pronounced to be *Spleen*, *Vapours*, or *Hyp*, and recommended Rawleigh's Confection, and Pearl Cordial, for its cure: this circumstance was sufficient to render both the disease and remedy *fashionable;* no other complaint was ever heard of in the precincts of the court but that of the *Vapours*, nor any medicine esteemed but that of Rawleigh. Some years afterwards, in consequence of Dr. Whytt's publication on "*Nervous diseases*," a lady of fashion was pronounced to be *nervous*—the term became general, and the disease *fashionable;* and *Spleen*, *Vapours*, and *Hyp* were consigned to oblivion: the reign of Nervous Diseases, however, did not long continue, for a popular work appeared on Biliary Concretions, and all the world became *bilious*. We have not patience to pursue the history of these follies; a transient glance at the ephemeral productions of the last twenty years would furnish a sad display of the versatility of medical opinions, and of the instability of the practice which has been founded upon them: and they will no doubt furnish the future historian with strong and forcible illustrations.

THE ASSIGNING TO ART THAT WHICH WAS THE EFFECT OF UNASSISTED NATURE, OR THE CONSEQUENCE OF INCIDENTAL CHANGES OF HABIT, DIET, &c.

Our inability upon all occasions to appreciate the efforts of nature in the cure of disease, must always render our notions, with respect to the powers of art, liable to numerous errors and multiplied deceptions. Nothing is more natural, and at the same time more erroneous, than to attribute the cure of a disease to the last medicine that had been employed; the advocates of amulets and charms* have even been thus enabled to appeal to the testimony of what they call experience, in justification of their superstitions; and cases which, in truth and justice, ought to be considered most lucky escapes, have been triumphantly pronounced as skilful cures; and thus have medicines and practitioners alike acquired unmerited praise, or unjust censure. Upon Mrs Stephens offering her remedy for the stone to Parliament,† a committee of professional men was nominated to ascertain its efficacy; a patient with stone was selected, and he took the remedy: his sufferings were soon relieved, and upon examining the bladder in the usual way, no stone could be felt, it was therefore agreed that the patient had been cured, and that the stone had been dissolved; sometime afterwards this patient died, and on being opened, a large stone was found in a pouch, formed by a part of the bladder, and which communicated with it. When the yellow fever raged in America, the practitioners trusted exclusively to the copious use of mercury; at

* This species of delusion, from mistaking the *Post hoc*, for the *Propter hoc*, always reminds me of the story of the Florentine Quack, who gave the countryman six pills which were to enable him to discover his lost Ass,—the pills beginning to operate on his road home, obliged him to retire into a wood, where he found his ass. The clown soon spread a report of the wonderful success of the empiric, who in consequence, no doubt, reaped an ample reward from the proprietors of strayed cattle.

† The grant of £5,000 to Joanna Stephens, for her discovery of certain medicines for the cure of the Stone, is notified in the London Gazette of June, A. D. 1739. See *Liquor Calcis*, in Vol. ii.

first, this plan was deemed so universally efficacious, that in the enthusiasm of the moment, it was triumphantly proclaimed that death never took place after the mercury had evinced its effect upon the system : all this was very true, but it furnished no proof of the efficacy of that metal, since the disease, in its aggravated form, was so rapid in its career, that it swept away its victims long before the system could be brought under mercurial influence, while in its milder shape it passed off equally well without any assistance from art.

Let us then, before we decree the honours of a cure to a favourite medicine, carefully and candidly ascertain the exact circumstances under which it was exhibited, or we shall rapidly accumulate examples of the fallacies to which our art is exposed ; what has been more common than to attribute to the efficacy of a mineral water, those fortunate changes of constitution that have entirely or in a great measure, arisen from salubrity of situation, hilarity of mind, exercise of body, and regularity of habits which have incidentally accompanied its potation. Thus, the celebrated John Wesley, while he commemorates the triumph of 'Sulphur and Supplication' over his bodily infirmity, forgets to appreciate the resuscitating influence of four months repose from his apostolic labours; and such is the disposition of the human mind to place confidence in the operation of mysterious agents, that we find him more disposed to attribute his cure to a brown paper plaster of egg and brimstone, than to Dr. Fothergill's salutary prescription of country air, rest, ass's milk, and horse exercise.* The ancient physicians duly appreciated the influence of such agents; their temples, like our watering places, were the resort of those whom medicine could not cure, and we are expressly told by Plutarch that these temples, especially that of Esculapius, were erected on elevated spots, with the most congenial aspects ; a circumstance which when aided by the invigorating effects of hope, by the diversions which the patient experienced in his journey, and perhaps by the exercise to which he had been unaccustomed, certainly performed many cures. It follows then that in the recommendation of a *watering place*, something more than the composition of a mineral spring is to direct our choice,—the chymist will tell us, that the springs of Hampstead and Islington rival those of Tunbridge and Malvern, that the waters of Bagnigge Wells, as a chalybeate purgative, might supersede those of Cheltenham and Scarborough, and that an invalid would frequent the springs in the vicinity of the Dog and Duck, in St. George's Fields, with as much advantage as the celebrated Spa at Leamington ; but the physician is well aware that by the adoption of such advice, he would deprive his patient of those most powerful auxiliaries to which I have alluded, and above all, lose the advantages of the "*Medicina Mentis.*" On the other hand, the recommendation of change of air and habits will rarely inspire confidence, unless it be associated with some medicinal treatment ; a truth which it is more easy and satisfactory to elucidate and enforce by examples than by precept—let the following story by Voltaire serve as an illustration.—"Ogul, a voluptuary who could be managed but with difficulty by his physician, on finding himself extremely ill from indolence and intemperance, requested advice :—'Eat a basilisk, stewed in rose-water,' replied the physician. In vain did the slaves search for a *basilisk*, until they met with Zadig, who, approaching Ogul, exclaimed, 'Behold that

* Wesley's Journal, vol. xxix. 290—293.

which thou desirest;' 'but, my Lord,' continued he, 'it is not to be eaten; all its virtues must enter through thy pores, I have therefore enclosed it in a little ball, blown up, and covered with a fine skin; thou must strike this ball with all thy might, and I must strike it back again, for a considerable time, and by observing this regimen, and taking no other drink than rose-water for a few days, thou wilt see, and acknowledge, the effect of my art.' The first day Ogul was out of breath, and thought he should have died from fatigue; the second he was less fatigued, and slept better: in eight days he recovered all his strength; Zadig then said to him, 'There is no such thing in nature as a basilisk! but *thou hast taken exercise and been temperate, and hast therefore recovered thy health!*' But the medical practitioner may perhaps receive more satisfaction from a modern illustration; if so, the following anecdote, related by Sydenham, may not be unacceptable. This great physician having long attended a gentleman of fortune with little or no advantage, frankly avowed his inability to render him any farther service, adding at the same time, that there was a physician of the name of Robinson, at Inverness, who had distinguished himself by the performance of many remarkable cures of the same complaint as that under which his patient laboured, and expressing a conviction that, if he applied to him, he would come back cured. This was too encouraging a proposal to be rejected; the gentleman received from Sydenham a statement of his case, with the necessary letter of introduction, and proceeded without delay to the place in question. On arriving at Inverness, and anxiously inquiring for the residence of Dr. Robinson, he found to his utter dismay and disappointment, that there was no physician of that name, nor ever had been in the memory of any person there. The gentleman returned, vowing eternal hostility to the peace of Sydenham; and on his arrival at home, instantly expressed his indignation at having been sent on a journey of so many hundred miles for no purpose. "Well,"—replies Sydenham, "are you better in health?"—"Yes, I am now quite well, but no thanks to you."—"No," says Sydenham, "but you may thank Dr Robinson for curing you. I wished to send you a journey with some object of interest in view; I knew it would be of service to you; in going you had Dr. Robinson and his wonderful cures in contemplation; and in returning, you were equally engaged in thinking of scolding me."

AMBIGUITY OF NOMENCLATURE.

It has been already stated that we are to a great degree ignorant of the simples used by the ancient physicians; we are often quite unable to determine what the plants are of which Dioscorides treats. It does not appear that out of the 700 plants of which his Materia Medica consists, that more than 400 are correctly ascertained; and yet no labour has been spared to clear the subject of its difficulties; Cullen even laments that so much pains should have been bestowed upon so barren an occasion.* The early history of botany presents us with such a chaos of no-

* Soon after the invention of the art of Printing, the works of Dioscorides, Theophrastus, and Pliny, were published in various forms, and commentators swarmed like locusts. The eagerness with which this branch of knowledge was cultivated may

nenclature, that it must have been impossible for the herbarist and physician to have communicated their mutual lights; every one was occupied with disputes upon words and names, and every useful inquiry was suspended, from an inability to decide what plant each author intended; thus, for instance, the *Herba Britannica* of Dioscorides and Pliny, so celebrated for the cure of the soldiers of Julius Cæsar on the Rhine, of a disease called '*Scelotyrbe*,' and supposed to resemble our sea scurvy, remains quite unknown, notwithstanding the labours of our most intelligent commentators.* It seems also very doubtful whether the plant which we denominate *Hemlock* was the poison usually administered at the Athenian executions,† and which deprived Socrates and Phocion of life. Pliny informs us that the word *Cicuta*, amongst the ancients, was not indicative of any particular species of plant, but of vegetable poisons in general; this is a circumstance to which I am particularly anxious to fix your attention; it is by no means uncommon to find a word which is used to express general characters, subsequently become the name of a specific substance in which such characters are predominant; and we shall find that some important anomalies in nomenclature may be thus explained. The term 'Αρσενικον,' from which the word *Arsenic* is derived, was an ancient epithet, applied to those natural substances which possessed strong and acrimonious properties, and as the poisonous quality of arsenic was found to be remarkably powerful, the term was especially applied to Orpiment, the form in which this metal more usually occurred. So the term *Verbena* (quasi *Hebena*) originally denoted *all those* herbs that were held sacred on account of their being employed in the rites of sacrifice, as we learn from the poets;‡ but as *one* herb was usually adopted upon these occasions, the word *Verbena* came to denote that particular herb *only*, and it is transmitted to us to this day under the same

be conceived when it is stated that the Commentary of Matthiolus on Dioscorides, which was first printed in 1554 passed through seventeen editions, and that 32,000 copies had been sold before the year 1561; and he tells us in this work, that he received in its execution the assistance and reward of emperors,—kings,—electors of the Roman Empire,—archdukes,—cardinals,—bishops,—dukes, and princes, 'which,' says he, gives greater credit to our labours than any thing that could be said.' In very many cases, however, says Dr. Pultney, 'this learned Commentator mistook the road to truth, and did but perplex the science he so industriously laboured to enlighten.'

* Turner, the father of English Botany, was of opinion, that it was the Polygonum Bistorta; Munting, a Dutch physician, that it was the Hydrolapathum Magnum, or Rumex Aquaticus or Great Water Dock, an opinion *which* received the sanction of Ray. Others have supposed it to have been Polygonum Persicaria, and some have considered it as the Primula Auricula. This one example is adduced to show the mortifying uncertainty that involves the history of ancient plants.

† Meade thinks that the Athenian poison was a combination of active substances,—perhaps that described by Theophrastus as the invention of Thrasyas, which, it was said, would cause death without pain, and into which Cicuta and Poppy entered as ingredients.

‡ "Verbenasque adole pingues, et Mascula Thura"
Virg. Eclog. viii.
"Ex Ara hac sume Verbenas tibi." *Terent. Andria.*
"ara castis
vincta Verbenis."———*Hor. Od.* xi. *Lib.* iv.

