

Practical remarks on the measures proposed for reform in the medical profession / by a general practitioner, member of the Royal College of Surgeons, London.

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PRACTICAL REMARKS

ON

THE MEASURES PROPOSED

FOR

REFORM

IN THE

MEDICAL PROFESSION.

BY A GENERAL PRACTITIONER,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, LONDON.

"Quid verum atque decens curo et rogo, et omnis in hoc sum."—*Horatii Epist. I. Lib. 1.*

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PRAGMATIC REMARKS

THE MEDICAL RECORD

RECORD

MEDICAL RECORD

BY J. D. D. D. D. D.

THE MEDICAL RECORD

THE MEDICAL RECORD

PRACTICAL REMARKS,

&c., &c.

AMONGST the various subjects to which the public attention is at present directed, both by the daily and the more extended Journals, probably no one is so unfairly and unsatisfactorily presented to the reader, as the past history and the future prospects of the Medical Profession. In the general (and we would add justifiable) cry for Reform, justice seems for a time to have committed her balance to the unsteady hands of passion and prejudice;—truth is masked by specious misrepresentation and error; calumny and invective are substituted for sound argument and fair reasoning; whilst the private interests and ambitious enterprises of the restless and discontented few, are exhibited as expressive of the true feeling and avowed opinions of the general mass of Medical Practitioners. In offering the following remarks, on a subject alike

important to the public and the profession, we desire to tread in the straightforward path of truth and honesty, and to rank with those who form an exception to the general rule, but who, fearlessly as they give their opinions, forget not,—that low and vulgar satire is not reason, and that falsehood and abuse are not substantial and conclusive arguments.

Agreeing, as we do, with the advocates of sound Medical Reform, we strongly except against the measures contemplated by the framers of those impracticable schemes which are now exhibited to the public, and waiting the judicial decision of the British Legislature. Looking at their tendency, we consider them fraught with danger and destruction to much that is respectable in professional standard and character, or useful in practical operation and beneficial result. In considering this subject fairly and impartially, two objects claim our candid and thoughtful attention—the public health and security on the one hand, and on the other, the reasonable expectations of every individual who is a candidate for admission to the profession.

In the ordinary transactions of commercial life, or in the choice of commodities which are either absolutely necessary or simply ornamental or useful, every individual may confide in his own judgment, or be satisfied with the advice of the party with whom he is negotiating; but, where health and life are involved, few would be

disposed to consult any Medical Practitioner, merely because he assumed the profession, but would look for some sanction in the form of a certificate or testimonial from those whose standing and reputation placed them beyond suspicion, in reference to *that* knowledge which is considered essential to the public welfare. On the other hand, it must be remembered, that all who may wish to enter the Medical Profession, have not the same calibre of mind, possess not the same means, and may not be placed in situations of equal advantage to many of their surrounding competitors. It would be therefore, arbitrary and unjust to expect from *them*, attainments equal in character and degree to those who had enjoyed more extended opportunities for improvement; and, consequently, to place the standard of qualification so much beyond their reach as to subject them to disappointment, notwithstanding their utmost assiduity and exertion. It becomes therefore advisable, that such an arrangement should exist, as shall enable the individual of slender means and humble pretensions to commence his practical career as early as is compatible with the safety of the public; in every step of which, if his previous advantages have been but of comparatively a moderate character, he will find his own ability for usefulness increasing, while the public good is effectually secured.

It should also be borne in recollection, that any individual, who commences the Practice of

Medicine, whether of a more commanding or inferior grade of talent, is placed in a very different position to the ordinary tradesman, who though a novitiate, can offer his goods for sale with pretensions equal to the man who has been much longer in business; whilst the Medical Practitioner must wait patiently for a considerable time, until his youthful countenance has assumed a more manly appearance—opportunities for evincing his abilities have been presented, and his professional reputation has become established. It is, however, quite compatible with a due consideration of the just claims both of the public and the Medical Man, to encourage the acquisition of Medical and Surgical Knowledge to an unlimited extent; and to accomplish this, we may confidently look to those whose time, opportunities, and means, may favour an object so desirable.

The question then arises, what system of education is best calculated to meet these several requisitions? A satisfactory answer to this interrogatory, we hope, will be supplied in the following remarks.

It is generally known, that the Medical Profession comprehends three classes of Practitioners—the Physician, the Surgeon, and the Apothecary; the latter being more correctly designated the *General Practitioner*. It is immaterial whether this division or distinction has been created by the community at large, or by the Profession itself—suffice it to say, it exists, and with the general

consent of the public; nor can all the measures that sophistry and ingenuity may devise, ever practically annihilate what common sense has dictated, and sound reason has approved. Supposing the "*one Faculty System*" to be introduced, and all candidates to receive their license to practise medicine from one Board, and, that to obtain this license, one uniform test of qualification be applied, will this do away with any thing more than the name? Will it in any degree affect the nature of the existing arrangement? Will there not always be found a class of individuals, who, either from the superiority of their natural endowments, or the extraordinary advantages they may have enjoyed, the time and attention they may have bestowed on specific topics, and from the skill they may have evinced both in the detection and treatment of disease, will be selected by their fellow-licentiates as *Consulting Men*? And supposing some of these to have confined their researches and practice to what is comprehended in the term Medicine, can we give them a better appellation than Physician? or if to Surgery, Consulting Surgeon? And will not the remainder of the body, whose services are called for in a more general capacity, be appropriately designated by the significant and comprehensive title of *General Practitioner*? Whether, then, an individual be described as a Doctor in Medicine, or Doctor in Surgery, or Doctor in General Practice, and whether this title be considered as simply honorary

or be supposed to convey to the public mind something more, the division of the profession will be practically the same. The General Practitioner will be in the majority of cases in more constant attendance, and expected by the patient to decide upon the Physician or Surgeon whose acquirements may render his opinion most desirable, in cases of doubt, difficulty, or danger. And are not the foregoing representations verified, by what is customary in that department of Medicine which is included in the term Surgery? Nor does it appear to us to be in any degree derogatory to the General Practitioner, that such a division should exist, since his services will be correctly estimated by the public, whilst they perceive the interests of the community materially advanced by the promptitude and constancy of his attentions.

Such then being the present position of the profession, we would next inquire, which of these three divisions is to supply the medical claims of the greater proportion of the population of this country, and which from the pecuniary resources of the majority, is likely to be the most frequently consulted? This is an important point which should receive the impartial and careful consideration of the Legislature, and especially so far as it regards the mode of admission to the discharge of such momentous duties.

It is notoriously a matter of fact, that the General Practitioner is in by far the greater part of England and Wales, applied to in *all* cases, Surgi-

cal as well as Medical, and is *the* person, who is not only primarily consulted, but solely depended on; and even in those places where Physicians and Surgeons are located, in nineteen cases out of twenty, not merely is he first in attendance, but has the chief management and responsibility of the case throughout. It is then, to the Education and recognition of this division of the Medical body, that the genuine Reformer will direct his close attention and calm investigation.

“ Notwithstanding, we see,” (to borrow a quotation from the writer in the Morning Herald) “ in this the nineteenth century, with all its “ boasted intellect and light, *regularly* “ *educated* “ men lending themselves to the mummeries of “ Mesmerism, and to many other mummeries “ as disgraceful to Medical Science as any fantastic tricks enacted by a Medical mountebank “ at a country fair ;”—and even though “ the “ public have not good sense to discountenance “ such juggleries practised under the protection “ of a diploma or without one, and although public opinion be not strong enough to lash them “ out of existence ;” nevertheless, the great mass of the community may be effectually screened in circumstances of deep anxiety and difficulty, by an efficient race of General Practitioners, to whose discretion and choice, as we have hinted, the selection of a second opinion is generally referred. We conclude, therefore, that the Legislature should confine its attention to such a regulation

of the Profession, that, whilst none should be excluded, who, by an ordinary degree of diligence and attention can and do acquire that knowledge which is essential to the public safety, it may as far as possible, check or repress those, whose indolence and ignorance would not only be injurious to society, but disgraceful to the Professional character. To attempt to destroy the Hydra-headed monster Quackery, with all its pretensions, rests not with the *executive* of the land, but with its *inhabitants*; and on this subject we cannot express our opinions better than by giving another extract from the Morning Herald :

“ Religion and the law have both their quacks.
 “ We have seen “ *Irvingism*,” “ revivals,” and
 “ other quackeries of a religious kind, draw away
 “ for a time considerable numbers of people, and
 “ many of them among the educated classes of
 “ society. We have seen as many quackish *nos-*
 “ *trums* in the way of legal reform proposed by
 “ lawyers as there have been quackish *nostrums*
 “ in the way of political reform proposed by poli-
 “ tical charlatans. The suppression of quackery
 “ in any profession by positive law, is an Utopian
 “ idea, and they only deceive themselves or the
 “ public who say that any bill of “ medical re-
 “ form” can drive quackery and empiricism out
 “ of the land, or even out of the medical profes-
 “ sion itself.

“ What then can legislation do ? It can place
 “ the medical profession and the practice of me-

“dicine in general under such regulations as will
 “always afford the public the means of obtaining
 “the assistance of well-educated practitioners and
 “physicians of true learning and science—of
 “proved character also for ability and honour—
 “if the public prefer such men to ignorant and
 “impudent pretenders. But if the latter please
 “them more, there is no remedy for it. The
 “Government and the Legislature will have done
 “their duty; and those people who still prefer
 “quackery to talent, and empiricism to science,
 “can only blame themselves for the conse-
 “quences.”

Our next inquiry is, what ought to be the character and extent of that test which should admit an individual to the general practice of medicine in this country? And in replying, we would cautiously steer between the two extremes, believing the middle path to be the safest. Some advocate the abolition of examinations altogether, and they would open the doors of the Profession to all without discrimination, allowing the chemists and druggists to practise with impunity. Others would carry the standard of examination to an unreasonable extent, and would uphold a system as impracticable as it would be unjust. Their theories may, at first sight, have a very imposing aspect; but as to all useful practical purposes, they would prove perfectly inoperative. It is argued by some, that all solid improvement and elevation in the standard of the Profession must

result, not simply from the character and degree of medical instruction and examination, but from a sound "preliminary education." The statement of the writer in the Quarterly Review cannot be doubted "that those whose minds have been prepared by a good preliminary education have, on the whole, been found to be much more diligent and to have gained knowledge much more easily than others;" and if it were possible as a general rule to accomplish this important object, the Profession would be a much more learned body, but probably not as extensively useful.

But how is this training to be effected? Are the Senate or Council, or any other conclave of learned men prepared to contend, that none but those who are deep in classic lore are likely to attain that knowledge of their profession, which shall not only prove incalculably valuable to the public, but shall even render them ornaments to the body to which they belong? Does past experience testify that our most eminent and useful men have been the most learned classics? Are these advocates for preliminary education prepared to institute such restrictions as to prevent any one commencing the Study of the Medical Profession, without first undergoing a College classical examination? If they are, we hesitate not to state that they would be inflicting on society a curse instead of conferring a blessing, and would deprive of valuable Medical assistance the greater portion of the inhabitants of this country: for should such requisitions be im-

perative, not one in ten who now enter the Profession would be found, whose pecuniary means would be adequate ; and even if they were, what with introductory expenses, future struggles, and the uncertainty after all of success in obtaining a moderate recompense, it is to be more than suspected that very few would be found sufficiently enterprising to enrol themselves amongst the Professional Candidates.

If it is intended that this strict classical examination is to be the passport to the entrance on the practice of Medicine, will not the result be very similar ? for how many of those who follow the profession, decide on their future pursuits, or are capable of doing so, till they have left or are about to leave the instructions of a school, and *that* at the age of sixteen ; and do we find at this age or even at "*eighteen*," that in the majority of cases, such is the fondness for study or sense of the value of time, as to induce a steady or persevering application on the part of youth, to subjects, which, up to the very period of their being liberated from necessary and wholesome restraint, were irksome and oppressive ? Every day's experience tells us that quite the reverse is the case ;—a truth very easily corroborated by the testimony of those who have had the superintendence of the youthful mind, and more especially during the two first years of a College life. We are convinced, therefore, that all attempts to raise the General Practitioner of Medicine, and extend his usefulness by high clas-

sical requisitions, will be as abortive as they are unnecessary. Let high attainments in these preliminary studies be encouraged by appropriate rewards and immunities; but never let them be the *sine qua non* of admission to a profession which may be extensively useful with a comparatively scanty measure of classical knowledge.

The talented writer in the Quarterly Review, says, “As matters now stand, we find the subject of general or preliminary education altogether unnoticed in the regulations both of the College of Surgeons and of the Society of Apothecaries, except indeed that the latter require that the Candidates should construe some *scraps* of Latin;” and he asks “If Education be a thing of so much importance ought such an omission to exist?” We answer—certainly not. But is it *possible* that the writer could ever have perused the regulations of the Court of Examiners of the Apothecaries Society, *since* any recommendations have been appended to them, and yet make this assertion? We think not: but in order to correct this statement let reference be made to the regulations dated September 1830, the period at which prefatory remarks were first offered: vide page 5. “In addition to the studies mentioned in the following pages, the Court beg seriously to impress upon parents and guardians who destine the youth under their care to the study of Medicine, that a *familiar* acquaintance with the Latin language is indispensable, and that a

“ knowledge of Greek is scarcely less so, since
 “ most of the terms of art employed in Medicine
 “ and the collateral sciences are derived from
 “ that expressive language, without a knowledge
 “ of which, the Pupil loses the value of much of
 “ the instruction he would otherwise receive from
 “ his teacher. Natural history may be said to be
 “ essential to the proper study of the *Materia*
 “ *Medica*, and an acquaintance with the *exact*
 “ Sciences will not only enable the student to
 “ understand more readily the admirable struc-
 “ ture and functions of many parts of the human
 “ frame, but also assist him in acquiring habits of
 “ precise and correct reasoning.”

Again, see preface to regulations dated Aug. 1832,
 page 4. “ Before the Student enters upon his pro-
 “ fessional studies, it is indispensably necessary
 “ that he should have received a classical educa-
 “ tion, as in addition to the advantages which
 “ result from the mental discipline such an educa-
 “ tion affords, he will find a familiar knowledge
 “ of Greek and Latin imperatively requisite, &c.”

“ An acquaintance with the Mathematical Sci-
 “ ences also is scarcely less necessary to enable
 “ the Student to understand the admirable struc-
 “ ture and functions of the human body and to
 “ acquire habits of correct reasoning on the com-
 “ plicated phenomena of life and disease; and
 “ since many valuable contributions have been
 “ made to professional literature in the *French*
 “ and *German* languages, it is desirable when

“ opportunity offers or circumstances will permit,
 “ that he should likewise be instructed in those
 “ languages so as to be enabled to read and trans-
 “ late with facility.” And up to the very last
 Curriculum of Study that has been published,
 recommendations of this character have been
 strongly urged on the attention of the Parents and
 Guardians of Youth as well as on the Students
 themselves.

But what does the Author mean when he
 speaks of “ *Scraps of Latin?*” When a man at
 College passes his “ *little or great Go.*” Is he ex-
 amined in every chapter, page, sentence, or word
 of the authors he “ *gives in?*”—or is not an accu-
 rate knowledge of selected portions of these au-
 thors, considered satisfactory? And if a gentleman
 can construe and give evidence that he understands
 the construction of any passage or page which may
 be shown him, in Celsus, Gregory’s *Conspectus*
Medicinæ, or the *Pharmacopœia*, is he not as effec-
 tually examined as the individual whose knowledge
 is judged of at College, by his acquaintance *with*,
 or ignorance *of*, any selections offered to *his* notice?
 Most assuredly he is. But if in reference to the
 extent of the classical examination to which Me-
 dical Students are subjected, it is asked, how is it
 to be regulated? We reply—Let the same rule
 by which his qualifications in other departments
 should be tested, be the guide.

