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OBSERVATIONS

ON THE EXTERNAL USE OF

PREPARATIONS OF LEAD,

WITH SOME GENERAL REMARKS

O N

TOPICAL MEDICINES.

By

JOHN AIKIN, SURGEON.

— *Sunt certi denique fines.* —

L O N D O N :

Printed for JOSEPH JOHNSON, No. 72, St. Paul's
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MDCCLXXI.

OBSERVATIONS

ON THE EFFECTS OF

PREPARATIONS OF LEAD,

WITH SOME GENERAL REMARKS

TOPICAL MEDICINES



JOHN A. H. ...

LONDON:

Printed by J. Johnson, No. 7, St. Paul's Church-yard.

1825

MDCCLXXV

T O
JOHN FYSHE PALMER
M. D.
OF PETERBOROUGH

THESE OBSERVATIONS
ARE INSCRIBED
AS AN OFFERING OF GRATITUDE
TO PRIVATE FRIENDSHIP
AND A TRIBUTE OF ESTEEM
TO DISTINGUISHED ABILITIES
BY HIS AFFECTIONATE FRIEND
AND OBLIGED HUMBLE SERVANT

JOHN AIKIN

CHESTER, *Jan.* 1. 1771.

JOHN FYSHE PALMER

M. D.

OF PETERBOROUGH

THESE OBSERVATIONS

ARE INSCRIBED

AS AN OFFERING OF GRATITUDE

TO PRIVATE FRIENDSHIP

AND A TRIBUTE OF RESPECT

TO DISTINGUISHED AMPLITUDE

BY HIS AFFECTIONATE FRIEND

AND OBLIGED HUMBLE SERVANT

JOHN ALKIN

Chester, Jan. 1776

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- P. 30. l. 13. for *ranceffency* read *rancefcency*.
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C O N C L U S I O N

INTRODUCTION.

THERE is in human nature an enthusiasm constantly arising from the pursuit of any favourite object, which in some measure prejudices the judgment of the coolest and most temperate men, and in spite of themselves biases their opinion, and influences their representation of things. This propensity of the mind has in no instances been more strikingly shown, than in the introduction of new medicines; with regard to which it has been found, that the greatest intentional candour and honesty have not preserved men from offering to the world equivocal facts, with bold conclusions deduced from them. It would be an easy, though invidious task, to point out many cases, where practitioners have been much surprized to find a
A remedy,

remedy, powerfully recommended to them upon the authority of a great and respectable name, fall infinitely short, in real efficacy, of what they had been taught to expect. Instances of this unhappy deception are more frequent, in proportion as the national or personal character of the author is inclined to credulity or vanity; and when we have reason for suspecting a strong bias to either of these, it becomes us to be extremely cautious and reserved in our admission even of facts, and still more of conjectures. To the honour of our country, it may be considered as the place where the literary opinions of all Europe are weighed with the most candid and impartial scrutiny; where a great name will not sanctify an absurdity, nor a cloud of credulous and prejudiced attestations evidence an extreme improbability. This spirit of free enquiry, and philosophical scepticism, can alone preserve science from being overwhelmed with a number of contradictory opinions, so equally recommended as to
confound

confound all distinctions of truth and falsehood, and can alone contribute to the ascertaining that experimental knowledge, which constitutes real advancement in any pursuit of the mind.

MR. GOULARD, a surgeon of eminence at Montpellier, has lately written a treatise on the external use of Saturnine preparations, in which he considers them as a sort of panacea in the practice of surgery, and makes them, in fact, the only topical remedies required in any case. An intelligent reader will at first sight perceive an air of empiricism in the indiscriminate recommendation of a medicine, for disorders so very various and different as those which come within the surgeon's province; and if, upon a further examination, he finds reason to suppose it really valuable for some purposes, he will wish to separate and distinguish what may be depended upon, from the sanguine additions of a prejudiced author. It is precisely with this view, that I have undertaken a set of observations upon sa-

turnine topics. Sensible that Mr. Goulard has said many things in their favour which well deserve attention, I would attempt to put these medicines upon the rational footing of others in common practice, and candidly show what may, and what may not be expected from them, and in what rank they stand with respect to other topics; and in doing this, in whatever points I am obliged to differ from Mr. Goulard, so it be done with modesty and good-temper, I cannot consider myself as standing in need of an apology.