It is a curious fact that in Tuscany the word *Vervena* is applied to denote *any* kind of slips, shoots, suckers or bundles of plants, at this very day.

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title, viz. *Verbena*, or *Vervain*, and indeed until lately it enjoyed the medical reputation which its sacred origin conferred upon it, for it was worn suspended around the neck as an amulet. *Vitriol*, in the original application of the word, denoted *any* crystalline body with a certain degree of transparency (*Vitrum*;) it is hardly necessary to observe that the term is now appropriated to a particular species: in the same manner, *Bark*, which is a general term, is applied to express *one* genus, and by way of eminence, it has the article, *The*, prefixed, as *The* Bark: the same observation will apply to the word *Opium*, which in its primitive sense signifies *any* juice (οπος *Succus*) while it now only denotes *one* species, viz. that of the Poppy. So again, *Elaterium* was used by Hippocrates, to signify various internal applications, especially purgatives of a violent and drastic nature (from the word 'Ελαυνω,' *agito, moveo, stimulo,*) but by succeeding authors it was *exclusively* applied to denote the active matter which subsides from the juice of the *wild cucumber*. The word *Fecula*, again, originally meant to imply *any* substance which was derived by spontaneous subsidence from a liquid, (from *fæx*, the grounds or settlement of *any* liquor;) afterwards it was applied to *Starch*, which is deposited in this manner by agitating the flour of wheat in water; and lastly, it has been applied to a peculiar vegetable principle, which like *Starch** is insoluble in cold, but completely soluble in boiling water, with which it forms a gelatinous solution; this indefinite meaning of the word *fecula* has created numerous mistakes in pharmaceutic chymistry; Elaterium, for instance, is said to be a *fecula*, and in the original sense of the word it is properly so called, inasmuch as it is procured from a vegetable juice by spontaneous subsidence, but in the limited and modern acceptation of the term, it conveys an erroneous idea; for instead of the active principle of the juice residing in *fecula*, it is a peculiar proximate principle, *sui generis*, to which I have ventured to bestow the name of *Elatin*. For the same reason, much doubt and obscurity involve the meaning of the word *Extract*, because it is applied *generally* to any substance obtained by the evaporation of a vegetable solution, and *specifically* to a peculiar proximate principle, possessed of certain characters, by which it is distinguished from every other elementary body—See *Extracta*. On the other hand, we find that many words which were originally only used to denote particular substances, have, at length, become subservient to the expression of General Characters; thus the term *Alkali*, in its original sense, signified that particular residuum which was alone obtained by lixiviating the ashes of the plant named *Kali*, but the word is now so generalized that it denotes *any* body possessed of a certain number of definite properties.

Another source of botanical ambiguity and error is the circumstance of certain plants having acquired the names of others very different in their nature, but which were supposed to possess a similarity in external character: thus our Potato,† (*Solanum Tuberosum*) when it was first

* Amylum, the Starch of wheat, originally denoted a powder that was obtained without the application of a mill, from α, not, and μυλος, a mill; thus Dioscorides "Αμυλον ωνόμασται διὰ τὸ χωρὶς μύλης κατασκευάζεσθαι"—i. e. *because it is prepared without a mill.*

† Gerard, in his Herbal, (1597) denominates it, by way of distinction, Potato of *Virginia*, and he recommends it to be eaten as a *delicate* dish, not as common food; indeed some time elapsed after its introduction before it became general, and it was cultivated as an article of diet in Ireland several years before it was common in England.

imported into England by the colonists in the reign of Queen Elizabeth, gained its appellation from its supposed resemblance to an esculent vegetable at that time in common use, under the name of the Sweet Potato (*Convolvulus Battatas*,) and which like *Eringo Root*, had the reputation of being able to restore decayed vigour, thus Falstaff—

"Let the sky rain potatoes, hail kissing comfits, and snow eringoes."
Merry Wives of Windsor, Act 5, Scene 5.

A similar instance is presented to us in the culinary vegetable well known under the name of the JERUSALEM ARTICHOKE, which derived its appellation in consequence of its flavour having been considered like that of the common artichoke; it is hardly necessary to observe that it has no botanic relation whatever to such a plant, it being a Heliotrope (*Heliotropium Tuberosum*,) the epithet *Jerusalem* is a curious corruption of the Italian term *Gira-Sole*, that is, *turn-sun*, in English, or *Heliotrope* in Greek. This instance of verbal corruption is not solitary in medical botany; CASTOR OIL will suggest itself as another example; this oil, from its supposed efficacy in curing and assuaging the unnatural heat of the body, and in soothing the passions, was called by the French *Agnus Castus*, whence the inhabitants of St. Kitt's in the West Indies, who were formerly blended with the French in that Island, called it *Castor* oil. In some cases again, a plant has received a modern name, compounded of two ancient ones; it appears from Pliny that the *Assarum* was not uncommonly confounded with the *Baccharis;* an English name was accordingly bestowed upon it, which is a curious compromise of the question, for it is a compound of both, viz. *Assarabacca.*

In some instances the most alarming mistakes have occurred from substances of a very different nature having been mentioned under similar names, *Arsenic* for instance, has actually been inhaled,* together with the vapours of Frankincense, Myrrh, and those of other gums, during a paroxysm of Asthma! a practice of which arose from the practitioner having confounded the Gum Juniper, or *Vernix* of the Arabians, which was prescribed for fumigations under the name of *Sandarach*, with the Σανδαραχη of Aristotle, and which was a sulphuret of Arsenic. The gum which we know at the present day under the name of *Sanguis Draconis*, or *Dragon's blood*, was called by the ancient Greeks Κιννα6αρι, a term which has been incorrectly transferred to a Sulphuret of Mercury, for no other reason than because this mineral has the same red colour as the gum.

The advanced state of BOTANICAL SCIENCE will now prevent the recurrence of those doubts and difficulties which have formerly embarrassed the history of vegetable remedies, by furnishing a strictly philosophical language, independent of all theory, and founded upon natural

* The inhalation of the fumes of *Orpiment* is a practice attributed to Galen; and one of the most distinguished of his disciples, Rhazes, recommends it to be inhaled by consumptive patients, in combination with stimulant and resinous substances, such as *Storax, Myrrh. Galbanum*, and *Aristolochia root*. Bennet recommends the same practice in such cases. Willis informs us that a similar custom prevailed among certain empirics of his day, and asserts that they took such pieces of carpet as were dyed with *Orpiment*, and having cut them into small pieces, exposed them to heat, and, by means of an inverted funnel, made the patients inhale the vapour. Sir Alexander Crichton seems disposed to believe that such applications might prove useful by changing the action of any ulcer to which they were applied.

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structure, and therefore necessarily beyond the control of opinion; while the advancement of chymical knowledge, by enabling us better to distinguish and identify the different substances we employ, will also materially assist in preventing the confusion which has formerly oppressed us. At the same time, I am unwilling to join in the commendations so liberally bestowed upon our chymical nomenclature; nay, I am disposed to consider it as a matter of regret that the names of our medicinal compounds should have any relation to their chymical composition, for in the present unsettled state of this science, such a language must necessarily convey theory instead of truth, and opinions rather than facts; in short, it places us at the mercy and disposal of every new hypothesis, which may lay our boasted fabric in ruins, and in its place raise another superstructure, equally frail in its materials and ephemeral in its duration: thus CORROSIVE SUBLIMATE was a *muriate* of Mercury, or an *oxymuriate*, until Sir H. Davy established his new theory of chlorine, and then it became a *bi-chloride*: at some future period, Chlorine will be found to be a compound, and then it must have another name; for the same reason the term CALOMEL,* is surely to be preferred to *submuriate*, or *Chloride*. TARTARIZED ANTIMONY, again, has been called by our nomenclatural reformers the *Tartrate of Antimony and Potass*; but is it a triple compound? Gay Lussac thinks not, and considers it as a combination, in which *Cream of Tartar* acts the part of a simple acid.

Again,—we have only to revert to the nomenclature of the Salts in our Materia Medica to discover the actual change in meaning which the same word has undergone in a very few years. It was originally understood that the term *Sub*, when prefixed to the generic name of a Salt, indicated the presence of certain qualities depending upon an excess of base; but now, forsooth, the term has reference only to atomic composition, without any regard to qualities.† That salt alone being acknowledged as a true *Sub*-salt, in which there is less than one atom of acid to each atom of base; thus our "*Sub*-carbonate of Soda," is no longer considered a *Sub*-salt, for the reasons above stated; and, notwithstanding the predominance of its alkaline characters, it is known to chymists by the appellation of *Carbonate* of soda. It is far from my intention to question the propriety of these changes, I only maintain that, amidst such chymical doubts, the Pharmaceutist is the last person who should become arbiter; let him await the issue in unobtrusive silence, and take care that the language of Pharmacy partakes of the same neutrality.

* Calomel.—There is some doubt respecting the original meaning of this word, it literally signifies, *fair, black*, καλος, μελας Sir Theodore Mayerne is said to have given the name to it, in consequence of his having had a favourite black servant who prepared it; but is it not more probable that its name was derived from the change of colour which it undergoes from *black* to *white*, during its preparation? Another explanation has been also given, viz. quòd *nigro* humori sit *bonum*—a *good* (καλος) remedy for *black* (μελας) bile. This Theory derives much support from the black appearance of the stools, which is usually produced by the use of Calomel, and which was erroneously attributed to the searching and efficacious nature of the purgative. The Calomel of Riverius was a compound of *Hydrargyri Sub-muriat*: ℈j and *Scammoneæ* gr. vij, and Mr. Gray thinks that the term Calomel was first applied to this remedy, as being a mixture of a white and dark coloured powder.

† For further information upon this subject the reader may consult my work on "the Elements of Medical Chymistry."

Such was the feeling of the Committee appointed by the College for the revision of the late London Pharmacopœia, and it sufficiently explains why the nomenclature of the alkaline salts has been left unchanged in the present edition of that work.

The French, in their new *Codex*, are absurdly extravagant in their application of chymical nomenclature; thus, the sub-carbonate of potass is called by them *sub-deuto-carbonas potassii*. The first part of this quadruple name indicates the comparative quantity of acid in the salt, the second that of oxygen contained in the base, the third announces the acid, and the fourth the basis of the base!

THE PROGRESS OF BOTANICAL SCIENCE.

It has been just stated, that we have derived from botanical science a philosophical language which enables us to describe the structure and habits of any plant, with a luminous brevity and an unerring perspicuity: but we are moreover indebted to botany for another service no less important to the successful investigation of the Materia Medica,—that of throwing into well defined groups, those plants which possess obvious natural affinities, and which will be found at the same time to present certain medicinal analogies; indeed, as a general rule, we may admit the axiom, "*Quæ genere conveniunt, virtute conveniunt.*"*

The *Umbelliferæ* which grow on dry ground are aromatic, whilst the aquatic species are among the most deadly poisons. The *Cruciform* plants are aromatic and acrid in their nature, containing essential oils, (hence the peculiar smell of cabbage-water, &c.) which are obtainable by distillation; and Linnæus asserts that "among all the *leguminous* or *papilionaceous* tribe there is no deleterious plant to be found:" this however is not exactly true. Some of the individuals in these natural orders, although very nearly related, do nevertheless possess various, and even opposite qualities; in the leguminous tribe above mentioned, which is as consistent as any one we possess, we have the *Cytisus Laburnum*, the seeds of which are violently emetic, and those of *Lathyrus Sativus*, which have been supposed at Florence to soften the bones and cause death.