This is so appropriately defined by the author
 of “ *Medical Reform*” that we quote his instruc-

tions.—“ We conclude” says the writer, “ that
 “ there are no individuals belonging to either of
 “ these governing bodies” (referring to the ex-
 “ isting corporate bodies) “ who will hesitate to
 “ admit the following propositions as the basis on
 “ which all their regulations should be founded :
 “ *First*, that they are bound to consider the trust
 “ reposed in them as held for the good of the
 “ community at large and not for the benefit of
 “ the particular corporation to which they belong :
 “ *Secondly*, that it is their duty to require of the
 “ Candidates for their diploma or license, the
 “ highest qualifications which they may be ex-
 “ pected to possess, at the same time taking care
 “ that they do not raise the standard so high, as
 “ to prevent a sufficient number of persons enter-
 “ ing the profession to meet the wants of the
 “ public and ensure a wholesome competition :
 “ *Thirdly*, that as to the extent of qualifications
 “ which ought to be required no general rule can
 “ be laid down, but that they must vary from
 “ time to time according to the state of Society
 “ generally, or as the means of obtaining a good
 “ education are easy or difficult.” In addition,
 when speaking of Examiners the writer adds :—
 “ whose duty it will be to bear in mind, that the
 “ intention of Medical Education is to make, *not*
 “ Philosophers, but skilful and useful Practi-
 “ tioners, and that those who have higher aspira-
 “ tions may very safely be left to accomplish their
 “ object in their own way.”—“ In the examina-

“ tions, they should especially make it their busi-
 “ ness to ascertain what is the amount of practical
 “ knowledge drawn from their own observation,
 “ which the Candidates possess, and with this
 “ view they should interrogate them not so much
 “ about what they have been taught in Lectures,
 “ as about what they have themselves witnessed
 “ and which cannot be learned by rote.” The
 author proceeds to state that “ under the very
 “ best system of examination it is impossible to
 “ prevent a certain quantity of base metal re-
 “ ceiving the stamp which ought to be impressed
 “ only on the good.” And further “ that such an
 “ examination as all are required to pass, neither
 “ *can* nor *ought* to prove more, than that the indi-
 “ dual examined has the *minimum* of knowledge
 “ which a practitioner should possess :”—that is,
 admitting that every individual has a right under
 proper restrictions to follow what business or pro-
 fession he pleases, such limitations alone should
 deprive him of this privilege as would prove a
 security to the health and life of the general body.
 Thus from authority of the first respectability we
 find the rule of duty plainly pointed out. *Security*
 of the public on the one hand by cautiously re-
 garding “ not only their being but also their well
 being,” and on the other, to the Candidates for
 admission to the practice of a scientific and truly
 useful profession—an exhibition of *justice* tem-
 pered with *mercy*.

As to the frequent result of Examinations—

we quite agree with the writer on Medical Reform, that under the very best system ever carried on, even to the extent which may satisfy the aspiring mind of so learned a man as Mr. Green—that the counterfeit as well as the true coin will find currency, yet we cannot think that the following statement of the author is calculated to convey *a correct impression* on this subject to the public mind. “To whatever extent the system
 “ of learning by rote (or being crammed) may be
 “ carried by the *οι πολλοι* of the Universities, we
 “ may venture to say that it falls far short of what
 “ happens among the *οι πολλοι* of the Medical Stu-
 “ dents.” “It is notorious that the majority of
 “ those who mean to offer themselves for exam-
 “ ination at the College of Surgeons or at Apothe-
 “ caries Hall are for the two or three months pre-
 “ ceding, regularly and daily drilled for the occa-
 “ sion, and that there are individuals in London
 “ who make considerable incomes by dispensing
 “ this spurious species of instruction, and that no
 “ small proportion of the Medical Students, who,
 “ having neglected all the early part of their
 “ education, are at last qualified in no better way
 “ than this, for the examination which is to crown
 “ their labors.”

Having had some little insight into the *cram-*
ming system of Cambridge *more particularly*, we
 dispute the correctness of the former part of this
 assertion. That however most of the Students
 avail themselves of what are termed “Grinders”

previously to presenting themselves for examination may be admitted; and what examinations can be referred to, whether in law, physic, or divinity, as a preparation for which, a system of grinding does not exist, and is not resorted to as well by the diligent as the indolent, and whether it be termed *drilling*, *grinding*, or *cramming*, or is known by any other odious name, can it be said to be *in toto* an evil? In reference to the knowledge of Medicine and the examination which is to test it, we cannot perceive any injury to arise to those who have diligently pursued the course of study laid down for them, from a six-months' attendance on a Grinder, provided he be an intelligent and honest man. It oftentimes enables those who have been diligent Students to arrange their knowledge, trains them to the habit of digesting what they hear and read, and gives them a facility and aptitude in reply: and is a method not unfrequently adopted by Lecturers in the Metropolis previously to their Pupils presenting themselves for Examination, and with no small degree of advantage.

The objection to the system is more forcibly raised against those who are "qualified in no better way than this for examination, having neglected all the early part of their education." How then is this evil to be remedied? We think this may be effected in a great degree, by a prescribed course of study, and a strict regard to registration; by requiring constant attendance

at Lectures, in the wards of the Hospital and in the Dissecting Room ; as a guarantee for which attendance, the *honest* declaration of every Teacher is to be demanded. We cannot but hope, that by such a process even the dullest comprehension, or the most careless and inattentive student, would in the space of two or three years bring some portion of knowledge to be polished and even sharpened by the continued revolutions of this Grinding Stone.

Be this however as it may, from the frequent opportunities for observation we have had afforded us, and the testimony of those who have creditably passed both College and Hall, we have no hesitation in saying, that in the majority of instances the individual who may have been "*crammed*" is detected. We feel confident then, that a judiciously prescribed system of education and registration, founded on a faithful and conscientious determination on the part of the teachers in filling up the necessary Schedules, and an examination characterized by consideration and kindness, as well as by strict justice, yet sufficiently rigid and penetrating to exhibit the attainments of the more intellectual and assiduous Students, are the requisites most likely to insure to the Public a race of enlightened, judicious and useful Practitioners. We most cordially agree with the opinion so admirably stated by Mr. Green, when replying to the following query, "what is the goal or ideal point to which however distant its

“ actual attainment may be, it must ever remain
 “ our object to approach as near as we can?” he
 writes “ It is evidently this, that each individual
 “ should enable himself as an accredited member
 “ of the profession, to be in his own person an
 “ adequate representative of the profession collec-
 “ tively.” But while the intelligent and thinking
 as well as those who possess the requirements of
 Mr. Green, *may* set this standard before them,
 and undoubtedly would desire to do so, does this
 in any manner meet the necessities of the present
 case? Can Legislation ever bring about this
 change in the very character, dispositions and
 feelings of men? Certainly not. The call for
 Legislation implies a disposition and propensity
 to the very error which it aims to check and punish,
 and the existence of a law is a *proof*, that there
 are those who are inclined to violate its dictates.
 The interference of the Legislature is necessary for
 such individuals as do *not* answer the description of
 Mr. Green when he says, “ The Medical man who
 “ aims at the performance of those duties which
 “ his profession requires, will, I need not say,
 “ possess himself of those requisites of knowledge
 “ which are essential to his practice, since no
 “ honest man would be without them.” It is
 for those who, though in a sense Volunteers,
 are nevertheless obliged to be dragged to their
 duty. But the true lover of Science needs no
 such coercion—he will *ex animo* cultivate sci-
 ence for its own sake and will thus manifest his

desire ever to pursue his important calling as a "*profession*" and not as a "*trade*." But does Mr. Green really anticipate such halcyon days, so free from selfishness, from duplicity and from dishonesty, that the Medical Profession will ever stand the test of his "Touchstone of Reform?" We fear his hopes will be blighted, and that he will practically find, where the public opinion is to be the judge, the public voice the call to duty and service, and the public pocket the source of remuneration; that his projects and designs will prove Utopian and unattainable.

The next important consideration is, to whom may an examination such as we have attempted to describe be safely committed, and by whom may we expect it to be conscientiously and satisfactorily performed? and having quoted the writer in the *Quarterly Review* as the author for the *Standard* of Examination, we think it but right first of all to give his answer to this query—which is as follows: "But for the accomplishment of these objects, it is necessary that the Board of Examiners should be rendered as efficient as possible," (thus far we agree with him) but he adds "and it appears to us they cannot be efficient, unless they include a certain number of individuals, who either as Medical officers of Hospitals or as teachers of some branch of the science of Medicine have been accustomed to deal with Students." We decidedly differ from the writer and must maintain, that if no other

reasons can be adduced why teachers and Medical officers should not form part or parcel of the Board of examiners, the very fact of their being so “*accustomed to deal with Students*” and the consequent communication they must have with them, are arguments in themselves sufficiently cogent. But in addition, may it not be fairly expected that every Teacher (be his subject of instruction what it may) would be more likely to make that branch of study essential, and give it greater prominence in his examinations than it justifiably claimed, while other subjects of equal or perhaps even of more importance would be slighted? Or is it unreasonable to infer that Teachers generally, from the very enthusiasm with which they have followed their individual pursuits, forgetting the number of subjects which require the diligence and attention of the Pupil, may frequently pass beyond the bounds which we consider the author of the Paper in the “*Quarterly Review*” has so ably defined? In his anxiety for the advancement of science, and elated by the surprising attainments of the more talented, he would be apt to slight and even condemn as insufficient and unsatisfactory, the moderate acquirements of the great mass of Pupils and the humbler pretensions of men of inferior minds, or of those whose limited opportunities or pecuniary restrictions had crippled their active energies and thwarted their otherwise successful endeavours.

Mr. Green thinks that any “distinct Board for

“ Examinations in connection with General Practitioners, is wholly unnecessary,” as he considers “ those which (in a previous part of his pamphlet) he had described,” as connected with the College of Physicians and Surgeons, included “ the requisite means for determining by those best qualified by their education and attainments, the qualifications of candidates ;” —and his reasons for such a conclusion seem to be threefold.

First he states, “ We cannot but think that the General Practitioner himself must on reflection see the injurious tendency of any institution which would be likely to alienate him from those bodies, the character of which tends to give him rank and estimation, and the constitution of which ought to provide inducements and facilities, as is the case in the projected class of Honorary Fellows of the College of Surgeons, for the continual ascension of the General Practitioner unto the higher grades of the Profession, wherever his talents and attainments qualify him for it.”

Secondly. He considers an objection to such a Board to arise from the fact, that “ it must consist of those General Practitioners who live in London ;” and he adds, “ Now in respect of the higher departments of the Profession, it is abundantly clear that those of the greatest attainments will be found in the great Metropolitan mart of fame and fortune ; but for that very

“ reason, the pre-occupation of the post of honor,
 “ namely, it is most likely, as indeed is the fact,
 “ that in the class of General Practitioners, those
 “ most eminent in practice, and the most sedu-
 “ lous cultivators of their profession as a science,
 “ will be found elsewhere than in the metropolis.”

Thirdly. “ The fact that no feasible means
 “ have been, or can perhaps be devised of sepa-
 “ rating” such board “ from the city guild and
 “ trading company of Apothecaries.”

For these reasons, Mr. Green would have the
 examinations of General Practitioners conducted
 by the College of Physicians, and dismissing the
 Society of Apothecaries, would allow “ some of
 “ the most eminent of the class of General Prac-
 “ titioners to be selected as Assessors, with a spe-
 “ cial view of conducting the *Pharmaceutical* part
 “ of the examination. This procedure Mr. Green
 considers “ might be hailed as conferring a legiti-
 “ mate distinction on the individuals, and calcu-
 “ lated to exert a beneficial influence prospectively
 “ on this indispensable class of the Profession.
 “ We would wish,” he adds, “ that a rank and
 “ character should be secured to the General
 “ Practitioner as a member of a liberal profession,
 “ which will be cheerfully conceded to many indi-
 “ viduals no less eminent in practice than honor-
 “ ably known as sedulous cultivators of science,
 “ but which cannot be granted to them as a body,
 “ except under the conditions of an enlarged edu-
 “ cation, and of the entire separation of their pur-

“ suits from any admixture with trade.” These are Mr. Green’s conclusions, and the arguments in support of them, after “ cheerfully admitting “ that the amelioration and improvement in the “ Education of Students in London, has been “ mainly owing to the Regulations of the Society “ of Apothecaries,” — after admitting that the “ Surgeon Apothecaries,” or, in other words, General Practitioners, “ form an overwhelming “ majority ” of the members of the College of Surgeons—and after we could prove that even those who *are to be distinguished as Fellows of that College because professedly they practice “ Surgery exclusively”* are daily practising as *generally* as any avowed Apothecary, and *precisely* on the same plan as very many General Practitioners, who expect remuneration for their professional services and not for medicine.

What we claim for ourselves, we willingly concede to Mr. Green, namely, the right of private judgment, and in attempting to show the untenable character of his positions, would do so with the utmost courtesy and respect to him as a highly talented man.

Is it, however, possible that Mr. Green can suppose, that any one who remembers the distance at which the General Practitioner was formerly kept both by the Physician and Consulting Surgeon, and is now convinced that his approximation is to be attributed solely to the “ amelioration and improvement in his Education,” which Mr. Green

allows to be “mainly owing to the Regulations of the Society of Apothecaries,” can trace his present “rank and character” both in the Profession and in the public estimation, to any other source? Or is it to be expected that he will look to those corporate bodies, effectually to maintain his standard, who have neglected his interests and slighted the means and opportunities for his improvement, until they were forced to a consideration of his claims, by the very party which they would now cast into the shade?

Again, is Mr. Green prepared to substantiate his statement, whether as it respects the superiority of the London Physician and Surgeon, or the supposed inferiority of the London General Practitioner? We think upon close inquiry and investigation, he would find his assertion on this subject too strong. It cannot for a moment be doubted but that the cities and towns of this country are favoured with General Practitioners of the first character; but not for the reasons Mr. Green assigns, because the “posts of honor” were previously engaged in the Metropolis by Physicians and Surgeons of the first class, but because the respective localities were more favourable to the development of their intellectual and practical energies; and moreover it is arrogating too much to suppose that the College of Physicians and the *pure* Surgeons include *all* the most eminent professional men in the land.

In noticing, however, Mr. Green’s third objec-

tion to a Board of Examiners, in connection with General Practitioners, namely, their "*connection with trade*," we cannot but express our conviction of his positive ignorance as to the real habits of Practitioners in London, or the necessity of yielding to the prejudices of those amongst the public, whose habits of life and previous education, have never led them to look at the subject of remuneration to a professional man in any other light, than a simple matter of *pounds, shillings and pence*. Very many of the General Practitioners of London confine their demands upon their Patients to Medical or Surgical attendance; and where this is not strictly the case, in the majority of instances, it is owing to the public mind not being alive to the importance of such a procedure, and not a voluntary act, on the part of the Practitioner himself. So that before Mr. Green's views can be thoroughly acted out, he must endeavour to convince the public of their absolute necessity. We are, however, convinced that neither on the grounds of expected elevation on the part of the General Practitioner, nor of the assumed inferiority on the part of those who reside in the metropolis, nor of what Mr. Green terms "*connection with trade*," can any substantial reason be advanced why a Board of Examiners under the superintendence of this class of the Profession should not exist.

The views entertained by Mr. Green are most assuredly calculated to raise the standard of Me-

dical Reform far above any practical application or general utility. Will not however past experience bear us out in our conclusions, that for all effective purposes, the General Practitioner, who has diligently improved his early opportunities in the hospital and dissecting room, as well as in the Theatre of Instruction and Demonstration, is likely to prove the most suitable examiner of those who are candidates for admission to practice, and who are necessarily obliged, for the convenience and comfort of the public to be connected in some slight degree with "trade?" We shall probably arrive at a just and satisfactory solution of this inquiry, by comparing the present state of the Medical Profession with what it was previous to the Act of 1815. Every candid mind must acknowledge, not simply that a great medical, but an actual moral change has been effected; and so far as it respects the individual who was formerly viewed *only* as the Apothecary, a complete alteration is apparent.

To look more closely at this subject, what *was* the state of the Medical Profession previous to the passing of the Act, when no test or qualification was required for the General Practitioner, to whom the health and lives of the community were in a great measure committed? In a pamphlet on the subject of Medical Reform, published by an individual who styles himself an "Exercent Practitioner," we find the following statements, which cannot be contradicted—"Previous to the year

“ 1815, every one had liberty to practise who could
 “ procure patients, and the consequence was, that
 “ not only was the community inundated with
 “ grossly ignorant Practitioners of Medicine, but
 “ not unfrequently (for immorality is fond of asso-
 “ ciating with ignorance) they were found to be
 “ grossly immoral men. By a carefully conducted
 “ inquiry respecting the Medical Practitioners in
 “ four districts in the North of England, it was as-
 “ certained that there were 266 residents calling
 “ themselves and practising as Medical men. Of
 “ these, sixty-eight only had received any sort of
 “ Medical Education, and 198 were practising on
 “ the lives of their fellow creatures, not having
 “ received any education whatever.” If any indi-
 vidual will take the common pains of obtaining
 information on this subject, he will find, that to
 whatever town or neighbourhood throughout Eng-
 land and Wales he may direct his attention,
 thirty years since only, with comparatively few
 exceptions, the General Medical Attendant or
 Apothecary was not the well-informed and prac-
 tical man of the present day—that his character-
 istics were not those of accurate observation, close
 investigation, and cautious administration; but
 that the course he adopted was, for the most part,
 that of mere adventurous Empiricism.