I SHALL only beg leave further to premise, that it is not merely upon the confidence of theoretical reasoning that I presume to judge of this matter, but also upon a very extensive and accurate observation of the effects of these medicines in real practice.

PART I.

SECTION I.

On the Medicinal Preparations of Lead.

LEAD is used medicinally, either in the form of a calx, or corroded or dissolved by the vegetable acid.

THE calces of lead seem to have no active qualities. Their only use is to give consistence to plasters, which they are extremely well qualified for, on account of their solubility in oil. Litharge is chiefly used for this purpose. The London and Edinburgh Dispensatories afford three forms of lead combined with the vegetable acid ;

CERUSSE—which is a simple corrosion ;
Sugar of lead—a crystallised salt ; and

Acetum Lithargyrites—a solution by infusion.

THE basis of Mr. Goulard's preparations is what he calls *extractum saturni*, which is a decoction of litharge in vinegar, and in no respect differs from sugar of lead and vinegar of litharge, but in degree of concentration. It is evident from the directions given us for making it, that its strength must be extremely uncertain, depending upon the strength of the vinegar, and the time of boiling, neither of which is precisely fixed. This circumstance perhaps is of small importance in a topical application, which though it was determinate with regard to quality, could never be so with regard to quantity, yet it gives us room to be surprized at a claim of invention and perfection, for a preparation which is neither new nor judicious. The only circumstance in which the extract seems to have the advantage of sugar of lead, appears to be in the greater quantity of the acetous acid contained in it, which
proves

proves an excellent assistant in many cases, and the sugar of lead, when once crystallised, cannot be brought back to that state of solution in vinegar in which it was before; yet where a large quantity of watery menstruum is added, as in Mr. Goulard's saturnine water, it is as well to make a solution of sugar of lead in the water, and add the vinegar afterwards, as to mix them both together in the form of extract. He has a variety of formulæ of the extract mixed with unctuous and emplastick substances, contrived by their different consistences and strength to suit various purposes. Our dispensatories have likewise two very elegant saturnine ointments, and a variety of saturnine plasters.

ONE of Mr. Goulard's compositions is a mixture of the extract with soap, for the idea of which he professes himself indebted to the Duc de Richlieu. This I will venture to say is a very injudicious formula; since the acid in the extract will probably unite with the alkali of

the soap, and leave the lead in the state of an inert calx. In effect, on attempting to make this composition, I have seen a large white flaky sediment, which I imagine was the lead united with part of the oil in the soap.

THE saline preparations of lead, discover to the taste a remarkable sweetness, and an intense stypticity. The calces are perfectly insipid.

SECTION II.

On the Penetrability of Saturnine Preparations.

MR. Goulard, in accounting for the effects of these topics, speaks of their minute and subtile particles entering the pores, forcing through obstructions, grinding down and dividing concreted juices, and then bringing them back through the pores, and all this with as much confidence as if he had actually seen them at work through a microscope. It is this licentious spirit of conjecture which has brought medical theory into disrepute, and retarded the progress of real knowledge, since it is impossible for any opinion to be advanced, which an ingenious man may not attack or defend upon principles so vague and fanciful.

Let

Let it be our business to consider, from the known laws of the animal œconomy, and the sensible qualities of the substance treated of, assisted by analogy with others, the effects of which are better ascertained, what is most likely to happen relative to the penetration of saturnine topics.

ABSORPTION of fluids applied to the surface of the body, is a well known phenomenon. This is performed through the minute pores of the skin, and the mouths of a set of vessels appropriated for this action, which besides the property of capillary tubes, possess also a contractile power from irritation. Yet are we much too ignorant of the theory of absorption, to form conclusions *a priori* of the substances best fitted to enter the system in this way. Without embarrassing myself therefore with uncertain and inconclusive reasonings of this kind with regard to lead, I shall rather attempt to establish practical rules concerning its use, upon the surer grounds of real observation

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on of its effects, and analogy with other medicines.