In the subdivision even of a genus there is often a remarkable difference in the properties of the species; there are for instance, *Solanums*, *Lettuces*, *Cucumbers*, and *Mushrooms*, both esculent and poison-

* Dr. Blair thinks that the ancients were led in many instances by the comparison of habit, to ascribe similar virtues to plants; there does not however appear to be a trace of what may be called System, in the writings of Theophrastus, Dioscorides, or Pliny. Cæsalpinus was the father of botanical system, and he was probably the first who suggested the idea that the virtues of plants were discoverable by their structure and alliance to each other. In his preface to his work, "De Plantis," he says, 'Quæ enim generis societate junguntur, plerumque et similes possident facultates.' This idea was pursued by Petiver, an apothecary in the city of London, a name well known in the annals of Botany; there is a paper by him on this subject, in the 21st volume of the Philosophical Transactions, entitled, 'Some attempts to prove that herbs of the same make and class, for the generality, have the like vertue, and tendency to work the same effects." Dr. Murray has adopted an arrangement founded upon natural character in his celebrated work entitled, "Apparatus Medicaminum."

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ous. The *Digitalis* or *Foxglove*, and the *Verbascum*, or common *Mullin* of our fields, are included in the same natural family, and yet the one is as active, as the other is mild in its effects; the plants of the natural family of *Contortæ* abound with a highly acrid milky juice, but Dr. Afzelius met with a shrub of this order at Sierra Leone, the milk of whose fruit was so sweet, as well as copious, as to be used instead of cream for tea; this is certainly what no one could have guessed from analogy. The same individual will vary from culture or other circumstances, as much as any two plants which have no botanic affinity; the Chamomile, *Anthemis Nobilis*, with which we are well acquainted, may have its whole disk changed, by cultivation, to ligulate white florets, destitute of medicinal properties. But what is more embarrassing, the different parts of the same plant have often very different powers; a fact which is beautifully exemplified in the *Podophyllum Peltatum*, or May Apple, the *leaves* of which are poisonous, the root powerfully cathartic, and the *fruit* agreeably esculent; so the leaves of the *Jatropa Manihot* are employed as a common esculent, while its root secretes a most virulent poison; but we need not seek further for an example than the fruit of the Lemon, the juice of which is *acid*, its seeds *bitter*, and its *rind aromatic*; in some instances it happens that the energy of a plant is concentrated in one particular part, and that all the rest is absolutely inert; thus, the root of the *Convolvulus Scammonia*, is the only portion of that plant which possesses any medicinal quality;* and the tree which yields the drastic *Camboge*, presents at the same time an esculent fruit, which is eaten by the natives with as much impunity as the orange; yet, notwithstanding all these difficulties, botany is capable of furnishing us with analogies which will lead to important conclusions with respect to the medicinal properties of different vegetables.

The system of Linnæus, although in a great degree artificial, corresponds in a surprising manner with the natural properties of plants; thus a plant whose *calyx* is a double valved *glume*, with three *stamina*, two *pistils*, and one *naked seed*, bears seeds of a farinaceous and nutritious quality; a flower with twelve, or more *stamina*, all of which are inserted in the internal side of the *calyx*, will furnish a wholesome fruit; whereas a plant whose flower has five *stamina*, one *pistil*, one *petal*, and whose fruit is of the *berry* kind, may at once be pronounced as poisonous.

It is also in a great degree true that the sensible qualities of plants, such as *colour*, *taste*, and *smell*, have an intimate relation to their properties, and may often lead by analogy to an indication of their powers; we have an example of this in the dark and gloomy aspect of the *Luridæ*, which is indicative of their narcotic and very dangerous qualities, as *Datura*, *Hyoscyamus*, *Atropa*, and *Nicotiana*. *Colour* is certainly in many cases a test of activity; the deepest coloured flowers of the *Digitalis*, for example, are the most active, and when the leaves of powerful plants lose their green hue, we may conclude that a corresponding deterioration has taken place with respect to their virtues; but Linnæus ascribed too much importance to such an indication, and his aphorisms are unsupported by facts; for instance, he says "Color pallidus *insipidum*, viridis *crudum*, luteus *amarum*, ruber *acidum*, albus *dulce*, niger *ingratum*, in-

* Russell's Nat. Hist. of Aleppo.

dicat."* A peculiar heavy odour, which is well known, but is with difficulty defined, is a sure indication of narcotic properties. Bitterness, when not extreme, denotes a tonic quality, which will stimulate the stomach and intestines, and promote the process of digestion. When the bitterness is more intense and pungent,† as in *Aloes, Colocynth, &c.* we may infer that such substances will produce a more active effect upon the *primæ viæ*, and that catharsis will follow their administration.

Botanical, like human physiognomy, may frequently afford an insight into character, but it is very often a fallacious index. With regard to the indications of *smell* and *taste*, it may be observed that in the examination of an unknown substance we instinctively apply to these senses for information respecting its properties. It is certainly reasonable to suppose, that those bodies which produce upon the organs of taste a sensible, astringent, or pungent effect, may occasion an impression, corresponding in degree upon the stomach or intestines, which are but an extension of the same structure. But what numerous exceptions are there to such a law? nay, some of the most poisonous substances affect in a very slight degree the organs of taste, especially those that belong to the mineral kingdom, as *Arsenious Acid, Oxyd of Antimony, Calomel, &c.*; yet some of these are, perhaps, but apparent exceptions, depending upon the degree of solubility which they possess, in consequence of which their energies are not developed until they have traversed a considerable portion of mucous surface. Nor ought it to be forgotten, that cultivation and artificial habits may have blunted the natural susceptibility of our organs, and in some instances changed and depraved their functions: certain qualities for instance are so strongly connected with each other by the chain of association, that by presenting only one to the mind, the other links follow in succession.‡ It has been remarked, that persons in social life, are more affected by vegetable odours, while the savage smells better the putrid and fœtid exhalations of animal bodies :§ thus the people of Kamskatcha, did not smell the perfume of a vegetable Essence (*Equa Melissæ*,) but they discovered by their olfactory sense, a rotten

* The student will find an interesting dissertation upon this subject in a late work, entitled "L'Histoire Naturelle des Medicamens." Par. J. J. Virey. 1820.

† Lord Bacon attributes the operation of purgatives to three causes, viz. 1, to *extreme bitterness*, as in Aloes; 2, to *loathsomeness and horrible taste*, as in Agaric and black Hellebore; and 3, to *a secret malignity*, as in Antimony, &c.

‡ This might be illustrated by the recital of numerous fallacies to which our most simple perceptions are exposed from the powers of association, but I will relate an anecdote, which to my mind elucidates the nature and extent of such fallacies more strikingly than any example which could be adduced. Shortly after Sir Humphry Davy had succeeded in decomposing the fixed alkalies a portion of *Potassium* was placed in the hands of one of our most distinguished chymists, with a query as to its nature? the philosopher observing its aspect and splendour, did not hesitate in pronouncing it to be metallic, and uniting at once the idea of weight with that of metal, the evidence of his senses was even insufficient to dissever ideas so inseparably associated in his mind, and, balancing the specimen on his fingers, he exclaimed, "*it* is certainly metallic, and *very ponderous!*" Now this anecdote is not related in disparagement to the philosopher in question. Who could have been prepared to meet with a substance, so novel and anomalous as to overturn every preconceived notion? —A METAL SO LIGHT AS TO SWIM UPON WATER, AND SO INFLAMMABLE AS TO CATCH FIRE BY THE CONTACT OF ICE!

§ Virey, "Essai d'Histoire Naturelle et Physicolog: sur la perfectibilité de l'homme."

fish, or a stranded whale, at a considerable distance.* There is no sense more under the dominion of imagination, or more liable to be perverted by education, than those of taste and smell; we are also liable to form unjust prejudices from the indications of colour; for particular colours, from the influence of hidden associations, are not unfrequently the exciting cause of agreeable or unpleasant impressions. I have met with a person who regards green food, if it be of an animal nature, with unconquerable aversion and disgust; indeed an idea of unwholsomeness has not unfrequently been attached to this colour, without the least foundation of truth; the bones of the Gar fish, or Sea Needle, (*Esox Helone,*) have been deemed unwholesome from the circumstance of their turning green on being boiled, although not a single instance can be adduced in which that fish ever occasioned any harm. I have met with persons who have been made violently sick from eating the green part of the oyster;† an effect which can have no other cause than that of unjust prejudice; these examples are sufficient to show, with what caution such indications respecting the medicinal qualities of bodies are to be received.

THE APPLICATION AND MISAPPLICATION OF CHYMICAL SCIENCE.

Amongst the reseaches of different authors, who, animated with a sacred zeal for ancient learning, have endeavoured to establish the antiquity of chymical science, we find many conclusions deduced from an ingenious interpretation of the mythological fables‡ which are supposed to have been transmitted by the Egyptians; who, previous to the invention of letters, adopted this method of perpetuating their discoveries in natural philosophy. Thus, wherever Homer studiously describes the stolen embraces of Mars and Venus, they recognise some chymical secret, some combination of iron with copper, shadowed in the glowing ornaments of fiction. Lord Bacon§ conceived that the union of spirit and matter was allegorized in the fable of Proserpine being seized by Pluto as she was gathering flowers; an allusion, says Dr. Darwin, which is rendered more curiously exact by the late discovery, that pure air, (*oxygen*) is given out by vegetables, and that in this state it is greedily absorbed by inflammable bodies. The same ingenious poet supposes that the fable of Jupiter and Juno, by whose union the vernal showers were said to be pro-

* Second Voyage of Captain Cook, vol. 4.

† The cause of the green colour of oysters is sometimes an operation of nature, but it is more generally produced by art, by placing them in situations where there is a green deposit from the sea, which appears to consist of the vegetating germs of marine *Conferæ* and *Fuci*, and which impart their colour to the oysters. For this object the Dutch formerly took oysters from beds on our coasts, and deposited them on their own. Native oysters transported into the Colchester beds soon assume a green colour. It is unnecessary to refute the popular error which attributed this change of colour to the operation of copper.

‡ We must admit that some of these allegories are too obvious to be mistaken. Homer attributes the plague that prevailed in the Grecian camp to the darts of Apollo; what was meant by this, but that it arose from the action of a burning sun, upon the marshes and slimy shores of Troas? and what, again, can be more obvious than the allegory by which Echo is made the daughter of air and earth?

§ Bacon's works, vol. 5, p. 470. 4th Edit. London, 1778.

duced, was meant to portray the production of water by the combination of its two elements; an opinion which, says he, is strongly supported by the fact that, in the ancient mythology, the purer air, or *ether*, was always represented by Jupiter, and the inferior by Juno. Were the elegant author of the Botanic Garden now living, he would no doubt, with a taste and delicacy peculiarly his own, avail himself of the singular discovery of Mr. Smithson, who has detected in the juice of the mulberry *two* distinct species of colouring matter;—the mingled blood of the unfortunate Pyramus and Thisbe:

> "Signa tene cædis: pullosque et luctibus aptos
> Semper habe fœtus, *gemina* monumenta cruoris."
> *Ovid. Metamorph. Lib.* iv. 160.

Sir William Drummond, the learned apologist of Egyptian science, conceives that the laws of *latent* heat were even known to the philosophers of that ancient nation, and that caloric in such a state, was symbolically represented by VULCAN, while *free* or *sensible* caloric was as clearly described in the character of VESTA. Those who maintain the antiquity of chymistry, and suppose that the fabulous conceptions of the ancients were but a mysterious veil ingeniously thrown by philosophy between nature and the lower order of people, consider that the alchymical secret is metaphorically concealed in the fable of the GOLDEN FLEECE of the Argonauts, and reject the more probable solution of this story by Strabo, who says that the Iberians, near neighbours of the Colchians, used to receive the gold, brought down from the high lands by the torrents, into sieves and sheep skins, and that from thence arose the fable of the golden fleece. *Dionysius*, of Mytilene, offers a different explanation of the fable, and supposes it to allude to a book *written on skins*, and containing an account of the process of *making gold* according to the art of alchymy.