But let the Physician whose experience may
 enable him to draw a comparison, or rather strike
 the contrast between the General Practitioners he
 meets in the present day, and those who consulted

him a quarter of a century ago, tell us, whether their advancement in knowledge and tact in practice have not been such as materially to diminish the actual necessity of a second opinion, and even when it is resorted to, whether in the majority of cases he does not find that the diagnosis, prognosis, and treatment, are such as command his decided approbation. But not simply are we to look at this change in the Practitioner himself, but also in the facilities of his obtaining that knowledge, which is essential to the formation of an able and intelligent Medical Adviser. In the preface to the Regulations of the Court of Examiners for 1830, it is stated “previous to the “Act, few of those who were zealous for the ac-
 “quirement of knowledge had opportunity to cul-
 “tivate the science effectively, since the means of
 “instruction were neither generally nor easily to
 “be obtained.” And is not this a truth to be confirmed by the experience of every individual who studied before the Act was passed? If we look at the advantages of the Hospitals,—who were the individuals that could resort to the Museums, and examine for themselves the several preparations which were exhibited as illustrative of the lectures? The common mass of pupils were considered as intruders; the doors were kept locked, and the only privileged few were the pupils or apprentices of the Hospital Surgeons. How is it now? The Museum stands open for general use and inspection, under the control of a Curator.

Who derived advantage from what is termed "walking the Hospitals," by the judicious observations and practical remarks either of the Physician or Surgeon? From the former, perhaps a solitary individual who had some distant hope of becoming at a future day, an Officer to the Hospital; and from the latter, only the Dresser. What opportunity was afforded for *post mortem* inspections? The majority of Pupils knew nothing of their occurrence; but, (as a result of the Act) Certificates of having received instruction in Morbid Anatomy being required, timely notice is invariably given, and a large attendance of diligent Students is insured. Who knew anything of the *reason* for any specific operation, the *time* it was to be performed, or the peculiarities which might be connected with the case? Only the diligent Dresser. *Now*, a history of the case is given, the time of operating specified, and impediments and difficulties are stated to a crowded theatre. Is there not also a great change without the walls of the Hospitals? Mr. Green, in his desire to uphold his own corporate body, says of the College of Surgeons—"Its principal design is that of ascertaining the qualifications of those who intend to practice Surgery; but in any inquiry into the character of this College, and into its claims to public confidence and professional ability, it should never be forgotten that it has devoted large sums of money to the promotion of scientific objects, in the proper

“custody and exhibition of a Museum invaluable
 “to science, in continual additions to its treasures
 “at great cost; in the establishment of lectures
 “for its illustration, and in the formation of an
 “extensive and growing library; and therefore
 “that it cannot be a matter of indifference whe-
 “ther such advantages are to be foregone or lightly
 “hazarded where a substitute for the College
 “could scarcely be found.” But did not this
 College exist with the most important part of its
 Museum (collected and arranged by the immortal
 John Hunter) before the Act of 1815, and though
 so “invaluable to science” was it available for
 that purpose? Was the library at that time in
 existence, and were its volumes accessible to
 those individuals who most needed a perusal of
 their valuable contents, or were they kept for the
 convenience of the Council, and to gratify the eye
 of the aristocracy, when they annually visited the
 College? Were the qualifications of those who
 intended to practise Surgery previously to this
 date, really investigated, or were their attain-
 ments carelessly and imperfectly ascertained?
 To whom then is to be attributed the great change
 which has taken place both in the Education and
 Professional character of the General Practitioner?
 Mr. Green must admit—indeed he has in his
 pamphlet admitted that the “main improvement”
 in Medical Education is to be attributed to the
 Society of Apothecaries; not that we would trace
 to the efforts of this Society (highly as we appreciate

its services) all that has been done: it is but fair and honorable to state that much has been effected by the perseverance and undoubted talent of the periodicals of the day, which have proved beneficial to all the corporate bodies, and stimulated to active exertion the Officers of every Medical Institution. Nevertheless, not only was the primary movement instituted, but a steady advancement in the curricula of science, and in the extent and character of the examination of candidates for practice, has been solely effected by the Court of Examiners of the Apothecaries Society. And cannot satisfactory evidence of the truth of this statement be adduced? Let the members of the College of Physicians be questioned, what is their reply? Many of their body (their President and Censors not excepted) have frequently stated in public, that the general advancement of professional attainments was to be attributed mainly to the proceedings of this Court, and have testified to the conscientious discharge of the responsible duties committed to them by the Act of 1815, and a similar testimony has not unfrequently been volunteered by many members of the Council of the College of Surgeons; and must not the Medical Officers of Hospitals and Professors corroborate these statements, more especially as it regards the regular attendance on Lectures and Hospital Practice?

That distinguished and much lamented surgeon, the late Sir A. Cooper, in more instances than one,

publicly expressed his opinion on this subject, and stated that nothing had surprised him more, during the latter part of the period in which he was engaged as a Lecturer, than the regularity and diligence which had resulted from the requirements demanded by the Court of Examiners of the Apothecaries Society; and as to the attendance on Hospital Practice, let facts speak for themselves. "The following table," says the author of the *Exercercent Practitioner*, "will give some insight into the good which has been silently and quietly accomplished by the Court of Examiners at Apothecaries Hall. Mark the attendance of pupils on the Physicians' practice of the London Hospitals at two periods, before the Act came into operation, and during the last year—

			1814.	1832.
Number of Physicians' Pupils at	St. Bartholomew's	6	87	
"	"	"	St. Thomas's - 1	86
"	"	"	Guy's - - - 16	62
"	"	"	London - - 0	20
"	"	"	Middlesex - - 1	32
"	"	"	St. George's - 14	31
"	"	"	Westminster - 0	8
			<hr/> 38	<hr/> 326

But irrespective of all the verbal testimony that can be adduced, a living monument to the honorable and able performance of an important trust on the part of the Society of Apothecaries is to be found in every town, and indeed almost in every village throughout England, in the intelligent, zealous, and judicious Practitioner, whose unwearied at-

tentions and effective exertions render him the ornament and safeguard of the neighbourhood ; and in addition to this most beneficial result of such a race of Practitioners, thus called into existence by the procedures of the Court of Examiners, *is*, the formation of Provincial Schools for Medical Education, which already bid fair to rival the oldest established metropolitan institutions. And what says the writer in the "Quarterly Review" on this point ? "Let honor be given where honor "is due ; the first improvements were made by "the Society of Apothecaries, and it was not until they had set the example, that the Colleges "of Physicians and Surgeons awoke from their "long slumber, and discovered that the time was "come for requiring a more extended Medical Education in every department of the profession."*

* As additional testimonials to the efficient discharge of the duties imposed on the Society of Apothecaries by the Act of Parliament of 1815, we quote an extract from a letter, addressed by that able Physician Dr. Marshall Hall to the Right Honourable Sir Robert Peel, which has come to our notice since this pamphlet was put to press—"This *new* Society (the Society of Apothecaries) new at least in its powers, I boldly assert has done more for the real and substantial improvement of our profession than all our other Institutions put together—I say this to its indelible honour. It has raised the scale of Medical Education and consequent acquirement, and in proportion it has raised the utility, the respectability, the trustworthiness of the Profession and its Members." The article "Medical Reform in England, by a Provincial Physician," in the Medical Gazette of the 5th of February 1841, when speaking of the Apothecaries' Society, states also, "It is with all its faults a national blessing. I know

Strange then as it may appear, it is not less true, that notwithstanding all the low abuse that has been poured out, and all the misrepresentations that have been made, no individual has denied, and no one can deny the fact, that the public are at this moment indebted for the decided improvement in the character and degree of information of the General Practitioners of this country, to the Society of Apothecaries. If then, a body of individuals in a corporate capacity, and who are said to be responsible only to themselves, have so fully carried out the designs, and admirably fulfilled the intentions of the Act of Parliament, what are the objections to be reasonably raised against a continuance of such a trust in the hands of the General Practitioner? Certainly not the *abuse* of it—that must be admitted by all who judge honestly. Certainly not *inability* to perform its duties, since a practical exhibition of facts will negative this supposition.

But a strong objection has been urged against so important a duty being committed to a corporate body; where is the valid argument against such a procedure? Whether entrusted to a corporate or non-corporate body, either

“ the complaint that is uttered against it :—that it has not protected its members,—not extinguished the quack,—not brought the Druggist to his bearings. But this is not the fault of the Society, rather of the complainants. The Society has done what it could, but this corporation is not a spirit, it does not possess ubiquity.”

would be at all times responsible to those from whom they had received the trust, and very properly to no other individuals. This trust was committed to the Society by Government, and Her Majesty's Ministers can undoubtedly at any time demand an account of the stewardship; and this is just what has been sought by the Society more than once. They invite the most searching investigation of all their proceedings from the moment they first received their commission to the present hour.

What did they say in a memorial to the Right Hon. Lord Melbourne, in the year 1833—
 “they trusted that an opportunity would be
 “afforded to the Society to show, as they are
 “prepared to do, that the Act of Parliament
 “has been properly and efficiently administer-
 “ed, and to refute any statement which has or
 “may be made against the Society, and to show
 “that all the benefits which the Act of Parliament
 “was intended to afford to the public have been
 “fully attained.” And conscious as they feel that strict integrity and unflinching fidelity have characterized every step that they have taken, nothing would, at the present time, be more gratifying to them, than that every Legislator in the land would, with an unprejudiced mind, analyze every transaction, whether of the Court of Assistants or the Court of Examiners—compare present results with the originally intended projects of the Bill, and we are assured the issue would be,—con-

tinuation of the trust in the hands of the General Practitioner.

But before we dismiss this part of the subject, is it not fair to suppose that the real investigator of facts would be disposed to ask—what pretensions the members of the Apothecaries Society have to the title of *General Practitioner*? Are we not told that they are mere vendors of drugs, having no acquaintance at all with the practical part of the profession? Is this a fact? The very opposite is the state of the case. From the individuals who hold the honorable posts of Master and Wardens down to the last registered member of this Society (with very few exceptions) they will be found to be members of the Royal College of Surgeons, having gone through the same studies, been educated by the same men, attended at the same Hospitals, and been subjected to the same examinations as their fellows.

The duties of the Court of Examiners at the Hall, are only those connected with the Act of Parliament, they are *individually* daily engaged in practice, and although they are associated with the Society of Apothecaries in a corporate capacity, they are *bonà fide* General Practitioners—Members and Licentiates of the Company, and Members of the College of Surgeons. In advocating, then, their capabilities of performing the important duties assigned them, and in proving it by experience of the past, we are doing nothing more nor less than saying, that we consider in legislating for the

future, the Government has cogent arguments to adduce, and positive facts to prove, that the General Practitioner, unassociated either with Physician or Surgeon, must prove the fairest and best judge of the qualification of the Candidate for General Practice.

To those who are ignorant of the facts, it will prove interesting to learn how the Society of Apothecaries became invested with their power. It has been stated that they sought it themselves—and many have not only implied, but have actually said they did so *clandestinely*. Facts will contradict these statements; and such facts as cannot be controverted. As the result of inquiry in four districts in the North of England (to which reference has been previously made) there was a general and loud cry for Reform, and, as the author of the *Exercient Practitioner* informs us, “ Various proposals and suggestions were made with the view of putting a stop to so deplorable a degradation of Medical Practice. At length an Association of General Practitioners was formed throughout England and Wales to effect this object. The number of the Association was full 3000; and among them were the names of some of the most eminent and influential men in London and in the country; and some of the most active and indefatigable among them were natives of Scotland and Ireland.” “ At a very numerous general meeting of the Association held in London, a

“ committee consisting of men of the first rank,
 “ character, and ability, were appointed to carry
 “ into effect certain resolutions authorising an ap-
 “ plication to the Royal College of Physicians and
 “ Surgeons, and to the Worshipful Society of
 “ Apothecaries requesting them to co-operate in
 “ an appeal to Parliament for legislative regula-
 “ tions of the practice of Surgery, Pharmaceutic
 “ Medicine, and Midwifery.”

The original proposal of the Association was,
 that “ a distinct privileged body should be esta-
 “ blished by the authority of Parliament, to ex-
 “ amine all persons intending to become General
 “ Practitioners of Medicine ; but to this plan,
 “ valid objections were raised, and His Majesty’s
 “ Ministers refused their assent to any such pro-
 “ positions. Finally, the privilege of licensing the
 “ General Practitioners having been offered to the
 “ Colleges of Physicians and Surgeons, and *re-*
 “ *fused by them, all the parties concerned, after a*
 “ *discussion of two years,* agreed, that the most
 “ advantageous, indeed the only plan would be,
 “ to vest the power in the *Society of Apothecaries.*”

Thus, instead of seeking it or desiring so im-
 portant and onerous an undertaking, it was “ only
 “ in compliance with the united wishes of His
 “ Majesty’s Ministers, of the Colleges of Physi-
 “ cians and Surgeons, and of the Committee of
 “ the Pharmaceutical Association, that they con-
 “ sented to accept the charge.” For a confirma-
 tion of these statements, see the Reply to the

Statement in Support of a Petition of the Royal College of Surgeons of Edinburgh, published by the Society of Apothecaries, in the year 1833.

Although at the period the Bill of 1815 was passed, strong reasons may have been urged why a limitation should regulate the appointment to the office of an Examiner: the same does not exist now. At that period the majority of those who were supposed to have had sufficient advantages, and to have improved them, were Members of the Company; and it seemed but a just inference, that to these the executive would be with propriety committed. The case is now widely different, not less than 9000 individuals have, after diligent attention to the regulations prescribed, passed their examination, and been for many years engaged in active and efficient practice; and no rational argument can be adduced why selections should not be made from this number, to discharge the duties of Examiner, a step however which cannot be taken without the positive enactment of Parliament. To open the Court of Examiners to the General Body of Practitioners, (a procedure both reasonable and equitable), would be, we consider, to obviate a justifiable objection which has been brought against the "Act for Regulating the Practice of Apothecaries throughout England and Wales;" nevertheless, we entirely coincide with the writer in the "Quarterly Review," when he says, "we are far from agreeing with those who would

“ have all the Old Corporations swept away and
 “ replaced by a new one. We believe that the
 “ former, the faults of which we know, may be
 “ improved ; and that, to attempt this, will be a
 “ much safer experiment than to establish a new
 “ institution,—the faults of which may not be
 “ understood for many years.” And, he adds,
 “ But indeed the latter experiment is already
 “ begun in the shape of the Medical department
 “ of the Metropolitan University. In this new
 “ institution the faults of its predecessors seem to
 “ have been rather exaggerated than otherwise.”

The Apprenticeship clause in the said Act of 1815 is also objectionable to many persons. The opinions on this subject are various, although, very incorrect views are entertained on the subject, and even by the author of *Medical Reform*. He says, “ If a young man is to obtain
 “ a license (as he may now obtain it) at the age
 “ of twenty-one, and serves the full term of his
 “ apprenticeship in a village or town in which
 “ there are no lectures and no hospital, he must
 “ be taken from school and apprenticed at the age
 “ of thirteen. If the law be evaded, as it sometimes is, by the master giving up two years of
 “ the term, still there are six years left, and the
 “ boy is taken from school at fifteen.”

If the wording of the indenture did not put a very different construction on the custom of giving up two years, we should consider the author's objection valid : but what is an indenture ? a civil contract

between two parties in which the minor promises not to absent himself from his master's service *unlawfully*; and the master with his apprentice agrees "in the same arts which he useth, by the best means he can, to teach and instruct, *or* CAUSE to be taught and instructed." The master then, in giving up two or three years, goes beyond the spirit of the law; he acts up to the very letter of it, by allowing his apprentice the best means that he can to accomplish what he has covenanted to perform. We would, however, willingly give up the apprenticeship clause; but on every ground of consideration, would recommend some suitable arrangement, to insure a five-years pupillage.

Another objection has been urged against the numerous requisites of the Curricula of Study, both of the College and Hall. How these can be much curtailed, without injurious results, we cannot possibly imagine. We cannot, however, agree in considering that much time ought to be spent "in making fair copies of notes" of Lectures; and we think we shall be expressing the sentiments of the most judicious men in the metropolis on this point, when we recommend as a substitute, the daily habit of comparing the notes taken, with the opinions of different authors who may have written on the specific subjects of Lecture or Demonstration.

Another charge which has been brought against the Society of Apothecaries, is the large sum

of money which has been received by them since the passing of the Act. The formidable nature of this charge may speedily be dissipated by a very superficial glance at the receipts and disbursements: and if it be possible for the Legislature to devise any system which can be conducted with a closer regard to economy, we are convinced it will not be such as will require the payment of three Registrars, sixty Counsellors, a Treasurer, three Auditors of accounts, Clerks, a Senate and Court of Examiners and legal proceedings, as well as travelling expences. In this case one of three plans must be adopted. Either the admission fee must be considerably increased—men already in practice must be taxed—or government must find the means: against all of which, substantial objections may be raised.

A very considerable improvement in the Act of 1815 might undoubtedly be made by freeing the Medical Executive from any connexion with law proceedings and by giving clear definitions and meanings of the different terms made use of in the Act. The absence of such definitions has given rise to a conclusion, that because Midwifery was not specified in the Act, it has been overlooked. The author from whom we have so frequently quoted says “ It appears from the evidence before
 “ the Committee (we refer especially to that of
 “ Sir C. Clarke, pp. 274 of the Report on the
 “ Physicians) that there is at present no examina-
 “ tion of those who contemplate being engaged in

“ the practice of Midwifery as to their qualifications in that department of the profession.” (Mr. Green, page 67.) This very important part of every general Practitioner’s qualification has not been overlooked by the Court of Examiners of the Society of Apothecaries. If reference is made to the curriculum of 1829 it will be found that the attendance on two courses of Lectures on Midwifery and the Diseases of Women and Children is required, and in the regulations of 1832, under the head “ Examination” will be found,—*Sixthly*.—In the Principles and Practice of Medicine with an asterisk (*,) referring to the following note placed at the bottom of the page. “ This “ branch of the examination embraces an enquiry “ into the diseases of pregnant and puerperal women, and also into the diseases of Children.”

Thus, whether we look at the Regulations of the Curricula or at the examinations which have been founded on them, one important fact must force itself on the conscience of every candid and unbiassed individual, whose object alone in reference to Medical Reform is *Truth*: viz. That so far as it has laid in their power, the Court of Examiners have conscientiously, zealously and perseveringly endeavoured to discharge the duties imposed on them by the Act of Parliament. And it would be well if they had been invariably encouraged by the faithful Testimonials of the several Lecturers and Medical officers of the different public Institutions.

In drawing these remarks to a close we can

but consider that the character and extent of the examinations of Candidates for Medical Practice, which we have advocated, is strongly supported by analogy. Take for instance the Universities of Cambridge and Oxford: Do we find the same test applied to the senior wrangler of the one University, and the double first class man of the other, as is applied to the *οι πολλοι* of either: No such thing, and to prove this statement we have only to refer to their Calendars. Take for instance those of Cambridge. In the first place every under-graduate is compelled in the Lent and October terms of the second year from that in which a Student commences his academical residence to undergo what is termed his "*Previous Examination*." Those who are not approved are remanded for one year. For the second examination which is for the degree of B. A. it is required that he should have performed the usual exercises required by the Statutes, and those who are to undergo the test are divided into two classes called "Questionists Candidates for Honors, and Questionists not candidates for Honors:—the former *voluntary*,—the latter *compulsory*: these are the *οι πολλοι*. Look again at what takes place with the Candidates for Honors. Standing on the same level they are subjected on several successive days to the same examination, increasing daily as to the extent of the subjects; at the termination of which scrutiny, they are divided into the Junior and Senior Optimes and Wranglers, the latter

acquiring their standard according to their several attainments, giving rise to the well known gradations of "Senior, Second and Third Wrangler," and so on. And a similar plan is adopted in the Classical Tripos. Thus we see that the door of admission to a degree is a defined quantity of knowledge, the MINIMUM that can possibly be allowed. Once admitted, all the future steps are optional and the rewards proportionate.

From the whole of the foregoing statements we consider the following inferences may be fairly deduced.

First. That a prescribed course of Study with strict attention to Registration and a conscientious regard to the character of Certificates must prove a great barrier to the admission of totally disqualified Individuals to the practice of Medicine.

Secondly. That after a due performance of these requisites, the *minimum* of knowledge compatible with the public safety, and not the *maximum* should form the test of qualification for the general Practitioner of Medicine.

Thirdly. That the practical results of the Examinations conducted by those whose studies and constant professional duties have been of a general character prove *their* capability of discharging such a duty, and *consequently* that there is no necessity to look for assistance to others and more especially to those who may be either Teachers of specific subjects or officially attached to Hospitals or Schools.

Fourthly. That as some of the brightest ornaments in Practical life have been men distinguished neither by classical attainments nor metaphysical acuteness, no solid arguments can be adduced for extension of information on these points beyond what is absolutely essential.

Fifthly. That elevated rank in a Profession—bright genius, and eminent success, are not always the sure guarantees for a conscientious discharge of duty.

Sixthly. That what reason suggests, analogy and experience have proved, that in the advancement of scientific knowledge, whatever may be its character, not *compulsion*, but *encouragement* must give the impetus—whilst so far as relates to the application of such knowledge by Professional men, with a view to justifiable remuneration, proof of competency should be demanded.

Finally. That in looking at the Profession of Medicine as a subject for Parliamentary discussion and final arrangement, the points of consideration are—*not* the fanciful propositions of the speculatist,—*not* the elevated notions and designs of commanding talent,—*not* indeed mere advancement or extension of Medical literature; but nothing *more*, nothing *less*, than the encouragement and protection of the *honest* Practitioner and the security and welfare of a widely extended community. Whilst under the genial influence and fostering protection of judicious and wholesome enactments,—Science and Art may inde-

finitely flourish,—towering intellect and brilliant genius may coruscate and shine,—genuine and unostentatious Philanthropy may steadily advance in her benevolent yet unambitious career; and the auspicious issue of their united energies be productive of rich personal advantage, and the progressive prosperity and collective happiness of the Inhabitants of the Empire.

THE END.

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 the inhabitants of the Empire.

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(2.)

A

PROBATIONARY ESSAY

ON

PHLEBITIS,

SUBMITTED,

BY AUTHORITY OF THE PRESIDENT AND HIS COUNCIL,

TO THE EXAMINATION OF

The Royal College of Surgeons of Edinburgh,

WHEN CANDIDATE FOR ADMISSION INTO THEIR BODY,

IN CONFORMITY TO THEIR REGULATIONS RESPECTING
THE ADMISSION OF ORDINARY FELLOWS.

BY

ALEXANDER HUNTER, M. D.

NOVEMBER, 1838.

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THE UNIVERSITY OF CHICAGO

PHILIPPS

The Royal College of Surgeons in England

ALEXANDER MONTGOMERY, M.D.

CHICAGO

TO

JAMES HUNTER OF THURSTON, Esq., F.R.S.E.

THIS ESSAY

IS MOST AFFECTIONATELY DEDICATED

BY HIS NEPHEW,

THE AUTHOR.

THE UNIVERSITY OF CHICAGO PRESS

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TO

DAVID HAY, Esq., M.D.

FORMERLY PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS,

&c. &c. &c.

THIS ESSAY

IS ALSO INSCRIBED,

AS A TOKEN OF GRATITUDE AND ESTEEM,

BY

THE AUTHOR.

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ON PHLEBITIS.

INTRODUCTION.

THE subject of the following paper was suggested by my having seen several cases of the disease during my attendance at the Royal Infirmary, both as student and clerk. Of some of these I took notes at the time of their occurrence, others I got from the journals of cases, and through the kindness of the managers have been permitted to insert them in the Statistical Table at the end of the paper. With a view to the avoiding of repetitions, and to the simplification of the subject, I propose treating of it under the following heads : viz.

1. Some General Remarks upon the Disease.
2. The Symptoms.
3. The Causes.
4. The Seats.
5. The Pathology.
6. The Diagnosis.

7. The Termination.
8. The Prognosis.
9. The Treatment.

As this affection is not one of very common occurrence, I have not been able to procure so many cases for the Statistical Table as I could have wished. I hope, however, that the average may be sufficient to draw conclusions from relative to the disease.

PHLEBITIS (from φλέψ-φλεβός a vein) appears to have been unknown to the older physicians. Aretæus of Cappadocia and Hildanus have both described inflammation of the blood-vessels; they were not aware, however, that the alarming symptoms frequently presented by this disease, depended upon inflammation of the coats of the veins, they therefore referred them to other causes. Thus, *Hildanus mentions two decided cases—one following venesection in fever in which the arm swelled prodigiously, an abscess formed in the vein and burst, gangrene came on in the arm, and amputation was had recourse to with success; the symptoms in this case he refers to injury of the tendon of the biceps, although he admits that foetid pus escaped from the Basilic vein after the removal of the arm.

* See Fabricius Hildanus, p. 342.

Others supposed that the symptoms depended upon the injury of a nerve or aponeurosis, or upon a bad constitution. These theories were disproved by John Hunter,* who observed, that the wounds in the veins of horses very frequently suppurate and cause very troublesome sores, accompanied with the same alarming symptoms which occur in some cases in the human subject. He carefully examined the bodies of these horses, and found that the morbid lesions were chiefly confined to the veins; by comparing these facts with some which he had observed in practice, and by carefully examining the bodies of patients who died with these alarming symptoms, he discovered that the veins were almost always the seat of the disease.

Since the year 1784, when Hunter made his discoveries, much valuable information has been published regarding this disease. The following are the best authorities: Abernethy, Hodgson, Breschet, Cooper, Dance, Arnott, Lee, Rose, Carmichael, Ribes, and Le Herissé.

* Transactions of a Society for promoting Medical and Surgical Knowledge, vol. i. p. 18.

THE SYMPTOMS.

These may be divided into three orders,* viz.—

1st, Local symptoms, without fever.

2d, General symptoms joined to the preceding, and in proportion to the extent and intensity of the venous inflammation.

3d, More severe symptoms, indicating the circulation along with the blood, either of pus or of some irritant fluid, and developing various complications. These orders of symptoms may be observed in most cases following venesection, varying, of course, according to the size and situation of the vessel, and the extent of the injury.

The local symptoms usually commence with tension and stiffness of the limb, accompanied by pain extending along the course of the vein, sometimes also by redness and increased sensibility. If the Phlebitis be the consequence of venesection, the pain is often overlooked at first, until an exudation of serum or pus takes place from the wound. The disease is more easily detected, when it occurs in a superficial than in a deep-seated vein, as the redness and swelling are usually greater, and frequently the limb presents red, hard, elevated, and painful lines along the course of the vein. This inflammation

* Archives Generales, (Dance,) vol. xix. p. 181.

usually follows the course of the blood; in some cases, however, it extends in a contrary direction from the wound, and in others it attacks several parts of the same vein, presenting erysipelatous spots along its tract, which soon unite so as to form a general erysipelas of the limb, accompanied with pain, tension, and discoloration, which are most marked along the course of the vein. This form of the disease usually follows phlebotomy.

If, however, the disease follows a puncture with a sharp foul instrument, or inoculation on an excoriation or ulcer, then it has its seat almost invariably in the deep veins of the extremity. The chief local symptoms of this form of the disease are hardness, stiffness, and tension, with difficulty of motion, and increased sensibility of the limb. The constitutional symptoms commence with rigors, pain of head, inexpressible uneasiness, and sometimes with nausea and vomiting. The patient becomes agitated, restless, and sleepless, the pulse is hard, strong, and frequent; sometimes, however, it is small and intermittent; the face is flushed, the skin hot, the pain and weight in the head increase, there is much irritability, with delirium; the breathing becomes difficult, the tongue is dry, and the gums and teeth covered with sordes, and drowsiness and delirium usually precede death. These severe constitutional symptoms usually occur when the inflammation has ex-

tended into some of the larger venous trunks, or when pus or lymph is secreted into their cavities, and bear a close analogy to those of typhus fever.* When the venous inflammation is not very extensive, its symptoms resemble those of local inflammation in general. In some cases, the symptoms of the disease are very obscure, resembling gastro enteritis, hepatitis, arachnitis, pneumonia, carditis, or typhus. Sometimes the pain is very acute, and is referred to the joints, hence the disease may be confounded with rheumatism or gout. The articulations, however, are neither red nor swelled, but very tender on pressure.† Phlebitis resembles diffuse inflammation in other organs; it resembles inflammation of the absorbents, in its disposition to continuous inflammation; hence the diseases have been frequently confounded.

The best description of the two latter orders of symptoms is that given by Mr Arnott.‡

The secondary affection in Phlebitis usually shows itself in from two to ten or twelve days after the receipt of the injury which has occasioned the inflammation in the vein, and when the vessel has been previously diseased, it sometimes commences

* Hodgson on Diseases of Arteries and Veins, p. 513.

† Dictionnaire de Medicine, Breschet.

‡ Medico Chirurgical Transactions, vol. xv. p. 51.

sooner. The symptoms may be thus briefly characterized :—

“ Great restlessness and anxiety, prostration of strength and depression of spirits, sense of weight at the præcordia, frequent sighing or rather moaning, with paroxysms of oppressed and hurried breathing, the patient at the same time being unable to refer his sufferings to any specific source. The common symptoms of fever are present, the pulse is rapid, reaching sometimes to 130 or 140 in a minute, but is in other respects exceedingly variable. There are often sickness and violent vomiting, especially of bilious matter, frequent and severe rigors almost invariably occur, sometimes to the number of three or four in the course of a few hours. The general irritability and deep anxiety of countenance increase, the manner is quick, and the look occasionally wild and distracted. When left to himself, the patient is apt to mutter incoherently, but, on being directly addressed, is found clear and collected, the features are pinched, and the skin of the whole body becomes of a sallow, or even deep yellow colour. Under symptoms of increasing debility, and at a time when the local affection may appear to be in a great degree subsiding, secondary inflammation of a violent character, and quickly terminating in effusion of pus or lymph, very frequently takes place in situations remote

from the original injury ; the cellular substance, the joints, and the eye, have been affected, but it is more particularly under a rapidly developed attack of inflammation of the viscera of the chest that the fatal issue usually occurs. Whether this is observed or not, death is always preceded by symptoms of extreme exhaustion, such as those of a rapid feeble pulse, dry brown or black tongue, teeth and lips covered with sordes, haggard countenance, low delirium," &c.

The first symptoms of Traumatic Phlebitis of the arm are in general so slight as to attract but little attention ; they commence with pain in the wound, or mere stiffness about the joint, the edges of the incision become very red, fester, and form a thin crust, which is washed away by a slight red-coloured serous or puriform discharge, the course of the vein becomes hard, painful, and knotty, like a cord, and redness, swelling, and stiffness, take place in the soft parts covering the vein. Sometimes the inner surface of the arm, or the whole limb, becomes tense, swollen, red, and painful, as in Erysipelatous inflammation of the parts. The skin and contiguous parts also suffer, as well as the coats of the vein. The severity and extent of the disease vary, of course, in different cases. It is sometimes of an adhesive character, producing merely thickening and obliteration of the vein ; at other times, of a

diffusive and suppurative, when it is attended with severe constitutional disturbance, terminating in death, whatever plan of treatment be adopted.*

There is a peculiar form of the disease which differs somewhat in its symptoms from the preceding, and which will require a separate description. I refer to Uterine Phlebitis, commonly known under the name of Phlegmasia Dolens, so called from painful swelling of the limbs being one of its chief symptoms.

It is but lately that the true Pathology of this disease has been discovered. The early writers upon it started theories of their own to account for the extraordinary symptoms ; and these, with various modifications, suited to the fancies of the different authors who have received and supported them, have enjoyed a brilliant reputation in the Continental schools of medicine.

Mauriceau imputed the disease to metastasis of the lochia ; Mesnard to suppression of the lochia, producing an over-fulness in the blood-vessels, and a consequent arrest and coagulation of lymph in the parts affected. Another theory, advanced by Puzos and supported by Levret, is, that it is caused by a metastasis of the milk. Mr Charles White supposed that it depended upon obstructions, or rather

* Cyclopaedia of Practical Medicine.

morbid states, of the lymphatic organs of the part affected; and Dr Hull's theory, which is the most comprehensive of all, is, that the disease consists of an inflammatory affection, producing suddenly a considerable effusion of serum and coagulating lymph from the exhalants into the cellular membrane of the limb, the inflammation being seated in the muscles, cellular membrane, and inferior surface of the cutis; in some cases the inflammation being communicated to the larger blood-vessels, nerves, lymphatics, and glands.

The objection to all these theories is, that they are not supported by facts and observations. Dr Davis, however, has proposed a theory which is well supported by *post mortem* examinations. It is the following,* viz. :—

“ That the proximate cause of the disease called Phlegmasia dolens is a violent inflammation of one or more of the principal veins within, and in the immediate neighbourhood of the pelvis, producing an increased thickness of their coats, the formation of false membranes on their internal surface, a gradual coagulation of their contents, and occasionally a destructive suppuration of their whole texture; in consequence of which, the diameters of the cavities of these important vessels become so greatly di-

* London Medico Chirurgical Society's Transactions, vol. xii. p. 426.

minated, sometimes so totally obstructed, as to be rendered mechanically incompetent to carry forward into their corresponding trunks the venous blood brought to them by their inferior contributory branches."