Notwithstanding the confidence with which modern philosophers have claimed the discovery, the experimental mode of investigation was undoubtedly known and pursued by the ancients, who appear, says *Mr. Leslie*,* to have concealed their notions respecting it, under the veil of allegory. *Proteus* signified the mutable and changing forms of material objects, and the inquisitive philosopher was counselled by the poets† to watch their slippery demon when slumbering on the shore, to bind him, and compel the reluctant captive to reveal his secrets. This, adds Mr. Leslie, gives a lively picture of the cautious, but intrepid advances of the skilful experimenter;—he tries to press nature into a corner,—he endeavours to separate the different principles of action,—he seeks to concentrate the predominant agent, and labours to exclude, as much as possible, every disturbing influence.

But with whatever ingenuity and success the antiquity of hymical knowledge may be advocated, as it relates to the various arts of life, yet it must be allowed that not the most remote trace of its application to physic can be discovered in the medical writers of Greece or Rome. The operation of distillation‡ is not even mentioned by Hippocrates or

* Leslie's Elements of Natural Philosophy.

† Virg Georg. iv. 392—402.

‡ Dioscorides and Pliny describe a process, which may be considered that of distillation in its infancy; it consists in obtaining oil from pitch, by spreading over it

Galen ; and the waters of different plants, as described by some later authors, are to be understood, as we are informed by Gesner, merely as simple decoctions, and not as the products of any chymical process ; while the Essences of Dioscorides, Galen, Oribasius, and others, were only the extracts produced by the evaporation of such infusions.

Upon the downfall of the Roman Empire, all the sciences, the arts, and literature, were overwhelmed in the general wreck, and the early Mahometans, in the first paroxysms of their fanaticism, endeavoured to destroy every record of the former progress of the human mind ; consigning to destruction, by the conflagration of the Alexandrian library, no less than seven hundred thousand volumes, which comprised the most valuable works of science and literature.* It is not a little extraordinary that this same people were destined at a more advanced period, to rekindle the light of letters,† which they had taken such pains to extinguish, and to become the inventors and cultivators of a new science, boundless in its views, and inexhaustible in its applications. The medical profession too was more particularly selected as an object of reward and encouragement ; and we may say, with much truth, that our *Materia Medica* is more indebted to the zeal and industry of the Arabians, than to the learning of the Greeks, or to the refinement of the Romans. From this source we have acquired the milder purges of *Manna*, *Cassia*, *Senna*, *Rhubarb*, and many plants and oriental aromatics, amongst which we may notice *Musk*, *Nutmeg*, *Mace*, and *Cloves* ; the introduction of which into medicine was greatly facilitated by the situation of Bagdat, and its connexion with India ; and although Archigenes and Aretæus had long before applied *Blisters*, yet it is to the Arabian physicians that we are indebted for a practical acquaintance with their value, for in general, the Greeks and Romans prescribed acrid *Sinapisms* for such purpose. We are also indebted to the Arabians for our knowledge respecting Camphor, as its name imports, for the original word was *Cafur*, or *Canfur*.‡ They are also the first upon record, who speak of sugar, and sugar-candy, extracted from the sugar-cane, which they call *honey of cane* ; and they ushered into practice *Syrups*, *Juleps*, and *Conserves*. At the same time, it is but just to allow, that from the disgusting ostentation of this people, and their strong attachment to the marvellous, many absurd medicines have been introduced. Gold, silver, bezoars, and precious stones were received into their materia medica, and surprising virtues were attributed to them. Amongst a people thus disposed to magnificence, and from the very spirit of their religion credulous and romantic, it is not a matter of surprise that their first researches into the nature of bodies should have raised a hope, and excited a belief, that the baser metals might be converted into gold.

while boiling, fleeces of wool, which receive the vapour and afterwards yield it by expression. In this country the art of distillation was unknown at the time when the Romans had possession of it. It is said to have been introduced in the early part of HENRY II.

* It was destroyed in the sixth century, by the CALIPH OMAR, the cotemporary and companion of Mahomet.

† The Saracens, in their treaty with the Greek Emperors, demanded, by express articles, the works of the ancients.

‡ Garcias as well as Geoffroy and Hill say that Ætius mentions camphor, but it cannot be found, as Dr. Alston has observed, in that, or any other Greek author. There is a *Camphoræ herba* in Myrepsus ; but this is evidently a very different thing.

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They conceived that gold was the metallic element, in a state of perfect purity, and that all the other metals differed from it in proportion only to the extent of their individual contamination, and hence the origin of the epithet *base*, as applied to such metals; this hypothesis explains the origin of alchymy: but, in every history, we are informed that the earliest alchymists expected, by the same means that they hoped to convert the *baser* metals into gold, to produce a universal remedy, calculated to prolong indefinitely the span of human existence.

It is difficult to imagine what connexion could exist in their ideas between the "*Philosopher's Stone*," which was to transmute metals, and a remedy which could arrest the progress of bodily infirmity: upon searching into the writings of these times, it clearly appears that this conceit originated with the alchymists from the application of false analogies, and that the error was subsequently diffused and exaggerated by a misconstruction of alchymical metaphors.*

An example of reasoning by false analogy is presented to us by Paracelsus, in his work *de vita longa*, wherein, speaking of anatomy, he exclaims, "*Sicut antimonium finit aurum, sic, eadem ratione et forma, corpus humanum purum reddit.*"

The processes of alchymy were always veiled in the most enigmatic and obscure language; the earliest alchymist whose name has reached posterity, is Geber, an Arabian prince of the seventh century, whose language was so proverbially obscure, that Dr. Johnson supposes the word gibberish or *geberish* to have been derived from this circumstance; sometimes the processes of alchymy were expressed by a figurative and metaphorical style of description; thus Geber exclaims, "*Bring me the six lepers that I may cleanse them;*" by which he implied the conversion of the six metals,† the only ones then known, into gold. From the works of later alchymists it also appears that they constantly represented *gold* as a sound, healthy, and durable man, the imperfect metals as diseased men, and the means or processes by which the latter were to be transmuted into the former, they designated by the name of *medicines;* and hence, those who were anxious to dive into the secrets of these magicians, or **Adepts**, as they termed themselves, without possessing a key to their language, supposed that these descriptions were to be understood in a literal sense, and that the imperfect metals might be changed into gold, and the bodies of sick persons into healthy ones, by one and the same chymical preparation.

The hieroglyphical style of writing adopted by the earlier alchymists, was in a great degree supported by the prevailing idea that the elements were under the dominion of spiritual beings, who might be submitted to

* The Records of Physic, if I am not deceived, will afford numerous instances of similar errors, from mistaking figurative expressions for literal truths. A knowledge of this species of fallacy will explain the origin of several very extraordinary receipts. I shall select the following instance, by way of illustration. In many of the ancient works on Physic, we find the *blood of the goat* extolled for its efficacy in dissolving stones, and, from this supposed lithontriptic virtue, it forms the principal ingredient of the Powder of Nicolaus, and of the Electuary of the Queen of Colzin. The expression which gave origin to this belief was evidently allegorical, signifying that the blood of the goat, by which our Saviour was typified, was capable of softening the stony hearts of his enemies, or according to others, that by his influence, the stony rocks, and veil of the temple were shattered. *Browne's Vulgar Errors.*

† Silver, Mercury, Copper, Iron, Tin, Lead.

human power; and Sir Humphry Davy has observed that the notions of fairies, and of genii, which have been depicted with so much vividness of fancy and liveliness of description in THE THOUSAND AND ONE NIGHTS, seem to have been connected with the pursuit of the science of transmutation, and the production of the elixir of life. That the Arabian Nights' Entertainment admits of a mystic interpretation, is an opinion which I have long entertained. How strikingly is the effect of fermented spirit, in banishing the pressure of the melancholy which occurs in solitude, depicted in the story of Sinbad when he encountered the withered and decrepid hag, on the uninhabited island—but, to return from this digression to the subject of medical chymistry.

It was not in fact until several years had elapsed in the delusive researches of alchymy, that the application of chymical knowledge became instrumental in the advancement of the medical art. RHASES and AVICENNA, who were the celebrated physicians of the age, are the first who introduced pharmaceutical preparations into their works, or made any improvement in the mode of conducting pharmaceutical processes. Avicenna describes, particularly, the method of conducting *Distillation*; he mentions also, for the first time, the three *Mineral Acids*, and distinguishes between the *vegetable* and *mineral Alkalies*; he speaks likewise of the *Distilled Water of Roses*, of *Sublimed Arsenic*, and of *Corrosive Sublimate*.

In the year 1226, ROGER BACON, a native of Ilchester in Somersetshire, and a Franciscan monk of Westminster Abbey, laid the foundations of chymical science in Europe; his discoveries were so extraordinary that he was excommunicated by the Pope, and imprisoned ten years for supposed dealings with the devil; it appears that he was a believer in a universal Elixir, for he proposed one to Pope Clement the Tenth, which he extolled highly, as the invention of Petro de Maharncourt.

This wonderful man was succeeded at the end of the same century by Arnoldus de Villa Nova, a Frenchman, or as others assert, a Spaniard, who deserves to be noticed on this occasion, as being the first to recommend the distilled spirit of wine, impregnated with certain herbs, as a valuable remedy; from which we may date the introduction of *Tinctures* into medical practice; for, although Thaddæus, a Florentine, who died in 1270, at the age of eighty, bestows great commendation upon the virtues of *Spirit of Wine*, yet he never used it as a solvent for active vegetable matter.

It was not however until the end of the thirteenth century, that Chymistry can be said to have added any considerable power to the arm of physic.

BASIL VALENTINE, a German Benedictine monk, led the way to the internal administration of metallic medicine, by a variety of experiments on the nature of *Antimony*, and in his "*Currus Triumphalis Antimonii*," a work written in high Dutch, he has described a number of the combinations of that metal. If however we may credit a vague tradition, he was extremely unfortunate in his first experiments upon his brother monks, all of whom he injured if not killed; those who have keen ears for etymological sounds will instantly recognise, in this circumstance, the origin of the word *Antimony*,—ἀντί Μοναχός.

It appears that the ancients were ignorant of the internal use and administration of the metals, with the exception of iron, although they frequently used them in external applications. Hippocrates recommends

Lead in several parts of his works, as an *epulotic* application, and for other external purposes. *Litharge of Gold* and *Cerusse* also entered the composition of several powders extolled by that ancient physician as possessing great efficacy in defluxions of the eyes. Oribasius and Ætius added "*Lithargyrium*" to several plasters, and the composition of the "*Snow-like plaster*," from *Minium*, was long preserved amongst their most valuable secrets. Whether antimony is the *Stimmi* or *Stibium* of the ancients has been a matter of conjecture; for Pliny, in speaking of its preparation observes, "Ante omnia urendi modus necessarius, ne *plumbum* fiat." This plumbum however was evidently the revived metal of *Antimony*, with which the ancients were unacquainted, and therefore mistook it for *Lead;* besides, the word *Plumbum*, like many others which I have before mentioned, was used as a general term; thus, according to Pliny, Tin was called *plumbum album;* and Agricola calls Lead Plumbum *nigrum*.*

The question however is unimportant, for the *Stibium* was never used but as an external astringent, especially for the purpose of contracting the eyelids, and thereby of making the eyes appear very large, which has been considered from the most remote antiquity, as a feature of great beauty; thus the epithet βοῶπις is constantly applied by Homer to Juno. This practice appears also to have been followed by the Jews, for Jezebel is said to have painted her eyebrows to make the eyes appear big;† the expression also shows that the drug employed was the *Stimmi*. Ἐστιμμισαν τας οφθαλμους αυτης.