The symptoms of this form of the disease commence with stiffness or soreness in one of the lateral regions of the lower belly, and pain in moving or turning about the body; a fulness and hardness, and, for the most part, a circumscribed tumor, may be perceived in the affected iliac region; there is weakness, usually followed by œdema of the thigh and leg of the same side, which in general supervene on the second or third day after the coming on of the pain of the flank.* In some cases, the first pain, and that which is most complained of, is in the calf of the leg. If pressure be applied to the groin, however, the patient will in general wince greatly. The swelling which succeeds the pain is first perceived in the groin and adjacent parts, and gradually proceeds downwards from the pelvis to the toes. When the disease follows delivery, these symptoms usually commence on the tenth or twelfth day; and, if the abdomen be examined about this time, the uterus will be felt enlarged, and forming a hard tumor above the pubes, accompanied with a sense

* Trye's Essay on Phlegmasia Dolens.

of weight and fulness in the belly, which is painful on pressure ; the uterus feels enlarged by the vagina, its neck is hard and open, the urine is hot, and passed with difficulty ; there is no lochial discharge, but sometimes a purulent foetid one ; delirium and uneasiness, with many of the general symptoms of Phlebitis, supervene ; the expression of the countenance is changed, the pulse becomes feeble and compressible, the breathing laborious, and death is ushered in by weakness, prostration, and delirium.

For a long time, it was supposed that Phlegmasia Dolens was a disease peculiar to child-bearing ; however, of late, several well authenticated cases have been met with in the male, caused, in general, by affections of some of the large pelvic veins.

For the two accompanying cases, I am indebted to the kindness of Dr Hay, in whose practice they occurred. The first was that of a gentleman nearly sixty years of age, who, in the summer of 1832, was attacked with pain of the loins resembling Lumbago, and accompanied with febrile symptoms. The pain extended to the upper part of both thighs, where the femoral veins were felt extremely full, tense, and painful on pressure ; the veins in the lower part of the limbs were congested. These symptoms were gradually relieved by the employment of cupping over the loins, purgatives, and the horizontal

posture, and now there remains only a thickening about the ankles, and a greater distension of the superficial veins than formerly existed. The attack was ascribed to cold and fatigue.

The second case was that of a young man of twenty-two, who had passed through an attack of continued fever, and appeared to have relapsed about the 30th day. He complained of pain at the top of the left thigh, where the femoral vein was found swollen, and painful on pressure. The employment of leeches, saturnine lotions, and purgatives, relieved him; the leg was also bandaged from the ankle upwards, on account of the œdema which supervened. Now, two years since the attack, the veins at the ankle are considerably more enlarged than those of the opposite limb. For a few cases of this kind, following continued fever, see Mr Sidey's paper in the *Edinburgh Medical and Surgical Journal* for 1828.

THE CAUSES OF PHLEBITIS.

Mr J. Hunter observed that the veins of horses were very frequently attacked with inflammation after the operation of bleeding; this he very naturally supposes is produced by the method of operation and subsequent treatment. The wound is, in most cases, a lacerated and contused one, and has

a pin left remaining in it. Now it has been proved by experiments, both on animals and on the living subject, that if veins be compressed by a ligature, or merely by external pressure, if their coats be transfixed by a pin, needle, or any foreign body which remains in the wound, or even if the lips of the wound do not unite, a certain amount of inflammation almost invariably ensues ; and this differs from inflammation in arteries, in being much less under the control of remedies, in being very liable to continuous, and but little to adhesive inflammation, and in most cases, being accompanied by very severe constitutional disturbance.

Veins are liable to the same morbid changes as other parts of the body, the internal coat is most frequently found affected on dissection. The disease sometimes occurs spontaneously in some of the deep-seated veins of the trunk and extremities. The cases, however, are few in which it cannot be referred to a wound, or to some specific cause applied to the coats of the vessels. By far the most frequent cause of the disease is the operation of Phlebotomy, the arm of the patient being neglected after it. If the wound be prevented from healing by the first intention by the restlessness or incautionness of the patient, or from the operation being frequently repeated in the same vein, a certain amount of the disease always follows.

The most common causes of Phlebitis, says Dance, * are lesions acting on the internal coats of veins. These are of two kinds, viz. those that alter directly the tissue, as the continued application of heat or cold to a limb, pricks or punctures, cuts or excisions for the cure of varix, ligatures in amputation, for the cure of varix, or upon the umbilical cord of children, simple pressure, or the long-continued pressure of a tumor, distension, contusion, or tearing of veins. The second class of causes are those that act by allowing the contact of acrid and irritating matters on the inner surface of the vein; such are punctures with a foul instrument, or a lancet which has been used for vaccination, or from inoculation under the skin, or into the veins of a putrid, poisonous, or irritant matter; more especially from punctures in the dissection of peritonitic patients, also absorption from ulcerated, excoriated, or blistered surfaces, cancers of rectum, and uterus, gangrenous surfaces, and suppurations after amputations and wounds.

The causes of Uterine Phlebitis are pressure on the veins of the uterus during parturition, the exposure of the cavities of some of the larger ones by the separation of the placenta and uterus, and the extremities of these coming in contact with an inflamed surface, and the lochial discharge, decom-

* Archives Generales, vol. xix. p. 17.

posed clots, or putrid portions of placenta entering them, and being carried into the circulation.

Broussais states that the veins are often inflamed in measles, small-pox, and scarlatina ;—some also suppose that *Purpura hæmorrhagica* depends upon inflammation of the veins.

Ribes supposes that Erysipelas is seated in the extremities of the veins, and Bouillaud has referred the phenomena of Typhus fever to Phlebitis.* These theories, however, are merely fanciful, as they do not appear to be supported by observations.

Phlebitis has been seen to follow Hernia, Fistula, and Cancer of Rectum, and the ligature of a Uterine Polypus.†

The ancients, in their operations, pricked, cut, tied, and burnt veins, without regard to any other than the mechanical effects of such operations ; and some old surgeons still tie veins after amputations, in many cases without producing any serious effects. Some Continental surgeons, I believe, still keep up the practice. Having witnessed three cases, however, which, upon dissection, proved fatal from this cause, (viz. one in which a large vein was accidentally wounded, and a ligature put upon it, which was followed by very severe constitutional symptoms and death ; and two in which ligatures were put upon veins in amputation, and where, after death, these

* Cyclopædia of Practical Medicine.

† M. Blandin.

vessels were found very much inflamed, and their cavities filled with pus,) and having read and heard of many others, I feel confident that, although some surgeons adopt this practice with apparent success, still it is one which is attended with much danger to the patient, and which, in this country, brings discredit upon the surgeon.

M. Cruveilhier states, that Phlebitis of bones is one of the most frequent causes of visceral abscess, the consequence of wounds and operations in which the bones are interested. In some cases recorded by him there was found suppuration of the medullary membrane, sometimes through the whole length of the bone; he also states, that operations on bones are very liable to produce the disease; and, however extensive this may be, if the pus does not enter the circulation, no accident follows; but as soon as the impediment, formed by the coagula, is removed, atonic adynamic fever, preceded by intense shivering, takes place, and is soon followed by death.

THE SEATS.

By far the most frequent seat of Phlebitis is in the superficial veins at the bend of the arm; it also occurs, though by no means so frequently, in the deep-seated veins of the arm, in the saphena, uterine,

external and internal iliacs, and their branches, the femoral, and tibial, the vena cava, splenic, renal, azygos, vena portæ, and veins of the intestines. The iliac, spermatic, vesical, uterine, and vaginal veins are often found inflamed, their coats thickened, and their cavities obliterated, by lymph or plugs of coagula in women, who have died shortly after parturition, with symptoms of puerperal peritonitis, or phlegmasia dolens.

The disease has also been found in the pulmonary veins, the innominata, and jugulars, the veins of the eye, the sinuses of the brain, and the veins returning blood from the larger bones of the body. Infants are also frequently attacked with Phlebitis, from the tying of the umbilical cord.

THE PATHOLOGY.

Veins are subject to inflammation in like manner as the other tissues of the body.

J. Hunter remarks,* that in violent inflammations of the cellular membrane, whether spontaneous, or in consequence of an accident, the coats of the larger veins passing through the affected part soon become diseased, and their inner membrane takes

* Transactions of a Society for Improving Medical and Surgical Knowledge.

on the suppurative, adhesive, or ulcerative inflammations. In such cases, abscesses would soon be formed, were it not for the effused fluid entering the circulation. When this fluid consists of pus, it becomes mixed with the circulating blood, and has of late been proved, by physiologists,* to excite but little constitutional disturbance, even although the quantity of pus be very considerable; thus overthrowing the opinion of Hunter and the early writers on this subject, who supposed that the violence of the symptoms depended upon the circulation through the heart of this fluid, mixed with blood. As an additional argument against this theory, it has been ascertained by dissection, that the most rapidly fatal cases of this disease are those in which no pus is effused, but in which effusion of lymph and adhesive inflammation occur. In cases in which the inflammation has continued for a length of time, and has been very violent in degree, the vein will be found proportionably inflamed; there also, after suppuration has occurred, will the purest pus be found, and if the vessels be traced from the affected part, either farther from or nearer to the heart, the pus will be found more and more mixed with blood.

In some cases of Phlebitis, abscesses form along the course of the affected vein, usually between the wound or seat of the inflammation and the heart, and

* Gaspard and Gulliver.

in such cases the disease sometimes terminates favourably by the obliteration of the vein, and the healing up of those abscesses.

Phlebitis, when caused by a wound, usually extends along the internal surface of the vessel to some principal venous trunk; in some cases towards the heart, in others in a contrary direction, and in a few instances in both directions. The extent of vein inflamed varies very much, being sometimes merely an inch, and at other times several feet in length. Hunter supposed that the inflammation extended in some cases even to the membrane which lines the interior of the heart, and that it caused death in this way. There are no cases on record, however, as far as I am aware, in which this appearance has been discovered upon dissection. This theory, then, as theory it must be called, since it is not supported by facts, must have been proposed to account for the violence of the symptoms.

When a vein is inflamed, its coats become gradually thick and vascular, and the inner membrane is coated with lymph or pus; its cavity, in some cases, becomes obstructed by coagula, by lymph, or by plugs of fibrine; and if this obstruction be permanent, the coats are gradually converted into a ligamentous cord, and circulation is carried on by some of the collateral branches—a cure being thus effected.

Pathologists are by no means agreed as to the cause of death in this disease. Some maintain that it is caused by the extension of the inflammation to the heart or membranes of the brain; others that it is caused by the conveyance of pus into the circulation.

Mr Arnott thinks that he explains the phenomena very satisfactorily, by reminding us of the importance of the veins in the economy, of the great extent of their surface, and of the diffuse and disorganizing character of the inflammation to which they are subject; and he winds up by saying, "That all the mystery of veins is, that they are indisposed to inflame, except when excited to inflame by continuity, and therefore it is that the constitution sympathises so deeply."

Dr Lee thinks it most probable, that death is caused by the circulation of a poison through the system, as the symptoms resemble those produced by the injection or inoculation of acrid or poisonous fluids into the veins.

The chief error committed by these pathologists seems to me to be their attempts to refer death in all the cases to the same cause, and not allowing for difference in the seats, causes, and symptoms of the disease, or in the constitution or previous state of the patient. The two latter theories appear to be the most plausible. Doubtless cases might be brought

forward to support the others also ; but if these be taken collectively, they will most probably show that death may depend upon causes, varying according to the circumstances of each case. Thus, it would be absurd to maintain, that, in the cases in which only a small portion of the vein is found inflamed on dissection, death was caused by the diffuse or disorganizing nature of the inflammation. It would also be equally absurd to maintain that, in the most rapid cases of adhesive inflammation, death depended upon the circulation of pus in the blood.

THE DIAGNOSIS

in this disease is by no means so easy or certain as might be expected ; because, although the disease attacks a particular tissue, still the functions of the other organs become deranged as the circulation is affected.

In cases where the Phlebitis is superficial, and the consequence of venesection, it may be distinguished from inflammation of the lymphatics, by the phlegmatia being less intense, and more superficial, and by the inflamed vessels showing themselves exteriorly, by two or three red straight lines, which are neither particularly tense nor unequally knotted cords, and by the lymphatic glands running

quickly on to inflammation, tension, and suppuration. Phlebitis may be distinguished from inflammation in a nerve, by the pain in the latter being sometimes transient, and, if caused by an injury, by its being felt immediately on the reception of this, whether it be a puncture, a bruise, or a partial division; besides, the pain in a nerve, whatever be the cause of it, extends along the superior or inferior surface of the extremity, terminating in the fingers or toes.* The Diagnosis in Uterine Phlebitis is also difficult, from the similarity of its symptoms to those of inflammation of the substance of the uterus. This is not of much consequence, however, as the treatment is alike in both diseases. It may be distinguished from Peritonitis by the swelling of the legs, by the pain being most severe at the lower part of the pelvis, by the want of tympanitis, and of acute tenderness over the whole surface of the abdomen.

THE TERMINATION

of inflammation, when seated in the veins of the extremities, may be in resolution, if the irritation has been slight, and if treatment has been early

* Dictionnaire de Medicine, t. xvi.

resorted to ; or the disease may terminate by adhesion of the parietes of the affected vein, which becomes obliterated, and assumes the appearance of a ligamentous cord. This only occurs, however, when the inflammation has been comparatively slight, and the irritation local ; and, in mild cases, may sometimes be artificially produced by exercising gentle compression over the whole limb, by bandaging, and applying cooling lotions.

Suppuration is a pretty frequent termination of Phlebitis, and is accompanied with very various symptoms, being sometimes scarcely perceptible during the life of the patient ; and at other times giving rise to great constitutional disturbance. Thus, in the case of obliteration of the inferior vena cava,* where $\frac{3}{4}$ iv. of pus were contained in it, there do not appear to have been any very decided symptoms taken notice of ; while in many cases, where pus is discharged from the wound in a vein after phlebotomy, or where the pus from a bad ulcer or gangrene enters the circulation, great constitutional disturbance ensues.

In some cases the disease terminates in ulceration, as has been shown by Morgagni, Portal, Hodgson, and Travers. In most cases obliteration precedes the ulceration, and thus prevents hæmor-

* Transactions of a Society for Improving Medicine and Surgery, vol. iii. p. 65.

rhage ; or if there be a flow of blood, it is usually caused by the ulceration extending from the surface to the interior of the vessel, before the obliteration by adhesive inflammation can occur. It is doubted whether inflammation of veins may ever terminate in gangrene. The French pathologists allow it to be possible, although it has never been observed. However, when gangrene, sphacelus, or hospital gangrene, attack any part or organ of the body, the veins are destroyed along with the other tissues, showing that they take on this action.

Ossification is but a rare termination, and occurs only in old varicose veins, as the saphena, and veins of the spermatic cord. It has also been met with in some of the pelvic veins.*

When sphacelation occurs near a vein, its cavity, like that of an artery under similar circumstances, becomes filled with extensive coagula, which prevent hæmorrhage on the separation of the mortified part.

The terminations of Uterine Phlebitis are much the same as those of Phlebitis in general, with this exception, that the inflammation usually extends into the substance of the uterus, and to most of the neighbouring viscera. Thus James remarks:†—
“ It would seem that in a very large number of

* Dictionn. de Medicine.

† James on Inflammation, p. 460.

cases of acute disease consequent on parturition, which has commonly been designated by the name of Puerperal Fever, inflammation of veins is present ; at least, out of 222 victims of this disease, in the years 1828 and 1829, at the Hospice de la Maternité, 132 had inflammation of the pelvic veins, and in most of these the inflammation was not confined to the veins."

It has been recently proved,* that inflammation of the veins is generally the cause of those abscesses or deposits of pus, which take place in the lungs, liver, spleen, kidneys, joints, cellular membrane, &c., after operations and injuries, especially of the head, also after parturition ; but whether these are the consequences of local inflammation, or are produced by metastasis, has not been satisfactorily proved.

Dance remarks that they occur only on the side of the body corresponding to the vein inflamed. This, however, is not uniformly the case.

THE PROGNOSIS

must always be very guarded, as it will be materially affected by circumstances, viz., the situation of

* By Arnott and Dance.

the disease, its cause, duration, and complication, the previous state of health, or particular constitution of the patient. Thus, many cases of the disease run their course with a rapidity which seems to be quite inexplicable, and which must depend upon some peculiar state of the constitution; but what this is has not yet been determined, as cases of this kind occur amongst the robust and plethoric, as well as in persons who have been weakened by disease or intemperance. It appears to be most severe and rapid in its course in those whose constitutions are impaired by dissipation.