To Basil Valentine we are moreover indebted for the discovery of the *Volatile Alkali*, and of its preparation from *Sal Ammoniac;* he also first used mineral acids as solvents, and noticed the production of *Ether* from Alcohol; he seems also to have understood the virtues of *sulphate of iron*, for he says, when internally administered, it is tonic and comforting to a weak stomach, and that externally applied, it is astringent and styptic: he moreover recommended a *fixed alkali* made from vine twigs cut in the beginning of March, for the cure of gout and gravel.

In the year 1493, was born near Zurich in Switzerland, Paracelsus, or as he termed himself, Philippus, Theophrastus, Bombastus, Paracelsus de Hohenheim, a man who was destined to produce a greater revolution in the Materia Medica, and a greater change in medical opinions and practice, than any person who had appeared since the days of Galen. He travelled all over the Continent of Europe to obtain knowledge in Chymistry and Physic, and was a great admirer of Basil Valentine, declaring that Antimony was not to be equalled for medicinal virtue, by any other substance in nature: this opinion however does not deserve our respect, for it was not founded upon observation and experiment, but on a fanciful analogy, derived from a property which this metal possesses of refining gold, as I have before related. He also used *Mercury* without reserve, and appears to have been the first who ventured to administer it internally;‡ for although Avicenna asserts that it was not so poisonous as the ancients had imagined, yet he does not attribute to it any

* Agricola de veteribus et novis metallis: Lib. 1.

† 2 Kings, chap. ix. verse 30.

‡ It has been already stated, that we are indebted to an Indian for the discovery of Bark, and it now appears we derived our knowledge of Mercury from the wildest of the

virtues; he merely says, "Argentum quidem vivum, plurimi qui bibunt. *non læduntur* eo." Its effects, when applied externally, were well known to Theodoric the friar, afterwards Bishop of Cervia, in the twelfth century, who describes the salivation which mercurial frictions will produce. Paracelsus, moreover, employed lead internally in fevers,—"*Saturnus purgat febres*," was one of his most favourite maxims. He also gives us directions for the preparation of *Red Precipitate* with *Mercury* and *Aqua fortis*.

Paracelsus, thus armed with opium, mercury, and antimony, remedies of no trifling importance, travelled in all directions and performed many extraordinary cures, amongst which was that of the famous printer Frobenius of Basil, a circumstance which immediately brought him acquainted with Erasmus,* and made him known to the magistracy of Basil, who elected him professor of chymistry in the year 1527, which was the first professorship that was established in Europe for the promotion and dissemination of chymical science. But notwithstanding this testimony of his success, if we may credit Libavius, he often, like our modern quacks, left his patients more diseased than he found them; and it is acknowledged by his own disciple Oporinus, that when he was sent for to any town, for the purpose of administering his remedies, he was rarely suffered to protract his visit, on account of the general resentment of the inhabitants.

While seated in his chair, he burnt with great solemnity the writings of Galen and Avicenna, and declared to his audience that if God would not impart the secrets of physic, it was not only allowable but even justifiable to consult the devil. His cotemporary physicians he treated with the most sottish vanity and illiberal insolence; in the preface to his work entitled "Paragranum," he tells them "that the very down of his bald pate had more knowledge than all their writers, the buckles of his shoes more learning than Galen and Avicenna, and his beard more experience than all their Universities." With such a temper it could not be supposed that he would long retain his chair, in fact he quitted it in consequence of a quarrel with the magistrates, after which he continued to ramble about the country, generally intoxicated, and seldom changing his clothes, or even going to bed; and although he boasted of possessing a *panacea* which was capable of curing all diseases in an instant, and even of prolonging life to an indefinite length, yet this drunkard and prince of empirics died after a few hours illness, in the forty-eighth year of his age, at Salzburg in Bavaria, with a bottle of his immortal *Catholicon* in his pocket.

In contemplating the career of this extraordinary man, it is difficult to say whether disgust or astonishment is the most predominant feeling; his insolence and unparallelled conceit, his insincerity, and brutal singularities, and his habits of immorality and debauchery, are beyond all censure; whilst the important services he has rendered mankind, by oppos-

alchymists. May it not then be said that we are indebted to a *savage*, and a *madman*, for two of our most powerful remedies?

* Erasmus, the friend, the correspondent, and the patient of our own Linacre! Had not modern times, says Sir George Baker, furnished similar instances, it would have been a matter of astonishment to us to have heard that Erasmus should have deserted an accomplished physician whom he so greatly extols in his Epistles, in order to consult so wild and illiterate an enthusiast as Paracelsus.

ing the bigotry of the schools, and introducing powerful remedies into practice, cannot be recorded without feelings of gratitude and respect; but in whatever estimation Paracelsus may be held, there can be no doubt but that his fame produced a very considerable influence on the character of the age, by exciting the envy of some, the emulation of others, and the industry of all.*

About a century after Paracelsus, VAN HELMONT took the lead in physic; he was a man of most indefatigable industry, and spent fifty years in torturing by every chymical experiment he could devise, the various objects in the animal, vegetable, and mineral kingdoms. He was the first physician who applied *alum* in uterine hemorrhage, and he acquired a great reputation from the success of the practice.

SYLVIUS DE LA BOE, and OTHO TACHENIUS, followed in the track of Van Helmont.

A prejudice in favour of chymical remedies having been thus introduced, the merited success which attended their operation, and the zeal and perseverance which distinguished the votaries of that science, soon kindled a more general enthusiasm in its favour. It is impossible to reduce into miniature the historical features of these chymical times, so as to bring them within the compass of a lecture: I must therefore rest satisfied with delineating a few of the more prominent outlines. The Galenists, who were in possession of the schools, and whose reasonings were fettered by the strongest predilection for their own doctrines, instantly took the alarm; and the celebrated contest ensued between the *Galenical* and *Chymical* sects, which has given such a controversial tone to the writers of the fifteenth and sixteenth centuries. As this revolt from orthodox authority was in a great degree attributed to the mischievous introduction and unmerited success of Antimonial remedies, so were the preparations of this metal denounced with all the virulence of party spirit;† and upon this occasion, in order to support their ground and oppress and persecute their adversaries, the Galenists actually solicited the assistance of secular power; the Supreme Council of Paris accordingly proscribed its use by an edict in 1566, and Besnier was expelled the faculty of medicine in 1609, for having administered it to a patient. In 1637, *Antimonial wine* was by public authority received into the number of purgatives; and in 1650, a new *arrêt* rescinded that of 1566, and again restored Antimony to public favour and general reputation; and before we conclude our remarks upon the revolutionary history of this extraordinary metal, it deserves to be remarked, that this very same government that had with such great virulence, and so little justice, persecuted every practitioner who had shown any predilection for its use, in the year 1720 actually purchased the secret of an antimonial prepa-

* Paracelsus maintained that the human body is composed of salt, sulphur, and mercury, and that in these "*three first substances*," as he calls them, health and disease consist: that the mercury, in proportion to its volatility, produces tremors, mortifications in the ligaments, madness, phrensy, and delirium, and that fevers, phlegmons, and the jaundice, are the offspring of the *sulphureous* principle, while he supposed that the colic, stone, gravel, gout, and sciatica derive their origin from *salt*.

† Amongst the writers engaged in this contest, no one was more animated with party spirit than GUY PATIN, who was profuse in his personalties against those who defended the use of Antimony; he drew up a long register of the unsuccessful cases in which this medicine had been employed, which he published under the title of "ANTIMONIAL MARTYROLOGY."

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ration called *Panacea Glauberiana*, and which has been since known by the title of *Kermes Mineral*, from a surgeon of the name of La Legerie, who had acquired the secret from a pupil of Glauber. Before this period the invention of *Calomel* had taken place; this preparation is first mentioned, although very obscurely, by Oswald Crollius, in his *Basilica Chemica*, in 1608, and in the same year Beguin described it most fully and clearly under the title of *Draco Mitigatus*, in his *Tirocinium Chemicum*, which he published in Paris.

Chymistry, at this period,* took possession of the schools, and whilst it was gradually grafted into the theory of medicine, it soon became the only guide to its practice, the absurdity of which has been already dwelt upon.

In tracing the march of chymical improvement during the last century, we cannot but be struck with the new and powerful remedies which it has introduced, and the many unimportant and feeble articles which it has dismissed from medical practice.

In the present century, the rapid progress of Chymistry has outstripped the anticipations of it most sanguine votaries; and even in the department of vegetable analysis, a correctness has been attained, the very attempt at which had been abandoned by the most illustrious chymists of the former age as hopeless and chimerical; let us for instance only compare the results obtained by the Academicians of Paris, and published by Geoffroy, in their analyses of several hundred plants by the operation of heat, with the elegant and satisfactory researches in this branch of science lately conducted in the same country; whilst the former failed in establishing any distinction between the most inert and the most poisonous plants, the latter have succeeded in detecting, separating, and concentrating several of their most subtile constituents. *Opium* has been at length compelled to confess its secret source of action, and *Ipecacuan* to yield its emetic element in a state of perfect purity.

Our Pharmacopœias and Dispensatories† have cautiously kept pace with the scientific progress of the age; and in tracing them from their origin to the present time,‡ it is gratifying to observe the gradual influence of knowledge in reducing the number of their articles—simplifying the composition of their formulæ—and improving the processes for their

* In the year 1644 Schroeder published a *Chymico*-medical Pharmacopœia, which delineates with accuracy the pharmacy of these times, and enumerates almost all the chymical medicines that were known towards the close of this period.

†The Dispensatories of London and Edinburgh, the former by Mr. A. T. Thomson, and the latter by Dr. Duncan, are works which reflect credit on the age and country in which they were written.

‡ The first Pharmacopœia was published at Nuremburg, under the sanction of its Senate, in the year 1542; for this important act we are indebted to Valerius Cordus, a young student, who during a transient visit at that place, accidentally produced a collection of medical receipts which he had selected from the works of the most esteemed writers, and with which the physicians of Nuremburg were so highly pleased that they urged him to print it for the benefit of the apothecaries, and obtained the sanction of the Senate to the undertaking: so casual was the circumstance to which we owe the institution of Pharmacopœias. The London College were among the last to frame a standard Code of Medicines; most cities in Europe having anticipated us in the performance of this task: our first Pharmacopœia was not published until the reign of James the first, A. D. 1618, exactly a century after the College had received their Charter from Henry. Successive editions appeared in the following years, viz. in 1650; 1677; 1721; 1746; 1787; 1809.

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preparation.*—Chymistry has also been the means of establishing the identity of many bodies which were long considered as specifically different; thus an extensive list of animal substances has been discarded, since it is known that they owe their properties to one and the same common principle, as to *gelatine*, *albumen*, *carbonate of lime*, &c.; so again the fixed alkaline salt produced by the incineration of different vegetables, has been found to be potass, from whatever plant it may have been obtained, with the exception of sea plants, and perhaps some of the Tetradynamia, the former of which yield *Soda* and the latter *Ammonia*. Previous to the Pharmacopœia of 1745, every vegetable was supposed to yield a salt essentially different, and therefore a number of alkaline preparations were recommended, each bearing the name of the particular plant from which it had been procured, as salt of *Wormwood*—salt of *Broom*,—*Salt of Bean-Stalks*, &c.