The danger will always be in proportion to the development of the disease and the magnitude of the affected vessel, or as it affects an organ more or less important to life. When it occurs in the superficial veins of the extremities, and when produced by an external cause, and without the inoculation of a morbid principle, it is commonly less severe, and is in most cases confined to the vein which has been injured, and to the surrounding cellular tissue. The danger in this disease is apparently less from the venous inflammation than from the vitiation in the blood following it; hence the prognosis will be unfavourable, unless the disease be early treated, or symptoms of secondary suppuration have occurred. The prognosis will be little affected by the age or sex of the patient, as severe

cases occur at all ages, from 14 to 76, according to the statistical table.

THE TREATMENT

in Phlebitis comprises two heads, viz. the preventive and curative.

The disease following venesection will be best avoided by abstaining from frequent bleedings in the same vein, or in the same part of a vein. After the operation, care should be taken in dressing the wound to bring the edges into contact, and thus to prevent any foreign body from getting between them, which may impede the progress of adhesion by the first intention.

The bandage should be lightly applied over the wound, that the veins may not be over distended. The veins in or near to an inflamed part should never be opened, as they are then predisposed to take on the same action. The lancets used in phlebotomy should not be the same as those for other purposes, as opening abscesses, or vaccinating, as they frequently retain the matter of these for a length of time. If the wound in the vein be ascertained to be foul, it should be washed, then sucked, so as to make it bleed, or an exhausted bell-glass may be applied over it for the same purpose, by

which means absorption will be best prevented ; after this the part may be cauterised with a mineral acid, or nitrate of silver. In cases of puncture with inoculation, Mr Barry recommends the employment of watery lotions, with suction.

Immersion of the limb in cold or iced water, or the application of lint dipped in these, have been recommended at the commencement of the inflammation, or when it is merely local. When the disease becomes developed, or extends, the treatment must be more active, and should consist of blood-letting, both local and general, accompanied with emollient applications. In some cases of this kind the solution of acetate of lead is found to be very beneficial, either alone, or combined with opiates or narcotics. In mild cases, gentle regulated pressure is also good when applied to the whole of the limb, and frequently affords relief to the sufferings of the patient. Some cases have been cured by the application of compresses along the whole course of the affected vein, and others by laying open the vein through the whole extent of the inflammation. This is an old and dangerous practice, however, and, from the number of fatal cases of this kind, the practice has been justly abandoned. If the inflammation be kept up by an irritable ulcer or sore, this should first be attended to.

The general symptoms ought to be treated in the same manner as those of Phlegmatia. Some cases of the disease, however, resist all modes of treatment, and go on to affections of head, lungs, heart, liver, intestines, joints, spinal marrow, &c. If the inflammation be confined to the punctured vein, the treatment should be the same as that of local inflammation in general, viz., leeching, cooling or anodyne applications, with the internal employment of purgatives, refrigerants, and low diet. In mild cases, Mr Hunter recommends the employment of gentle pressure above the wounded part, so as to bring the opposite sides of the vessel into contact, and thus prevent the extension of the inflammation. Observation, however, has proved that this is not always successful in arresting the progress of the inflammation. A slight degree of Phlebitis is sometimes artificially induced, in order to effect a cure in some diseases. Thus, Mr Travers cured some cases of varix in the saphena, by the application of strips of adhesive plaster over the vessel. Mayo, and some others, used caustic, the knife, and needles, for the same purpose. The inflammation thus induced, however, sometimes spreads to a great degree, and occasionally proves fatal.

When the disease was first observed, powerful local antiphlogistic remedies were had recourse to ;

as also, in some cases, internal stimulants. Cases treated by the latter means, however, almost uniformly proved fatal.

In mild cases, care must be taken to support and give rest to the limb, and leeches may be freely applied to the course of the inflamed vessel. This may be followed by an emollient, or saturnine poultice, by an evaporating lotion, or by the *lotio acetatis plumbi cum opio*, cooling saline purgatives, and diaphoretics, may be administered internally.

The General Treatment, says Mr James,* cannot be too decidedly antiphlogistic. When, from the continuance of the disease, or the other symptoms, secondary inflammation may be suspected, this mode of treatment is more questionable, and its results often unfavourable.

General blood-letting is a good remedy, in most cases, but opinions differ considerably with regard to the employment of it. Mr Sanson recommends the tartrate of antimony in pretty large doses.

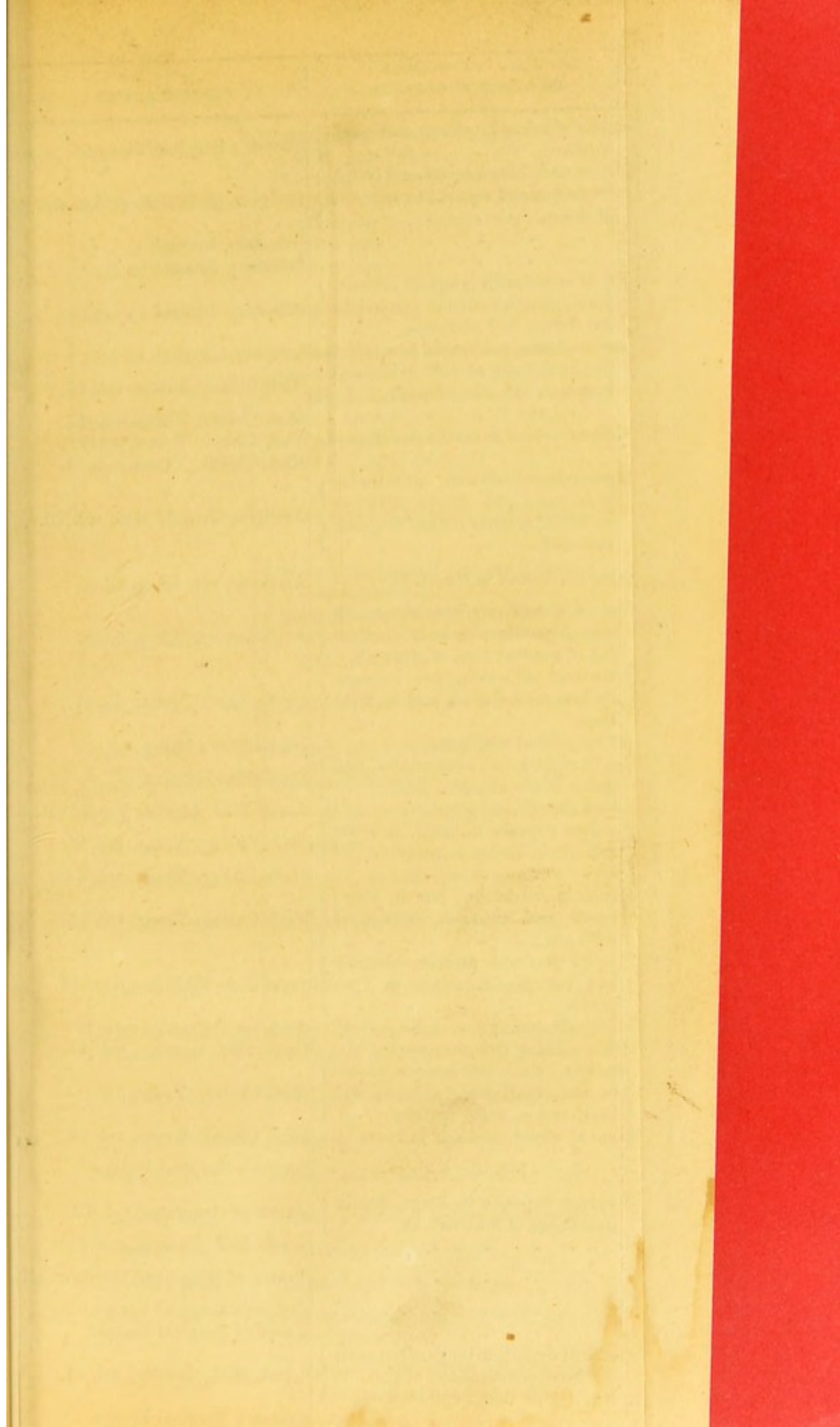
In the advanced stages of the disease, when the general symptoms indicate depression, wine, ammonia, quinine, and camphor, are requisite.

In Uterine Phlebitis, the treatment should be prophylactic, as it is much more easy to prevent than to

* On Inflammation.

cure the disease. The patient ought to be very careful for at least nine days after delivery, and should avoid exposure to fatigue, cold, and wet, and should abstain from stimulant food or drinks. Emollient injections may be thrown up into the uterus, so as to wash away any clots of blood or portions of placenta which may be left. Antiphlogistic remedies must also be had recourse to in the early stages, and of these, general blood-letting is preferable to the employment of leeches. In the latter stages of the disease, tonics and antiseptics may be had recourse to; in other respects, the treatment of Uterine Phlebitis may be the same as that of Phlebitis in other parts of the body.

FINIS.



A STATISTICAL TABLE OF CASES OF PHLEBITIS.

NO.	NAME.	AGE.	SEX.	CAUSE OF DISEASE.	SEAT.	TIME OF INVASION.	DURATION AND TERMINATION.	MORBID APPEARANCES IN THE VEINS.	MORBID APPEARANCES IN OTHER ORGANS.	REFERENCES OF CASES.
1	Hugh Johnson,	33	m.	{ Bled for ophthalmia, of a bad constitution, }	median basilic	on 9th day,	fatal on 13th,	{ Enlarged, and containing pus up to Axilla, also lymph, - - - Thickened and obliterated up to shoulder, pus and lymph in external Jugular and Subclavian veins, }	{ Serous effusion in pleura and pericardium, Abscesses in lungs, serum and lymph in pleura, and serum in ventricles of brain, - - - - - }	Cooper's Surgical Essays.
2	A soldier,	36	m.	Bled for ophthalmia,	cephalic,	2d,	fatal in 7th week,	{ Thickened and obliterated up to shoulder, pus and lymph in external Jugular and Subclavian veins, }	{ Abscesses in lungs, serum and lymph in pleura, and serum in ventricles of brain, - - - - - }	Hodgson on Discs. of Art. &c. p. 389.
3	George Williamson,	14	m.	Bled for fever,	median basilic	3d,	fatal on 6th,	Containing pus, - - - - -	{ Div. of serum with lymph in pericardium, great effusion of serum into the thorax and abdomen, - - - }	Infirmary Journal.
4	Henry Syme,	30	m.	Bled for fever,	median basilic	3d,	fatal on 4th,	Containing pus, - - - - -	{ Purulent deposit at left wrist, and lymph on left side of heart, - - }	Infirmary Journal.
5	Gregor Drummond,	25	m.	Bled for dropsy,	median basilic	5th,	fatal on 19th,	Obliterated, - - - - -	{ Serous effusion in pleura, pericard., & ventricles, Purulent deposit in left wrist, and lymph on left side of heart, - - }	Infirmary Journal.
6	John Bolt,	52	m.	Bled for bronchitis,	median basilic	5th,	fatal on 22d,	Thickened, but not containing pus, Thick like an artery, and filled with coagulable lymph and pus, - - - }	{ Abscesses formed in course of vein, Vein discharged pus for 16 days, - Abscess formed in the vein, - - }	Infirmary Journal.
7	Michael Dogherty,	31	m.	Bled for fever,	r. med. basilic	3d,	fatal on 30th,	Thickened, but not containing pus, Thick like an artery, and filled with coagulable lymph and pus, - - - }	{ Abscesses formed in course of vein, Vein discharged pus for 16 days, - Abscess formed in the vein, - - }	Med. Chirur. Trans. vol. 15.
8	Elizabeth Harper,	34	f.	Bled for hepatic affection,	median basilic	3d,	recovered,	Thickened, but not containing pus, Thick like an artery, and filled with coagulable lymph and pus, - - - }	{ Abscesses formed in course of vein, Vein discharged pus for 16 days, - Abscess formed in the vein, - - }	Med. Chirur. Trans. vol. 15.
9	Jane Robertson,	19	f.	Bled for fever,	median basilic	7th,	recovered,	Thickened, but not containing pus, Thick like an artery, and filled with coagulable lymph and pus, - - - }	{ Abscesses formed in course of vein, Vein discharged pus for 16 days, - Abscess formed in the vein, - - }	Med. Chirur. Trans. vol. 15.
10	Mary Stewart,	60	f.	Bled for pulmonic affect.	median basilic	2d,	recovered,	Thickened, but not containing pus, Thick like an artery, and filled with coagulable lymph and pus, - - - }	{ Abscesses formed in course of vein, Vein discharged pus for 16 days, - Abscess formed in the vein, - - }	Med. Chirur. Trans. vol. 15.
11	- Gredig,	22	m.	Bled for pectoral affect.	median basilic	6th,	fatal on 17th,	Contained pus and almost obliterated,	{ Subarachnoid effusion, optic thalamus and right corpus striatum softened, mucous coat of stomach softened, }	Archives Gen. de Med. vol. 20.
12	- - -	24	f.	Bled for pectoral affect.	median basilic	2d,	recovered,	{ Wound discharged pus for 9 days, vein obliterated, - - - Enlarged, containing pus inclosed in a false membrane, and coagula up to Axilla, - - - }	{ An abscess formed in fore-arm, - - }	Archives, vol. 19, p. 48.
13	A coachman,	20	m.	Bled for pneumonia,	median basilic	3d,	fatal on 12th,	{ Wound discharged pus for 9 days, vein obliterated, - - - Enlarged, containing pus inclosed in a false membrane, and coagula up to Axilla, - - - }	{ Pus in shoulder joints, abscess in neck, pleuritic effusion, and softening of mucous coat of stomach, - - }	Archives, vol. 19, p. 6.
14	Mary Banks,	40	f.	Bled for peritonitis,	cephalic,	3d,	fatal on 9th,	Thick, contracted, and containing pus,	{ Peritoneal adhesion, pus between rectum and uterus, and in right knee, - - - }	Dr Balfour's Probat. Essay.
15	Helen Bonelly,	32	f.	Bled for abdom. sympt.	median basilic	2d,	fatal on 7th,	Inflamed, and containing pus,	{ Right knee filled with pus, - - }	Dr Balfour's Essay.
16	Mary Torrance,	18	f.	Bled,	median basilic	7th or 8th,	fatal on 18th,	Apparently healthy,	{ Pus in right knee, both ankles, and under fascia at elbow joint, - - }	Dr Balfour's Essay.
17	Sophia Brancher,	25	f.	Bled for an accident,	median basilic	2d,	fatal on 17th,	Inflamed, and containing pus,	{ Purulent deposit in knee, - - }	Lond. Med. Chirur. Trans. vol. 15.
18	John Carr,	47	m.	Bled for a strain,	median basilic	2d,	fatal on 30th,	Impervious, - - - - -	{ Purulent deposits in lungs, pleuritic adhesions, serum in ventricles, }	Med. Chirur. Trans. vol. 15.
19	Captain L.	34	m.	Bled after lithotomy,	median basilic	2d,	fatal on 21st,	Thickened, and filled with pus,	{ Purulent deposits in lungs, pleuritic adhesions, serum in ventricles, }	Med. Chirur. Trans. vol. 14.
20	Henry Arnold,	51	m.	Bled for an ulcer,	median basilic	3d,	fatal on 16th,	Thickened, and con. pus and coagula,	{ Serum in ventricles, pus in knee, vasti, and crurales, infiltrated with pus, - - - }	Med. Chirur. Trans. vol. 15.
21	Gaspar Goldinge,	22	m.	Bled for epilepsy,	median basilic	2d,	fatal on 7th,	Thickened, and containing pus,	{ Pus in pectoral muscle, pleurisy and pneumonia, serum in ventricles, }	Journal de Medicine, tom. 12.
22	Clementine,	20	f.	Bled at 6th month,	median basilic	3d,	fatal on 14th,	Obliterated branches containing pus,	{ Pleuritic effusion, - - - }	Archives Generales, vol. 19.
23	Thomas Fuller,	21	m.	Bled for anasarca,	median basilic	3d,	fatal on 6th,	Thickened, and coated with lymph,	{ Pleuritic effusion and pneumonia, - - }	Lond. Med. Gazette, vol. 11.
24	H. A. Porter,	51	m.	Bled for an ulcer,	cephalic,	3d,	fatal on 8th,	Thickened, and con. pus and coagula,	{ Arachnoid thick and opaque, serum in ventricles, pus in knee, and vasti and crurales muscles, - - }	Med. Chirur. Trans. vol. 14.
25	A dissipated wife,	25	f.	Bled for an accident,	median basilic	5th,	fatal on 14th,	Inflamed, - - - - -	{ Abscess at elbow, and pus in knee, - - }	Med. Chirur. Trans. vol. 14.
26	John Cruts,	30	m.	Amputation of thigh,	{ femoral ex. iliac, and cava, }	3d,	fatal on 6th,	Tied, and containing flakes of lymph,	{ Purulent deposits in lungs, pus in interstices of muscles, &c. - - }	Cooper's Surgical Essays.
27	- - -	76	f.	Amputation of fore-arm,	radial and ulnar,	12th,	fatal on 20th,	Inflamed, containing pus and lymph,	{ Purulent deposits in lungs, pus in interstices of muscles, &c. - - }	Archives Generales, vol. 19.
28	Frederick Wells,	25	m.	Amputation of leg,	femoral,	2d,	fatal on 9th,	Containing pus and lymph,	{ Purulent deposits in lungs, pus in interstices of muscles, &c. - - }	Lond. Med. Gazette, vol. 11.
29	Elizabeth Mitchell,	40	f.	{ compd. dislocation of ankle, leg amputated }	tibial,	5th,	fatal on 14th,	Inflamed and very vascular,	{ Purulent deposit in lungs, deep seated abscess under fascia of arm and leg, lymph round optic nerves, }	Trans. of King's and Queen's Coll. v. 11.
30	An elderly woman,	-	f.	Operated on for varix,	saphena,	2d or 3d,	fatal,	Abscesses along the course of vein,	{ Purulent deposit in lungs, deep seated abscess under fascia of arm and leg, lymph round optic nerves, }	Cooper's Surgical Essays.
31	A dissipated man,	-	m.	Operated on for varix,	saphena,	3d,	fatal,	Much inflamed,	{ Purulent deposit in lungs, deep seated abscess under fascia of arm and leg, lymph round optic nerves, }	Cooper's Surgical Essays.
32	John Dodging,	35	m.	Excision of varicose vein,	saphena,	2d,	fatal on 9th,	{ Inflamed, and partly plugged with lymph, also containing pus, - }	{ Purulent deposit in lungs, deep seated abscess under fascia of arm and leg, lymph round optic nerves, }	Lond. Med. Gazette, vol. 11.
33	- - -	23	m.	Vein tied for varix,	saphena,	3d,	fatal on 12th,	Containing pus,	{ Purulent deposit in lungs, deep seated abscess under fascia of arm and leg, lymph round optic nerves, }	Cooper's Surgical Essays.
34	A young man,	-	m.	Vein tied for varix,	saphena,	3d or 4th,	fatal in 2d month,	Inflamed and containing pus,	{ Purulent deposit in lungs, deep seated abscess under fascia of arm and leg, lymph round optic nerves, }	Cooper's Surgical Essays.