But, from the very nature and object of a Pharmacopœia, it cannot be supposed to proceed *pari passu* with the march of chymical science, indeed it would be dangerous that it should, for a chymical theory must receive the seal and stamp of experience before it can become current: a Pharmacopœia, however, is always an object of abuse, because it is a national work of authority, which is quite a sufficient reason why the ignorant and conceited should question its title to respect, and its claim to utility. "*Plures audivi*," says Huxham, "*totas blaterantes Pharmacopœias, qui tamen ne intellexerint quidem quid vel ipse pulsus significabat.*"

It is very evident, that the greater number of these attacks has not been levelled with any view to elicit truth or to advance science, but to excite public attention, and to provoke unfair discussion, for individual and unworthy advantage; their obscure and presumptuous authors vainly hope, that they may gain for their ephemeral writings some share of importance, and for themselves some degree of reputation, if they can only obtain notoriety by provoking a discussion with the College or with some of its responsible members, though such a combat should be sure to terminate in their defeat. Like the Scythian Abaris, who upon being wounded by Apollo, plucked the arrow from his side, and heedless of the pain and disgrace of his wound, exclaimed in triumph that the weapon would in future enable him to deliver Oracles.

It is not to such persons that the observations which are contained in this work are addressed, for with them I am most anxious to avoid a contest, in which, as a worthy Fellow of our College expresses it, "*Victory itself must be disgraceful.*"

When, however, we are assailed upon every occasion by a gentleman whose talents entitle him to respect, and whose public situation

* What would be the surprise and gratification of the pharmaceutist who lived a hundred years ago, if he could now visit Apothecaries Hall? The application of steam for the various purposes of pharmacy, and for actuating machinery, for levigation, trituration, and other mechanical purposes, is no less useful, in ensuring uniform results, than it is in abridging labour and economising time. The greatest credit is due to the gentlemen under whose guidance this national laboratory is conducted, and more especially to their worthy and public spirited Treasurer, William Simons, Esq. whose zeal and liberality suggested and promoted the fitting up of the Steam Laboratory, as well as the ingenious machine for triturating mercury with lard, or conserve.

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commands notice, I apprehend that an humble individual like myself, may, in the conscientious discharge of a public duty, deliver his sentiments from the chair to which he has been called by his professional brethren, without any risk of compromising the dignity of the College, or of drawing upon himself the charge of an unnecessary and injudicious interference.

The attack to which I chiefly allude, is contained in an historical preface by Mr. Professor Brande, to the *Supplement of the Fourth and Fifth Editions of the Encyclopædia Britannica;* in which, speaking of the writings of BOERHAAVE, he says, "The observations which he has made upon the usefulness of Chymistry, and of its necessity to the medical practitioner, may be well enforced at the present day; for, except in the schools of London and Edinburgh, Chymistry, as a branch of education, is either entirely neglected, or, what is perhaps worse, superficially and imperfectly taught; this is especially the case in the English Universities, and the London Pharmacopœia is a record of the want of chymical knowledge, where it is most imperiously required."

The learned Professor of Oxford, Dr. Kidd, naturally anxious to repel a charge which he considered individually unfair, and to vindicate his University from an aspersion which he felt to be generally unjust, published an animated, but at the same time, a cool and candid defence, to which I have much pleasure in referring you. With respect to the Sister University, my own *Alma Mater*, I feel that I should be the most ungrateful of her sons, were I, upon this occasion, to omit expressing similar sentiments with respect to the course of chymistry, and that of its collateral branches, which are annually delivered in the crowded schools at Cambridge. Is Mr. Brande acquainted with the discipline of our University?—Is he aware that the chymical chair has been successively filled by BISHOP WATSON—MILNER—WOLLASTON*—and the late lamented Mr. TENNANT?—"*Master Builders in the Science.*" To say that such men have been the lecturers, is surely a sufficient testimony to show that the science of chymistry heretofore *could not* "have been neglected, or what perhaps is still worse, imperfectly taught;" and the zeal and ability displayed by the present Professor, ought to have shielded him from any such attack. Is Mr. Brande aware that the eloquent appeal of BISHOP WATSON from the chair at Cambridge,† on the gene-

* Since the publication of the last edition of this work, Mr. Archdeacon Wollaston has paid the debt of nature; his name will be cherished in grateful remembrance by those who had the good fortune to have been his pupils; as one of that number I will venture to say, that there never existed a lecturer on Experimental Philosophy, who was more eminently gifted with those qualifications, upon which the success of a public teacher must depend. He possessed a peculiar method of demonstration, a singular vivacity in the manner of conducting the experiments, and of keeping awake the attention of his auditors during their progress; while those details of manipulation which would have proved, in other hands, a source of tedium, he converted into subjects of the most lively interest.

† The Chymical Laboratory at Cambridge has produced some valuable discoveries. *Ex pede Herculem*, let me remind the chymist of the formation of Nitrous Acid, by passing a current of ammoniacal gas through the heated Oxyd of Manganese, for which we are indebted to Dr. Milner. I mention it merely as a whimsical circumstance, that the greatest degree of cold ever produced, was effected at Oxford, and the highest temperature, lately, at Cambridge. The researches of Dr. Clark are highly interesting and important, a succinct account of which has been published in

ral importance and utility of chymistry, gave the first impulse to that public taste for this science which so eminently distinguishes our Augustan age, and which has been the means of founding and supporting the Royal, and other Public Institutions in this metropolis, as well as in the other towns of the British Empire?

I need make no farther remark upon this part of Mr. Brande's assertion; the sequel, judging from the construction of the sentence, is evidently intended to be understood as a consequence, viz. and *therefore* "the London Pharmacopœia is a record of the want of chymical knowledge where it is most imperiously required," *because Oxford and Cambridge Physicians were its Editors.* Is not this the obvious construction?

It appears from Mr. Brande's laconic answer to Dr. Young, published in "*The Journal of Science and the Arts*," that his objections are those of Mr. Phillips, contained in his experimental examination of the Pharmacopœia; a work which, I confess, appears to me to furnish a testimony of the experimental tact, subtile ingenuity, and caustic style of criticism, which its author so eminently possesses, rather than a proof of any fatal or material inaccuracy in the Pharmacopœia; and I may urge this with greater force and propriety, when it is considered that, at the time of its publication, I was not a Fellow of the College, and therefore had no voice upon the subject of its composition, and consequently must be *personally* disinterested in its reputation.

I cannot conclude these observations upon Mr. Brande's attack, without expressing a deep feeling of regret, that a *gentleman*, whose deserved rank in society, and whose talents and acquirements must entitle him to our respect, should have condescended to countenance and encourage that vile and wretched taste of depreciating the value and importance of our most venerable institutions, and of bringing into contempt those acknowledged authorities which must always meet with the approbation of the best, and the sanction and support of the wisest portion of mankind.

And I shall here protest against the prevailing fashion of examining and deciding upon the pretensions of every medicinal compound to our confidence, by a *mere chymical* investigation of its composition, and of rejecting, as fallacious, every medical testimony which may appear contradictory to the results of the Laboratory; there is no subject in science to which the maxim of Cicero more strictly applies, than to the present case; let the *Ultra* Chymist therefore cherish it in his remembrance, and profit by its application—PRÆSTAT NATURÆ VOCE DOCERI, QUAM INGENIO SUO SAPERE.

Has not experience fully established the value of many medicinal combinations, which, at the time of their adoption could not receive the sanction of any chymical law? We well remember the opposition, which on this ground was for a long time offered to the introduction of the *Anti-hectic Mixture* of Dr. Griffith,—the *Mistura Ferri Composita* of the present Pharmacopœia, and yet subsequent inquiry has confirmed upon scientific principles the justness of our former practical conclusion; for it has been shown that the chymical decompositions which constituted the objection to its use, are in fact the causes of its utility (*see Mist. Ferri;*) the explanation, moreover, has thrown additional light upon

a small work, entitled, "The Gas Blowpipe, or the Art of Fusion, by burning the Gaseous constituents of Water."

the theory of other preparations; so true is the observation of the celebrated Morveau, that "*We never profit more than by those unexpected rasults of experiments, which contradict our analogies and preconceived theories.*"

Whenever a medicine is found by experience to be effectual, the practitioner should listen with great circumspection to any *chymical* advice for its correction or improvement. From a mistaken notion of this kind the *extractum colocynthidis compositum*, with a view of making it chymically compatible with *Calomel*, has been deprived of the *Soap* which formerly entered into its composition, in consequence of which its solubility in the stomach is considerably modified, its activity is therefore impaired, and its mildness diminished.*

On the other hand, substances may be medically inconsistent, which are chymically compatible, as I shall have frequent opportunities of exemplifying. The stomach has a chymical code of its own, by which the usual affinities of bodies are frequently modified, often suspended, and sometimes entirely subverted; this truth is illustrated in a very striking manner by the interesting experiments of M. Drouard, who found that Copper, swallowed in its metallic state, was not rendered poisonous by meeting with oils, or fatty bodies; nor even with *Vinegar*, in the digestive organs. Other bodies, on the contrary, seem to possess the same habitudes in the stomach as in the laboratory, and are alike influenced in both situations by the chymical action of various bodies, many examples of which are to be found under the consideration of the influence which solubility exerts upon the medicinal activity of substances; so again, acidity in the stomach is neutralized by *Alkalies*, and if a *Carbonate* be employed for that purpose, we have a copious disengagement of *Carbonic acid gas*, which has been frequently very distressing to the patient; lastly, many bodies taken into the stomach undergo decompositions and changes *in transitu*, independent of any play of chymical affinities from the hidden powers of digestion, some of which we are enabled to appreciate, and they will accordingly form a subject of investigation in the course of the present work.

The powers of the stomach would seem to consist in decomposing the *Ingesta*, and reducing them into simpler forms, rather than in complicating them, by favouring new combinations.

But every rational physician must feel in its full force, the absurdity of expecting to account for the phænomena of life upon principles deduced from the analogies of inert matter, and we therefore find that the most intelligent physiologists of modern times have been anxious to discourage the attempt, and to deprecate its folly. Sir Gilbert Blane, in his luminous work on Medical Logic, when speaking of the different theories of digestion, tells us that Dr. William Hunter, whose peculiar sagacity and precision of mind detected at a glance the hollowness of such delusive hypotheses, and saw the danger which theorists run in trusting themselves on such slippery ground, expressed himself in his public lectures, with that solidity of judgment combined with facetiousness of expression, which rendered him unparalleled as a public teacher. "Gentlemen,"

* These views have prevailed upon the committee of the College, and they have accordingly restored the Soap to the formula, in the present edition of the Pharmacopœia; so that the above objection no longer exists.

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said he, "Physiologists will have it that the stomach is a mill—others, that it is a fermenting-vat—others again, that it is a stew-pan,—but in my view of the matter, it is neither a mill, a fermenting-vat, nor a stew-pan—but a STOMACH, gentlemen, a STOMACH."

What can illustrate in a more familiar and striking manner the singular powers of *Gastric Chymistry*, than the fact of the shortness of time in which the aliment becomes acid in depraved digestion? A series of changes is thus produced in a few hours, which would require in the laboratory as many weeks,* while in acute affections of the alimentary canal the functions of the stomach are nearly suspended, and hence under such circumstances, whatever is introduced into this organ remains unchanged, even the nutritious mucilages are not digested.

From what has been said, it is very evident that the mere chymist can have no pretentions to the art of composing or discriminating remedies; whenever he arraigns the scientific propriety of our prescriptions, in direct contradiction to the deductions of true medical experience,—whenever he forsakes his laboratory for the bed-side, he forfeits all his claims to our respect, and his title to our confidence. It is amusing to see the ridiculous errors into which the chymist falls, when he turns physician; as soon as Seguin found that Peruvian bark contained a peculiar principle that precipitated *Tannin*, he immediately concluded that this *could not be any other* than *Gelatine*, and upon the faith of this blunder, the French, Italian, and German physicians,† gave their patients nothing but *clarified glue*, in intermittent fevers!—*But I desist*—not however without expressing a *hope*, *in which* I am sure my medical brethren will concur, *that, should* Mr. Brande again condescend to favour us with a commentary upon Boerhaave, he will select that passage in his work, where, alluding to the application of Chymistry to Physic, he emphatically exclaims, "EGREGIA ILLIUS ANCILLA EST, NON ALIA PEJOR DOMINA."

THE INFLUENCE OF SOIL, CULTURE, CLIMATE, AND SEASON.

The facts hitherto collected upon this subject are so scanty and unsatisfactory, that I introduce its consideration in this place, rather with a wish to excite farther inquiry, than with any hope of imparting much additional information.

There can be but little doubt, but that Soil, Culture, Climate, and Season,‡ may very materially influence the active properties of a medicinal plant; while the two latter of those causes may as essentially change the type and character of a disease, and modify the vital susceptibility of the patient; the natives of the south of Europe, for instance, do not bear bleeding, and other modes of depletion, so well as those of

* The only chymical phenomenon which in any manner resembles this, appears to be that of the rapid acetification of milk, and other fluids, by the agency of a thunder storm.

† This practice was introduced into France by Seguin, into Italy by Couticiri, and into Germany by Bischoff.

‡ A very ingenious Dissertation has been lately published by M. Virey, on the 'Degeneration of plants in foreign soils,' which he says may depend upon 1, *Climate* and *Station*; 2, *Nutriment*; 3, *Culture*; 4, *Factitious Mutilation*; 5, *Hybrid Generation*.

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the north. This must be admitted to its full extent, or it will be extremely difficult to explain the contradictory and even opposite opinions, and to reconcile the conflicting testimonies of the physicians of different countries, with respect to the efficacy of the same remedy, in similar diseases.

The Influence of Soil may be exemplified by many well known facts; thus, strongly smelling plants lose their odour in a sandy soil, and do not again recover it by transplantation into a richer one; a fact upon which Rozier founded his proposal for the improvement of Rape oil; so again, no management could induce the *Ricotia Ægyptiaca* to flower, until Linnæus suggested the expediency of mixing clay with the earth in the pot; *Assafœtida* is one of those plants that vary much according to station and soil, not only in the shape of the leaves, but in the peculiar nauseous quality of the juice which impregnates them, and Dr. Woodville states that it is frequently so modified that the leaves are eaten by goats; Gmelin informs us, on the authority of Steller, that the effects of the *Rhododendron* have been found to vary materially according to the "*solum natale;*" for example, that produced in a certain spot has proved uniformly *narcotic*, that in another, *cathartic*, while a sense of suffocation has been the only symptom occasioned by a third. Rhubarb, as grown in England, will differ greatly in its purgative qualities, according to the soil in which it may have been cultivated; that produced in a dry gravel being more efficacious than that which is reared in a clayey one. Dr. Carter in his account of the "*Principal Hospitals of France, Italy, and Switzerland,*" tells us that at Nice, the *Digitalis* is commonly given in doses of a scruple in powder, or in that of half an ounce of the infusion made according to the London Pharmacopœia, every hour, and without any sensible effect; this fact he explains by stating that the *Digitalis*, in the neighbourhood of Nice, is much smaller, and is probably less powerful than the same plant as it grows in England.

Climate also produces a powerful impression upon vegetable and animal life. It it probable that in southern countries some vegetables enjoy more energetic properties than in northern climes. The history of opium immediately countenances such an opinion; thus Egypt produces a stronger *opium* than any of the countries on the north side of the Mediterranean,—France, than England or Germany;—and Languedoc, than the northern parts of France;—while Smyrna, Natolia, Aleppo, and Apulia, furnish a juice far more narcotic than Languedoc: so again, *Senna* by transplantation from Arabia into the south of France (Provence) assumes a marked change in its physiognomy and virtues, its leaves are more obtuse, and its taste less bitter and nauseous than the pointed leaved variety, while its effects will be found to be less purgative. *Cruciform* plants degenerate within the tropics, but acquire increased energies, as *Antiscorbutics*, in cold regions; the *Menthæ* have not so penetrating an essential oil in the south of Europe as in England and in the north of France. The relative proportions of gluten vary in the wheat of different countries, and as in the south of Europe, its quantity greatly predominates over the other principles, we at once discover the cause that gives such excellence to the Maccaroni of Italy. Many species of plants secrete juices in warmer regions, which are unknown in their œconomy, in colder climates; thus the Ash yields *Manna* in

Calabria, but loses that faculty as it advances towards the north. The influence of climate, in its relations to moisture and dryness, upon vegetable productions, is also worthy of investigation; in wet and cold seasons, our herbage is far less nutritive to cattle, and we accordingly find that they are constantly grazing, in order to compensate by quantity, for what is deficient in quality, whereas in dry seasons, a large proportion of their time is consumed in rumination: the same causes, however, that diminish the nutritive powers of plants, frequently increase the energy of those principles upon which their medicinal value depends: it is obvious that many herbs are more rank and virulent in wet and gloomy seasons: this would appear to be a wise and provident law, in order to apportion the natural condiment of the vegetable, to the deteriorated state of its nutritive elements, when the digestive organs must require more than the ordinary stimulus for the due exercise of their functions. It is hardly necessary to observe that plants, which in temperate climates are merely shrubs, have been developed into trees, by the hot and humid plains of Africa and Asia; while in the arid deserts of Nubia, or in the frigid plains of Siberia, vegetable life is confined to stunted shrubs and humble mosses: cold also suppresses the colour of flowers, and indeed even that of the leaves, as is witnessed in the *Cyclamen*, *Amaranthus*, and *Ranunculus* of Lapland and Siberia. But climate not only modifies the powers of a remedy by influencing its structure and composition, but it renders it more or less active, by increasing or diminishing the susceptibility of the body to its impression; can a more striking proof of this fact be adduced than the well known effects of perfumes at Rome? The inhabitants are unable to sustain the strong scent of flowers in that climate, without experiencing a sensation highly oppressive, and which in some cases is even succeeded by syncope,* and thus realizing the well known line of the p et,

"*Die of a rose, in aromatic pain.*"

As I have been favoured with some very interesting observations upon this subject by Dr. Richard Harrison, who resided for a considerable time in Italy, and was thus enabled to institute a satisfactory inquiry into this curious subject, I feel no hesitation in introducing a quotation from his letter to my readers.—"You ask me what experience I have had on the subject of climate, as affecting the powers and operation of remedies; I have no difficulty in asserting that Narcotics act with greater force even in smaller doses at Naples, where I had the advantages of much experience, than in England. I might adduce as an example the *Extract of Hyoscyamus*, which, when given to the extent of three grains thrice a day, produced in two patients a temporary amaurosis, which disappeared and again recurred on the alternate suspension and administration of this medicine; and it deserves particular notice that these very patients had been in the habit of taking similar doses of the same remedy in England, without any unpleasant result. Now that this depended upon an increased susceptibility of the patient, in the warmer climate, rather than an increased power in the remedy, is unquestionable, since the extract

* Women during the period of gestation frequently experience such an increased irritability as to be affected even in England by various odours, which at other times would produce no extraordinary impression.

which was administered in Italy had been procured from London; indeed a high state of nervous irritation is the prevalent disorder of Naples. I treated several cases of Epilepsy in Italy with the *nitrate of silver*, and with complete success, while in England I certainly have not met with the same successful results. During my residence at Naples, I spent some time in the island of Ischia, so celebrated all over the continent for its baths; many of the patients who were then trying their efficacy, had been attacked by Paralysis, Apoplexy, and almost every degree of loss of mental and muscular power, and among them I certainly witnessed what with propriety might be denominated a genuine case of *Nervous Apoplexy*. These complaints I was generally able to trace to the abuse of *Mercury*, whence we may, I think, very fairly conclude that this metal is more active in its effects in that country, than in our own. Before I quit this subject, I ought to mention that the doses of medicines, as seen in the prescriptions and works of English physicians, excite universal astonishment among the faculty of Italy. In fact, as I have just stated, the human constitution in this part of the continent is certainly more susceptible of nervous impression than in England; it is perfectly true that flowers or perfumes in a chamber, will frequently produce syncope in persons apparently strong and healthy, and the fact is so universally admitted, that the Italians avoid them with the greatest caution." On the other hand, it appears equally evident that some remedies succeed in cold climates which produce little or no benefit in warmer latitudes. Soon after the publication of the first edition of my Pharmacologia, I received a letter from Dr. Halliday of Moscow, upon the subject of the "*Eau Medicinale*," and as it offers a striking proof of the efficacy of the *Rhododendron Chrysanthum* in curing the rheumatism of the North, whilst in this country the plant has been repeatedly tried without any signal proof of success, I shall here subjoin an extract from the letter of my correspondent: "In reading your account of the '*Eau Medicinale*,' I perceive that, upon the authority of Mr. James Moore, you state it to be a preparation of the *White Hellebore*; may I be allowed to suggest the probability of its being made from the leaves of the *Rhododendron Chrysanthum?* for so far as I can learn, the effects of the French medicine are precisely those which are experienced from an infusion of the above plant, which the Siberians and Russians regard as an infallible specific in the cure of chronic rheumatism and gout, and from which I myself, as well as other physicians in Russia, have witnessed the most desirable and decided effects, whenever we had it in our power to adminster the remedy with confidence and courage. We have seldom given it in any other form or dose than that adopted by the Siberians themselves, which is to infuse in a warm place, generally near a furnace and during the night, two drachms of the fresh leaves in about twelve ounces of boiling water, taking care that the liquid never boils. This dose is to be taken in the morning upon an empty stomach, and during its nauseating operation, which generally commences within a quarter of an hour after it has been swallowed, neither solids nor liquids of any description are allowed; after an interval of three or four hours, I have seen the patient obtain a copious and black fœtid stool, and get up free from pain. Should it happen that the patient does not recover from the first dose, another is administered on the succeeding day, and I have known it to be taken for three days in succession, when the severest fits

of gout have been removed.* Is it not then probable that some cunning Frenchman has availed himself of this Siberian specific, and concentrated it in such a form, as to defy all the learned to find it out?"

Dr. Halliday adds, "The Siberians denominate the leaves of this plant, when infused in water, *Intoxicating Tea;* and a weaker infusion is in daily use, especially for treating their neighbours, just as the Europeans do with tea from China."

Before we quit the consideration of Climate, as being capable of influencing the activity of a remedy, the important fact should not be overlooked, that in India, and other colonies of similar temperature, Mercurial Medicines, in order to produce their beneficial effects, require to be administered to an extent which would prove destructive to the inhabitants of this island.

But of all the circumstances that produce the greatest change in the aspect as well as in the virtues of the vegetable creation, is CULTIVATION, which may either destroy the medicinal properties of a plant, or raise in it new and most valuable qualities: cultivation converts single into double flowers, by developing the stamens into petals, a change which in many cases destroys their efficacy, as in the chamomile, *Anthemis Nobilis;* for, since all the virtues of this flower reside in the disc florets, it is of course greatly deteriorated by being converted into the double-flowered variety: by the operation of *grafting* extraordinary changes may also be produced; Olivier, in his travels, informs us that a soft *Mastiche*, having all the qualities of that resin, except its consistence, which is that of terpentine, is procured by engrafting the Lintisk on the Chian Turpentine tree.