CONTINUATION OF TABLE.

NO.	NAME.	AGE.	SEX.	CAUSE OF DISEASE.	SEAT.	TIME OF INVASION.	DURATION AND TERMINATION.	MORBID APPEARANCES IN THE VEINS.	MORBID APPEARANCES IN OTHER ORGANS.	REFERENCES OF CASES.
35	A middle-aged man,	—	m.	Excision of varicose vein.	saphena,	on 2d day,	fatal on 4th,	Inflamed, vascular, & containing lymph,		
36	A stout man,	—	m.	Vein tied for varix,	saphena,	2d or 3d,	fatal on 9th,	Inflamed,		
37	James Boyle,	40	m.	{ Vein wounded in operation for aneurism,	popliteal,	6th,	fatal on 13th,	Containing pus and lymph,	Abscesses on shoulders, hips, and breast,	Hodgson on Diseases of Art. and Veins.
38	John Hoey,	—	m.	Vein cut for varix,	saphena,	2d,	recovered,	Vein discharged serum,		Trans. of King's and Queen's Coll. v. 11.
39	—	23	m.	Operation for varix,	saphena,	6th,	fatal on 22d,	Containing pus,		Trans. of King's and Queen's Coll. v. 11.
40	—	—	m.	Operation for varix,	saphena,	2d or 3d,	fatal on 60th,	Abscesses along the veins,		Ed. Med. and Surg. Jour. vol. 5.
41	Sophia Walker,	16	f.	Commen. spontaneously,	left iliac,	—	fatal on 30th,	Vein obliterated and containing coagula,		Infirmary Journal.
42	Flicoteau,	25	m.	Spontaneous,	tibial veins,	—	fatal on 15th,	Enlarged, and containing pus,	Abscess under pectoralis major and between pleura and top of lung, serum in ventricles of brain, intestines inflamed,	Archives Generales, vol. 19.
43	—	32	m.	Spontaneous,	{ vena cava inf., iliac, crural and anter. tibial,	—	fatal,	Containing pus, coagula, and fibrine,		
44	A German,	25	m.	Spontaneous,	femoral,	—	fatal on 5th,	Inflamed,	Pneumonia, and abscess of lungs,	Archives Generales, vol. 19.
45	A commissary,	27	m.	Spontaneous,	{ humeral, and several others,	—	fatal on 5th,	Containing pus,	{ A number of subcutaneous abscesses, abscesses in lungs and muscles of limbs,	Archives Generales, vol. 19.
46	—	25	m.	Spontaneous,	{ vena portae and abdominal veins	—	fatal on 30th,	Abdominal veins containing pus,	Numerous purulent pustules on the body, abscesses in lungs, mucous coat of stomach inflamed,	Archives Generales, vol. 19.
47	A phthisical patient,	26	m.	Spontaneous,	left iliac, & femoral,	—	fatal on 10th,	Inflamed, containing clots and fibrine,		Archives Generales, vol. 19.
48	John White,	28	m.	Operation for aneurism,	left femoral,	11th,	fatal on 32d,	Inflamed, thickened, & slightly adherent,		Archives Generales, vol. 19.
49	Jane Strangemore,	—	f.	Amputation of leg,	femoral,	2d,	fatal on 29th,	Inflamed, containing lymph, blood, & pus,	Pleuritic effusion and pneumonia, inflammation extended to vena cava, down the other iliac vein to the pelvis, and down the femoral to the foot,	Cooper's Surgical Essays.
50	Mary M'Gregor,	58	f.	{ excision of cancerous tumour in axilla,	small veins in axilla,	2d,	fatal on 8th,	Thickened and inflamed,		Med. and Phys. Journ. vol. 56.
51	—	—	m.	{ Lateral operation for lithotomy,	crural,	6th,	fatal on 15th,	Containing coagula,	Parietes of cavity sloughing,	Med. Chirur. Trans. vol. 15.
52	A mason,	25	m.	{ Injury of the spine from a fall,	renal,	—	fatal on 7th,	Inflamed and containing pus,	Pus in posterior tibial,	Archives Generales, vol. 21.
53	—	35	m.	Compound frac. of leg,	femoral,	10th,	fatal on 22d,	Inflamed and containing pus,	{ Pleuritis, abscesses in lungs, also in kidney mucous coat of stomach inflamed,	Archives Generales, vol. 19.
54	—	36	f.	Delivery,	{ veins of uterus & round ligamnt.	9th,	fatal on 25th,	Containing pus,	Pleuritis, and abscesses in lungs and liver,	Dr Balfour's Essay.
55	Mrs C.	—	f.	Delivery,	ext. iliac,	10th,	fatal in 6th week,	Thick., contracted, and lined with lymph,	{ Pleuritic effusion, and abscesses in lungs and spleen,	Archives Generales, vol. 18.
56	Caroline Dunn,	21	f.	Delivery,	{ femoral ext. and int. iliaes,	6th,	fatal on 25th,	Thickened, and containing coagula,	Peritoneal adhesions,	Med. Chirur. Trans. vol. 12.
57	Jane Elliot,	—	f.	Delivery,	{ femoral iliaes and vena cava,	—	fatal on 34th,	Inflamed, and containing coagula,		Med. Chirur. Trans. vol. 12.
58	Mrs L.	—	f.	Delivery,	iliac,	7th,	fatal on 21st,	Inflamed, and almost obliterated,	Pleuritic effusion,	Med. Chirur. Trans. vol. 12.
59	An unmarried woman,	30	f.	Delivery,	femoral,	4th,	recovered,		Usual symptoms of phlegmasia dolens,	Med. Chirur. Trans. vol. 12.
60	A weaver,	22	f.	Delivery,	uterine,	4th or 5th,	fatal on 19th,	Filled with pus,	{ Serum in ventricles, mucous coat of stomach inflamed,	Archives Generales, vol. 18.
61	A young woman,	—	f.	Delivery,	uterine and pelvic,	—	fatal in 3d month,	Filled with pus,	Pneumonia,	Archives Generales, vol. 18.
62	A delicate girl,	25	f.	Delivery,	uterine,	4th,	fatal on 15th,	Filled with pus,	Uterus large and very soft,	Archives Generales, vol. 18.
63	A seamstress,	25	f.	Delivery,	{ uterine, and right ovarian,	8th,	fatal on 19th,	Filled with pus,	{ Pus in joints, at wrist, and at symphysis pubis,	Archives Generales, vol. 18.
64	—	31	f.	Delivery,	{ uterine, ovarian & hypogastric,	9th,	fatal on 18th,	Filled with pus,	{ Abscesses in lungs, pus in cavity of pleura, spleen soft,	Archives Generales, vol. 18.
65	A lace-maker,	36	f.	Delivery,	{ uterine, ovarian & hypogastric,	9th,	fatal in 3d month,	Filled with pus,	Pleuritic effusion,	Archives Generales, vol. 18.
66	A seamstress,	22	f.	Delivery,	{ left uterine, and ovarian,	9th,	fatal on 18th,	Filled with pus and coagula,		Archives Generales, vol. 18.
67	A stout girl,	27	f.	Delivery,	uterine,	2d,	fatal on 29th,	Filled with pus,	Abscesses in lungs and peritonitis,	Archives Generales, vol. 18.
68	A workwoman,	23	f.	Delivery,	{ uterine, ovarian & hypogastric,	in a few days,	fatal in 4th month,	Enlarged and containing pus,	Abscesses in lungs, stomach red,	Archives Generales, vol. 18.
69	A gentleman,	60	m.	Cold and fatigue,	femoral,	—	recovered,	Thickened, and probably obliterated,		
70	A gentleman,	22	m.	Subsequent to fever,	femoral,	—	recovered,	Thickened, and probably obliterated,		See page 15 for details of these two.

(3.)

A

PROBATIONARY ESSAY

ON THE

ANTIDOTES TO ARSENIC;

SUBMITTED,

BY AUTHORITY OF THE PRESIDENT AND HIS COUNCIL,

TO

THE EXAMINATION

OF THE

Royal College of Surgeons of Edinburgh,

WHEN CANDIDATE

FOR ADMISSION INTO THEIR BODY,

IN CONFORMITY TO THEIR REGULATIONS RESPECTING THE ADMISSION

OF ORDINARY FELLOWS

BY

DONALD MACKENZIE, M.D.

EDINBURGH:

PRINTED BY HER MAJESTY'S PRINTERS.

1839.

A
PROBATIONARY ESSAY

ON THE

ANTIDOTES TO ARSENIC

REVIEWED

BY AUTHORITY OF THE PRESIDENT AND HIS COUNCIL

AND

THE EXAMINATION

OF THE

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

BY THE CANDIDATE

FOR ADMISSION INTO THEIR BODY

IN VOUCHER OF THE TRUTH AND ACCURACY OF THE ASSURANCE

OF THE CANDIDATE

BY THE CANDIDATE

BY

DONALD MACKENZIE M.D.

EDINBURGH

PRINTED BY BEN MURRAY'S PRINTERS

1860

TO

ROBERT CHRISTISON, M.D., F.R.S.E.

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS,

PROFESSOR OF MATERIA MEDICA IN THE UNIVERSITY OF EDINBURGH, &c.

THIS ESSAY

IS RESPECTFULLY DEDICATED,

IN GRATEFUL ACKNOWLEDGMENT OF HIS VALUABLE

INSTRUCTION AND KIND ATTENTION,

BY HIS

FRIEND AND PUPIL,

THE AUTHOR.

RICHARD SMITH, M.D.

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BY HIS FRIEND,

THE AUTHOR,

AS A SMALL TOKEN OF GRATITUDE FOR THE KIND ASSISTANCE

RENDERED TO HIM IN THE COURSE OF HIS PROFESSIONAL

STUDIES

INTRODUCTION.

UPON revising the records of the various cases of poisoning which have taken place during the present century, it must be obvious to the most casual observer, that in the great majority of such cases the poisonous article employed, not only in this country, but also on the continent, was arsenic ; * and this is sufficiently accounted for by the great facility with which this substance may be obtained and administered. Another reason for this is, that arsenic is very generally used for the purpose of destroying noxious animals, when, from a proper want of care, it often falls into the hands of per-

* From a table drawn up by MM. Chevalier and J. Bois de Loury, it appears that out of 94 cases of poisoning, which occurred in France during a period of seven years, the arsenious acid was used in no less than 54 of these cases. *Annales d'Hygiène publique, &c.* T. xiv. p. 401.

sons ignorant of its deadly nature, and is by them mistaken for some other substance, and frequently swallowed. It is therefore very desirable that it should be determined whether or not there is any antidote which may, by chemical combination or otherwise, suspend its action.

With a view to the decision of this question, I have chosen this subject instead of a more practical one, as I consider that an experimental enquiry into the antidotes of a substance of so much importance as arsenic would be better received from me by the College, as a probationary essay, than a mere compilation from the works of authors, who detail the symptoms, pathology, and treatment of the various diseases to which the human body is liable ; of which I, from being a young member of the medical profession, can have but a very limited experience, and on which, most certainly, I can bring forward no new views. My principal motive, however, was, that the last discovered and only true counterpoison for arsenic, viz., the hydrated sesquioxide of iron, so much extolled by the toxicologists of the continent, more particularly by those of Germany and France, had been declared by two English surgeons to be utterly useless, (which had consequently shaken the confidence placed in it by medical men,) as far as I can judge, upon somewhat superficial grounds.

Prior, however, to investigating this point, I

shall give a short sketch of the antidotes which were in use previous to the discovery of the properties of the sesquioxide of iron, detailing the manner in which they act, the nature of the compound, if any, which they form, and the reasons for which they have been abandoned. I shall then detail the experiments I have made, for the purpose of finding out if the sesquioxide possessed the property of neutralizing arsenious acid. Some may think that the number of the experiments are few, when compared to the importance of the subject, but I beg such gentlemen to recollect that I am not exploring a new path, but merely following the footsteps of the experimentalists mentioned in an after part of this paper,* (who have investigated the subject in a most scientific manner) for the purpose of discovering whether or not, as has been asserted, they had overrated the powers of this substance as a counterpoison.

* Vide page 18.

ON THE

ANTIDOTES TO ARSENIC.

In the present state of our knowledge, no antidote has been discovered which, by “exciting in the system an action contrary to that established by the poison,”* may counteract the constitutional symptoms caused by arsenic. Dr. Bunsen, indeed, thinks that the sesquioxide of iron may be of advantage by acting on the constitution, but he has adduced no proofs in favour of such an opinion.† I shall therefore proceed at once to detail the various mechanical and chemical antidotes which have been administered for the purpose of acting locally on the arsenic.

And first, with regard to those substances which, by the fineness of their powder, envelope and prevent the poison from acting on the stomach; for which purpose charcoal, clay, magnesia, and cinchona, have been employed.

* Christison on Poisons, p. 33.

† Lancet 1834-5. Vol. i. p. 27.

From some experiments which were performed by M. Bertrand of Montpellier on the lower animals, he inferred that charcoal was a good counterpoison for arsenic; and so convinced was he of its efficacy, that he had no hesitation in swallowing five grains of the white oxide intimately mingled with it. He experienced no other bad effects than as he himself describes it, "*une sensation de chaleur, une peu douloureuse dans la région épigastrique, avec beaucoup de soif sans autre accident notable.*"* Four hours and a half after taking the above dose, he was perfectly well, the thirst and slight pain being entirely gone. But no other experimentalist has obtained the same results as M. Bertrand; and M. Orfila has clearly proved, that although the charcoal is sometimes of advantage when intimately mingled with the poison, yet it cannot be relied upon when given a short time after the arsenic has been swallowed; for there is a great difference between exhibiting the two substances mingled together, and taking the charcoal a little while after the arsenic, which is the proper method of testing the efficacy of any antidote.

I have placed charcoal among the number of the mechanical antidotes, although M. Bertrand considers that it acts as a decomposing agent. He

* *Annales Cliniques de Montpellier*, T. xxxii. p. 275.

says, "En comparant les effets morbides et organiques qu'entraîne nécessairement avec elle l'ingestion de l'acide arsenieux avec ceux des expériences que je viens de relater, l'on voit que c'est à l'aide de la formation de sels insolubles ou d'une réduction métallique que l'action délétère de ce dangereux toxique se trouve annihilé ou modifié."* But this supposition of M. Bertrand is evidently erroneous, as charcoal cannot decompose the arsenious acid except at a red heat, a temperature which, it is almost needless to say, the two substances are not exposed to in the living body. M. Orfila proved by several experiments that charcoal only acts mechanically in the same manner as potter's clay, or fine sand †.