Buffon states that our wheat is a factitious production raised to its present condition by the art of agriculture. M Virey† observes, that by suppressing the growth of one part of a plant we may respectively give rise to an increased developement in others; thus are some vegetables rendered eunuchs, or are deprived of seeds by obliteration, and only propagate themselves by slips; such a condition is frequently produced by culture, continued through a long succession of generations; this is the case with the *Banana*, *Sugar Cane*, and other fruits that have carefully been made to deviate for a long series of years from their original types, and having been continually transplanted by slips, suckers, or roots, at length only propagate themselves in this way, whereby the roots, as those of the common potato, become inordinately developed, drawing to themselves the succulence and nutrition originally possessed by the berries. It seems probable that we may thus have lost many vegetable species; the *Tuberes* of Pliny, for example, are supposed by Mr. Andrew Knight to have been intermediate productions, formed during the advancement of the Almond to the Peach, or in other words that they were swollen almonds or imperfect peaches; if this conjecture be admitted, it will explain the fact stated by Columella, that the peach possessed deleterious qualities when it was first introduced from Persia into the Roman Empire. If there be any who feel sceptical upon the subject of such

* This plant was first described by Gmelin in his *Flora Siberica*, iv. 121. It has obtained a place in the Edinburgh Pharmacopœia. Besides the effects stated by Dr. Halliday, it is said by different authors to excite a peculiar creeping sensation in the pained part.

† Journal Complementaire du Dict. des Sciences Medicales, tom. II.

metamorphoses, let him visit the fairy bowers of Horticulture, and he will there perceive that her magic wand has not only converted the tough, coriaceous covering of the almond into the soft and melting flesh of the peach, but that by her spells, the sour sloe has ripened into the delicious plum, and the austere crab of our woods into the golden pippen; that this again has been made to sport in endless variety, emulating in beauty of form and colour, in exuberance of fertility and in richness of flavour, the rarer productions of warmer regions, and more propitious climates! In our culinary vegetables the same progressive melioration and advancement may be traced; thus has the acrid and disagreeable *Apium graveolens* been changed into delicious *Celery*, and the common *Colewort*, by culture continued through many ages, appears under the improved and more useful forms of Cabbage, Savoy, and Cauliflower. It has been already observed that the alimentary and medicinal virtues are frequently in opposition to each other, and that while cultivation improves the former, it equally diminishes the latter; I shall have occasion to offer some additional facts upon this curious subject, under the consideration of *Bitter Extractive: see Note on this Extract, in the article "Tonics."*

THE IGNORANT PREPARATION AND FRAUDULENT ADULTERATION OF MEDICINES.

The circumstances comprehended under this head certainly deserve to be ranked amongst the more powerful causes, which have operated in affecting the reputation of many medicinal substances. The Peruvian Bark fell into total discredit in the year 1779, from its inability to cure the ague; and it was afterwards discovered to have been adulterated with bark of an inferior species; indeed Sydenham speaks of the adulteration of this substance before the year 1678; he tells us that he had never used to exceed two drachms of *Cinchona* in the cure of any intermittent, but that of late the drug was so inert, rotten, and adulterated, it became necessary to increase its dose to one, two, or three ounces. The subject is copious and full of importance, and I have taken considerable pains to collect very fully, the various modes in which our remedies are thus deprived of their most valuable properties, and to suggest the best tests by which such frauds may be discovered. Very few practitioners have an idea of the alarming extent to which this nefarious practice is carried, or of the systematic manner in which it is conducted: there can be no doubt but that the sophistication of medicines has been practised in some degree in all ages,* but the refinements of chymistry have enabled the manfacturers of the present day, not only to execute these frauds with great address, but unfortunately, at the same time, to vend them with less chance of detection. It will be scarcely credited, when I affirm that many hundred persons are supported in this metropolis by the art of adulterating drugs, besides a number of women and children who find ample employ-

* Dr. Murett in his "Short view of Frauds and Abuses," (A. D. 1669) charges the Apothecary with "falsifying medicines;" "They showed the Censors," says he, "*Myrtle leaves* for *Senna*; a *Binder* for a Purger; *Mushrooms* rubbed over with chalk for *Agaric*; *Hemlock* for *Pœony*; *Sheep's lungs* for *Fox's lungs*: and the bone of an *Ox's heart*, for that of a *Stag's heart*."

ment and excellent profit in *counterfeiting* Cochineal with coloured dough, Isinglass with pieces of bladder and the dried skin of soles, and by filling up with powdered Sassafras the holes which are bored in spice and nutmegs, for the purposes of plundering their essential oils.

THE UNSEASONABLE COLLECTION OF VEGETABLE REMEDIES.

Vegetable physiology has demonstrated, that during the progress of vegetation most remarkable changes occur in succession, in the chymical composition, as well as in the sensible qualities of a plant; time will not allow me to be prodigal of examples, take therefore one which is familiar and striking,—the aromatic and spicy qualities of the unexpanded flowers of the *Caryophyllus Aromaticus* (*Cloves*) are well known to every body, but if the flower-bud be fully developed it loses these properties altogether, and the fruit of the tree is not in the least degree aromatic; so the berries of Pimento, when they come to full maturity, lose their aromatic warmth and acquire a flavour very analagous to that of Juniper. The *Colchicum autumnale* may be cited as another example in which the medicinal properties of the vegetable are entirely changed during the natural progress of its developement. See also *Inspissated Juices*, under the article *Extract*.

THE OBSCURITY WHICH HAS ATTENDED THE OPERATION OF COMPOUND MEDICINES.

It is evident that the fallacies to which our observations and experience are liable with respect to the efficacy of certain bodies, as remedies, must be necessarily multiplied when such bodies are exhibited in a state of complicated combination, since it must be always difficult, and often impossible, to ascertain to which ingredient the effects produced ought to be attributed.

How many frivolous substances have from this cause alone gained a share of credit, which belonged exclusively to the medicines with which they happened to be accidentally administered?* Numerous are the examples which I might adduce in proof of this assertion; the history of Bezoar† would in itself furnish a mass of striking evidence, indeed

* The editors of the *American Medical Recorder* (vol. 1, p. 471,) in descanting upon the efficacy of Prussic Acid, very gravely remark, that they are acquainted with a lady, subject to hysteric affections, who *always* derives relief from a dose of Cherry Brandy, in which *Peach kernels* have been digested; the stimulus of the brandy then goes for nothing with these blockheads! Zimmerman not unaptly compares a man who is intoxicated with a favourite opinion, to a passionate lover, who sees and hears nothing but his mistress

† Bezoar, (from *Pa-zahar*, Persian, a destroyer of poison.) A morbid concretion formed in the bodies of land animals. Several of them were formerly highly celebrated for their medicinal virtues; they were considered as powerful *Alexipharmics*, in so much so, that other medicines, possessed of alexipharmic powers, were called *Bezoardics*; so efficacious were these substances formerly considered that they were bought for ten times their weight of gold. Avenzoar, an Arabian physician, who

the reputation of this absurd substance was maintained much longer than it otherwise would have been, by its exhibition having been frequently accompanied with that of more active articles. Monardes, for instance, extols the efficacy of the *Bezoar* as a vermifuge, but he states that it should be mixed with the seeds of *Wormwood*. Besides, in the exuberance of mixture, certain reactions and important changes are mutually produced, by which the identity of the original ingredients is destroyed; but this subject will be introduced for discussion in the first part of the Pharmacologia.

The practice of mixing together different medicinal substances, so as to form one remedy, may boast of very ancient origin, for most of the prescriptions which have descended from the Greek physicians are of this description; the uncertain and vague results of such a practice appear also to have been early felt, and often condemned, and even Erasistratus declaimed with great warmth against the complicated medicines which were administered in his time; the greater number of these compositions present a mass of incongruous materials, put together without any apparent order or intention; indeed it would almost appear as if they regarded a medical formula as a problem in *Permutation*, the only object of which was to discover and assign the number of changes that can be made in any given number of things all different from each other.

At the same time it must in justice be allowed, that some of the earlier physicians entertained just notions with regard to the use and abuse of combination, although their knowledge of the subject was of course extremely limited and imperfect.

Oribasius* recommends in high terms certain combinations of *Evacuant* and *Roborant* medicines, and the remarks of Alexander Tralianus on a remedy which he exhibited in paralysis, serve to show that he was well acquainted with the fact, that certain substances lose their efficacy when they stimulate the bowels to excess, for he cautions us against adding a greater proportion of *Scammony* to it; many, he observes, think that by so doing, they increase the force of the medicine, whereas in fact they made it *useless*, by carrying it immediately through the bowels, instead of suffering it to remain and be conveyed to the remote parts.

In modern Europe, the same attachment to luxuriancy of composition has been transmitted to our own times: there are several prescriptions of Huxham extant, which contain more than *four hundred* ingredients. I have already observed that all extravagant systems tend, in the course of time, to introduce practices of an opposite kind; this truth finds another powerful illustration in the history of medicinal combination, and it becomes a serious question, which it will be my duty to discuss, whether the disgust so justly excited by the *poly-pharmacy* of our predeces-

practised at Seville in Spain about the year One Thousand, first recommended it in medicine. A composition of Bezoar with absorbent powers, has been extensively used under the name of *Gascoigne* powder, and *Gascoigne's Ball*; but the real Bezoar was rarely used on this occasion; Gypsum, or pipe-clay tinged with ox-gall, proved a less expensive ingredient.

* Oribasius, a native of Sardes, lived in the fourth century; he was the friend and favourite of the Emperor Julian, under whom he had great authority, and acquired considerable wealth. It would be well for the profession of Physic, and for the public, if crowned heads generally evinced as much discrimination in the appointment and patronage of physicians.

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sors, may not have induced the physician of the present day to carry his ideas of simplicity *too far*, so as to neglect and lose the advantages which in many cases beyond all doubt may be obtained by scientific combinations. "To those," says Sir A. Crichton, "who think that the Science of Medicine is improved by an affected simplicity in prescribing, I would remark, that modern pharmacopœias are shorn so much of old and approved receipts,* on account of their being extraordinary compounds, as to be almost useless in some cases."

In the year 1799, Dr. Fordyce, in a valuable paper published in the second volume of the Transactions of the Medical Society, investigated this subject with much perspicuity and success: unfortunately, however, this memoir terminates with the investigation of *similar* remedies, that is to say, of those which produce upon the body similar effects, and he is entirely silent upon the advantages which may be obtained by the combination of those medicines which possess *different*, or even *opposite* qualities; it must be also remembered that at the time this memoir was composed by its eminent author, Chymistry had scarcely extended its illuminating rays into the recesses of physic. Under such circumstances, I am induced to undertake the arduous task of inquiring into the several relations in which each article of a compound formula may be advantageously situated with respect to the others; and I am farther encouraged in this investigation, by a conviction of its practical importance, as well as by feeling that it has hitherto never received the share of attention which it merits. "I think," says Dr. Powell, "it may be asserted, without fear of contradiction, that no medicine compounded of five or six simple articles, has hitherto had its powers examined in a rational manner." If this attempt should be the means of directing the attention of future practitioners to the subject, and thereby of rendering the Art of Composition more efficient, by placing it upon the permanent basis of science, I shall feel that I have profitably devoted my time and attention to the most useful of all medical subjects. *Res est maximi momenti in arte medendi, cum, Formula in se considerata, possit esse profecto mortis vel vitæ sententia.*"

* Three fourths at least of the Quack Medicines of the present day are remedies of this description, and are compounded according to such receipts.

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