Another antidote, viz. magnesia, was found useful by M. Mandel;‡ and cases in which it is said to have acted beneficially are related in several periodicals;|| but if it afforded any advantage, which is by no means distinctly proved, it must have acted merely in a mechanical manner, as no chemical action takes place between it and arsenic.

* Op. Cit. p. 227.

† Trai é des Poisons, T. i. p. 430.

‡ Annales Cliniques de Montpellier, T. xvii. p. 1—16.

|| Lond. Med. and Phys. Journal, vol. xlvi. p. 466 and 545.

Do. Do. Do. vol. xlix. p. 117.

London Med. Repository, vol. xxx. p. 288

Powdered cinchona bark has also been mentioned as an antidote; but it is evident, from what has been already said upon the employment of charcoal for the same purpose, that it can be useful only when swallowed along with the arsenic. This indeed happened in the case of an American physician, who recovered after having taken sixty grains mixed with a considerable quantity of bark.*

Having said so much upon the mechanical antidotes, I shall now proceed to examine the chemical, or those substances which act by combining and forming an insoluble compound with the arsenic.

Although at one time the alkaline sulphurets were imagined to be excellent antidotes in poisoning by arsenic, it has been satisfactorily shown that no reliance can be placed upon them. Indeed M. Orfila, from his researches on the subject, came to the conclusion that they were decidedly useless, and that so far from counteracting the irritant action of the poison, the compound formed acted much more rapidly than the arsenious acid itself. “En effet,” says he, “les animaux meurent dans un temps aussi court, et même plus court quand on leur administre ce prétendu contre-poison, que lorsqu’ils prennent l’acide arsenieux seul.”†

* American Journal of Med. Science, vol. ix. p. 61.

† Traité des Poisons, T. i. p. 422.

The reason of this was discovered by Berzelius,* who says, that the sulphurets of arsenic act as *sulphur acids* when there is any free alkali in the fluid, as in the present instance; and that the compounds formed are arsenio-sulphurets of potassium, which are very soluble, and—as the compounds of arsenic prove prejudicial in the ratio of their solubility—very quick and powerful in their effects.

MM. Orfila† and Renault‡ have also found that the sulphuret of arsenic, formed when sulphuretted hydrogen comes in contact with the oxide in solution, is decidedly poisonous, although it is not nearly so active as the oxide; and also, that although sulphuretted hydrogen may be somewhat useful in all cases where the arsenic has been dissolved in water, it affords no benefit whatever when it has been administered in the solid form, because it takes a long time to combine with it when in that state. As arsenic is generally exhibited in the form of fine powder, we must come to the conclusion, that, in the great majority of cases, it is of no avail whatever.

The manner in which the insoluble sulphuret of arsenic proves deleterious, is by being decomposed, sulphuretted hydrogen being given off, and oxide of arsenic formed. This decomposition,

* Turner's Chemistry, by Liebig, p. 715.

† Op. Cit. T. i, p. 451.

‡ Sur les Contrepoisons de l'Arsenic, p. 33.

which was first pointed out by M. Decourdemanche,* has been found to take place, though slowly, even in cold water, but much more rapidly when acted on by the gastric fluids. “Professor Orfila† made some experiments on dogs with the native orpiment and realgar, and with the sulphuret procured by sulphuretted hydrogen gas, (which are all pure sulphurets;) and he found that in doses, varying from 40 to 70 grains, they all caused death in two, three, or six days, whether they were applied to a wound, or introduced into the stomach.”‡

Another antidote which has been recommended is lime water; but it has deservedly fallen into disuse, because the compound formed, viz., the arsenite of lime, although insoluble in water, is perfectly dissolved, or rather decomposed by the fluids of the stomach, and is consequently equally poisonous as the arsenious acid itself; for no antidote can be of any utility which does not form a compound insoluble in the fluids secreted by the alimentary canal. “Hence the absolute inutility of vinegar, sugar, butter, and other oily substances, bitter decoctions, and many other antidotes once vaunted and now justly forgotten.”||

* Journal de Pharmacie, T. xiii. p. 207.

† Journal de Chimie Méd. T. ii. p. 153.

‡ Christison on Poisons, p. 274.

|| Do. do. p. 332.

Having now detailed and shown the inefficacy of the principal counterpoisons which were formerly employed, I shall proceed to examine the action of the hydrated sesquioxide of iron in obviating the deleterious effects of this most fatal poison.

Drs. Bunsen and Berthold, two physicians of Göttingen, presented to the public a treatise * on the efficacy of this substance in cases of poisoning by arsenic, in which they mention that they found it to be an excellent antidote, as it formed with arsenious acid a compound not only insoluble in water, but also in the juices of the stomach. These opinions were supported by the result of experiments on several of the lower animals, to which they found that they could exhibit arsenic, without any prejudicial effects, in a dose quite sufficient to destroy life, provided, at the same time, they administered a sufficiency of the antidote.

These opinions of Drs. Bunsen and Berthold have been corroborated by the experiments of MM. Miquel and Soubeiran †—Orfila and Lesueur ‡—Bouley, jeune ‡—Renault and Lassaigne—and Drs. G. Borelli and C. Demaria of Turin; § but

* Das Eisenoxydrat ein Gegengift des Arsenigen Saure.

† Lancet, 1834-5, vol. i. p. 517.

‡ Annales d'Hygiène publique, T. xiv. p. 134.

§ British and Foreign Med. Rev., vol. i. p. 595.

they have been declared erroneous by Mr. Brett* and Mr. Orton,† who state that they found the peroxide of iron to be of no avail in counteracting the poisonous properties of arsenic.

There are two methods of preparing this substance, viz., by the addition of ammonia to the persulphate or perntrate of iron. The hydrated sesquioxide immediately precipitated is to be collected on a cloth filter, where it is to be carefully washed with boiling water, until most of the sulphate of ammonia is removed, which will be ascertained by the water used in washing not affecting reddened litmus paper.

The permuriate of iron does not answer for the preparation of this substance, as, on the addition of the ammonia, there is often thrown down along with the sesquioxide a considerable quantity of chloride of iron.

The hydrated sesquioxide ought to be kept in the state of a magma, as it is found to unite with arsenic more readily in that condition than after it has been dried. Dr. Bunsen indeed says, that no reaction takes place between the anhydrous sesquioxide and arsenious acid. It should be carefully excluded from the air, as it is apt to absorb carbonic acid. By taking a given quantity of the magma, and evaporating it to dryness over a

* Medical Gazette, vol. xv. p. 220.

† Lancet, 1834-5, vol. i. p. 232.

vapour bath, the real amount of sesquioxide present will be ascertained. M. Henry says, that for every thirty-six parts of sulphate of iron, you will obtain twelve of the sesquioxide.*

The quantity of the antidote, requisite to neutralize a given portion of the poison, has been differently stated. Dr. Bunsen recommends from two to four drachms, with sixteen drops of ammonia, to be given for every six or eight grains of arsenic; while MM. Orfila and Lesueur give a much larger quantity. They however do not give any ammonia, as it is of no advantage. M. Bouley gives thirty-two parts, and Drs. Borelli and Demaria four and a half, for every portion of arsenic; but the quantity most generally chosen is that recommended by MM. Miquel, Soubeiran, and Nonat, who administer the antidote in the ratio of twelve to one of the arsenious acid.

Dr. Von Specz of Vienna, from some experiments which he made with the rust of iron, and haematite, (red iron ore,) instead of the hydrated sesquioxide, was of opinion, that, when there is none of the latter to be procured, the two former will be found of advantage. He thinks that the rust of iron comes very close to the hydrated sesquioxide in its property as an antidote, and then “sed longo intervallo, haematite, which, in consequence of its slow operation, may be used without

* Journal de Pharmacie, T. xxi. p. 100.

any beneficial result where the poison is exercising a very powerful action on the system.”*

EXPERIMENT I.

Three grains of arsenious acid were dissolved in about an ounce of water, and then a quantity of the magma of the hydrated sesquioxide, equal to thirty-six grains, was mingled with it. The mixture was immediately filtered, and tested with ammoniaco-nitrate of silver, ammoniaco-sulphate of copper, and sulphuretted hydrogen, none of which gave the characteristic precipitates.

This experiment proves that all the arsenic had united with the sesquioxide of iron, and had formed an insoluble compound with it, which Dr. Bunsen says is an arsenite of iron. I repeated this experiment several times, and always with the same result, which shows that Mr. Brett was wrong in stating that an “excess of peroxide of iron will not neutralize arsenious acid, even when the last is in solution, and the time allowed very considerable.”†

Having thus proved that, when a solution of arsenic and the sesquioxide of iron come in contact, they combine and form an insoluble com-

* British and Foreign Medical Rev., vol. iv. p. 239.

† Medical Gazette, vol. xv. p. 222.

pound, I proceeded to make a few experiments on animals, with a view to determine whether, when arsenic is introduced into the stomach in the solid form, the antidote combines with it and prevents it acting.

Some persons have objected to the propriety of extending to man the opinions founded on experiments performed on the lower animals. This indeed cannot be done in all cases. But in the present instance, no objections can be urged upon sufficient grounds, as arsenic produces the same symptoms, and the same morbid appearances on the lower animals, as it does in man, no matter through what channel it may have been introduced, whether by a wound, ulcer, or by the serous and mucous tissues.

EXPERIMENT II.

At a few minutes past 4 P. M. I injected, by means of an oesophagus tube, into the stomach of a large mongrel dog, eight grains* of arsenious acid in fine powder, and immediately afterwards a quantity of the magma of the hydrated sesquioxide, containing one hundred grains, suspended in about

* This quantity of arsenic is more than sufficient to kill a large dog in about $2\frac{1}{2}$ hours when vomiting is prevented. *Journal de Pharmacie*, T. xxi. p. 99.

five ounces of water. The oesophagus was then tied to prevent vomiting.

This animal presented none of the appearances which so large a dose of arsenic always produces. It was killed at about three o'clock on the following day.

AUTOPSY IMMEDIATELY AFTER DEATH.—The peritoneum was perfectly healthy throughout the whole of its extent. The mucous membrane of the stomach presented slight redness at its inferior portion towards the great curvature. There were several inflamed spots along the course of the duodenum, but they were very few and faint in the jejunum and ileum. The coecum and large intestines were healthy, but the rectum, at its termination, was considerably reddened. The other organs in this cavity were natural.

The heart and lungs presented no abnormal appearances.

EXPERIMENT III.

On the 30th March, at 1 P. M., seven grains of arsenic were administered to a very small mongrel dog, and five minutes afterwards the antidote in the ratio recommended by M. Bouley. A ligature was then tied round the oesophagus to prevent vomiting.

The animal was rather weak after the operation, but it soon became stronger. It was visited at $\frac{1}{2}$ past eight in the evening, and the ligature round the oesophagus was removed. No vomiting took place. On the following morning it was quite healthy, and there were none of the symptoms present which characterize poisoning by arsenic. The food which had been laid before it on the previous evening remained, as far as I could judge, untouched. However, during the course of the day, it both eat and drank, and, in short, continued perfectly well until the 5th April, on which day it was killed.

AUTOPSY.—The peritoneum was healthy. In the stomach there was slight redness, considerably diffused, which extended to within about two inches of the pylorus, and the mucous membrane was coated in several places with false membrane. The small and large intestines exhibited the same appearances as in the last experiment.

The lungs were healthy; and the only morbid appearance in the heart was a very slight ecchymosis at the left auriculo-ventricular opening.

EXPERIMENT IV.

At about $\frac{1}{2}$ past 4 P. M., twelve grains of arsenious acid were introduced into the stomach of a

middle-aged mastiff, and ten minutes afterwards the antidote, (in the proportion of twelve to one,) diffused in about eight ounces of water. The oesophagus was then tied.

The dog continued pretty well up to the time it was killed, which was about twenty-four hours after the exhibition of the poison.

DISSECTION.—The appearances in the stomach and intestinal canal were the same as in the last two experiments, but a little more strongly marked. The other organs in the abdomen, as also those in the thorax, were quite healthy.

EXPERIMENT V.

At 9 o'clock A. M., seventeen grains of arsenic, suspended in about two ounces of thin syrup, were injected into the stomach of a terrier, and after the lapse of fifteen minutes the hydrated sesquioxide was administered in the same ratio as in experiment third, and the oesophagus tied.

The ligature round the oesophagus was removed at about 7 P. M. of the same day, and no vomiting took place. This dog continued to do well up to the time it was killed, which was on the sixth day after the poison had been administered.

AUTOPSY.—Peritoneum healthy. The stomach presented very slight redness, as also did the duo-

denum ; and there were here and there small pieces of false membrane effused. The remainder of the small intestines, the coecum, and large intestines, presented scarcely any abnormal appearances, and, with the exception of a few very small red spots, and slight diffused redness near the anus, might be said to be perfectly healthy.

The other organs were natural.

EXPERIMENTS VI. AND VII.

At 10 A. M. ten grains of arsenic, diffused in about an ounce of the thin part of rice broth, were administered to a sheep dog about six months old, and, twenty minutes afterwards, the sesquioxide, in the ratio recommended by M. Soubeiran, was also injected, and the oesophagus tied.

At 11 A. M., ten grains of arsenic, suspended in an ounce of milk, were administered to a small terrier dog, and, after twenty-five minutes had elapsed, the antidote was given, as in the last experiment.

These two dogs continued well, and were killed on the third day of the experiment.

DISSECTION.—The appearances of inflammation in the stomach and intestinal canal were, if any thing, somewhat greater than in experiment five,

and corresponded pretty accurately with those related in experiment three.

The other organs were healthy.

All the foregoing experiments tend to prove that Dr. Bunsen, and the other gentlemen mentioned in page 18, did not err in ascribing so much value to the use of the hydrated sesquioxide of iron, precipitated by ammonia, in cases of poisoning by arsenic, as Messrs. Brett and Orton asserted that they did; and they show that those gentlemen were wrong in stating that no confidence could be placed in its properties as a counter poison.

In all of the experiments, slight inflammation was found in the stomach and intestinal canal, but that does not invalidate the efficacy of the antidote, because, whenever arsenic comes in contact with the mucous membrane, it adheres to it, and soon becomes enveloped in a coat of mucus, which effectually prevents the antidote acting upon it, and consequently causes inflammation, more or less severe, according to the quantity thus covered up. This was very well shown in experiments two, three, and four, where the arsenic came more in contact with the coats of the stomach, from its being suspended only in water, the inflammation being greater in them than in experiments five, six, and seven, where it was diffused through a thickish fluid, even although more time elapsed

between the administration of the poison and antidote in the latter than in the former.

I have not thought it necessary to make any experiments with a view to determine how long, after the poison has been swallowed, the antidote may be of avail, as it commences its action much more quickly in one case than in another. In some indeed it commences to act almost immediately, but, on the average, not until after the lapse of half an hour.

There are a considerable number of cases where this antidote was used with success, related in the following periodicals, viz. :—

Gazette Médicale, Août 22. 1835.

Literary Gazette, 1835, p. 556. Two cases.

Lancet, 1834-5, vol. i. p. 516.

Lancet, 1838-9, vol. i. p. 54.

Ditto ditto, p. 327.

Medical Gazette, vol. xix. p. 177.

British and Foreign Med. Rev., vol. i. p. 572. Six cases.

Ditto ditto ditto, vol. vii. p. 563.

Upon being called to a case, the practitioner ought, if vomiting has not taken place, to administer an emetic, while he is procuring the antidote. This will prove useful, by evacuating the stomach of a considerable quantity of the poison. Of course, it would be wrong to give an emetic in

those cases in which vomiting has been produced by the action of the arsenic, and all that is necessary to be done is to give milk, which "should be drunk both before and after vomiting has begun, as it appears to be the best substance for enveloping the powder, and so procuring its discharge."* Whenever the antidote is procured, it ought to be given every two or three minutes in dessert or table-spoonful doses, mingled with a little water. Some have recommended syrup or mucilage to be used instead of water ; but it is of no importance which is employed. If the antidote is vomited up, which very frequently occurs, it should be given until the vomiting, and other bad symptoms, have entirely ceased. Indeed, the quantity ought not to be regulated by the amount of the arsenic swallowed, but rather by its effect on the symptoms.

The prognosis will be more favourable, the less the time which elapses between the administration of the poison and the antidote, and the thicker the fluid in which the arsenic was suspended, because less of it will adhere to the mucous membrane of the stomach, when diffused in such a vehicle as soup or milk, than when it is taken only suspended in a little water.

From the experiments which I have related, I conclude,

* Christison on Poisons, p. 335.

That the hydrated sesquioxide of iron should be resorted to in all cases where arsenic has been swallowed, as it is a chemical antidote of great avail, in poisoning by that substance.

FINIS.