THE effects of any substance absorbed from the surface of the body, and thence carried to the mass of blood, and distributed with it through the whole system, may naturally be expected to be very similar to those consequent upon its absorption from the internal surface of the alimentary canal. This in many instances has been observed to be real fact, and in none more eminently than with regard to mercury; a medicine which is more familiar to us, and better known from its effects, than perhaps any in the whole materia medica. Its efficacy in overcoming the venereal virus, and its distinguishing property of exciting a salivation, are now universally allowed to follow its admission into the system, through whatever channels it is conveyed, or in whatever form of combination it is exhibited; with some difference only as to the certainty and speed with which it produces these effects. A long experience has at length

length triumphed over fanciful theories and interested pretensions, and has established it as an important and undoubted axiom, that mercury, whether internally exhibited in the form of a most corrosive salt, or rubbed into the skin combined in its crude state with the mildest unctuous substance, acts precisely in the same manner on the animal fluids. Experiments of this kind with regard to other medicines are not numerous, nor very well ascertained, but in several instances the result has been the same. Even some purgatives, which one would suppose confined to a topical action upon the intestinal canal, have been found to produce their effects from external application.

THE noxious effects of lead taken into the stomach, are extremely well defined and authenticated. The symptoms it occasions are certain and constant, and though at first they indicate a partial affection of the intestinal canal, yet the general paralytic disorders supervening, shew a communication of the injury through-

throughout the system. But this is not the only method of exhibition by which its poisonous property is shown. The workers in lead-mines are found to be extremely subject to the paralytic affections, and general disorders of the nerves, which discover the saturnine poison; and in them the particles of lead must probably be received, in combination with a sulphureous vapour, into the lungs. This seems also to be the case with respect to plumbers and some other artificers in lead. There is some doubt concerning the manner in which painters receive the poison; since if we consider the adhesive quality of the compositions of lead used for paint, and the little care these people take to keep their hands clean, we may easily conceive that a considerable quantity may be swallowed along with their food; however, vapour has probably some share, as the smell of a newly painted room has been known to occasion these disorders in a slight degree.

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THUS we recognize two ways, in which particles of lead received into the system produce noxious effects which are evident and distinguishable; and from analogy we might very naturally imagine, that similar consequences would follow its application to the surface of the skin. But Mr. Goulard, though he is very sanguine in his idea of the powerful action of lead absorbed in topical application, is yet strenuous in maintaining that its most liberal external use is never attended, in the smallest degree, with any of the pernicious effects of its internal exhibition. He confirms his own extensive experience by that of others; and from a large and careful observation of its effects, I can add an unreserved testimony to this fact. I have seen numerous instances where his saturnine preparations were used for a length of time, in large quantity, and in all the circumstances which could be supposed to favour its absorption, without any of the symptoms attending its admission into the stomach or lungs. What
are

are we to conclude from an event so unexpected? Would it be too much, to make use of it as an argument that no absorption of the saturnine particles really takes place? might not this supposition be corroborated, by considering the remarkable styptic quality of lead, which seems to contract and shrivel up every fibre, and certainly must render the pores less capable of absorbing? This perhaps would be too hasty a conclusion, since our ignorance of the real operation of medicines, and the causes of the variety observable in their effects, renders the argument rather merely negative than positive. Yet I think we may safely assert, that it entirely destroys Mr. Goulard's analogy of lead with mercury, and the theory of its action founded thereupon; for certainly he has no right to avail himself of the activity of a medicine in a favourable consideration of it, whilst he denies those noxious effects by which its activity is discovered.

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THERE is a farther consideration which may serve to invalidate Mr. Goulard's opinion, that saturnine topics act from an intimate penetration of their particles. In many of the cases in which he celebrates their virtue, the disease is deeply seated in the muscles, glands, and cellular substance beneath the skin. Now the lymphatic vessels, which have been almost demonstrated to be the canals by which all absorption is carried on, and have been very accurately traced, by several great anatomists, particularly Hunter, Monro, and Hewson, are found, as far as injection can be pushed, to have little or no connexion with the parts immediately subjacent, but to run on in a direct course to the next conglobate gland; and the progress of some diseases, and effects of various stimulant applications, have assisted to trace out this course. Admitting therefore that particles of lead in an active state may be absorbed, yet if instead of pervading and soaking through the skin and cellular membrane by transudation,

sudation, they are carried directly and superficially along the lymphatic vessels, it cannot be conceived that they can produce any other effects on deep-seated parts, than such as arise from a sympathetic communication by means of the nerves. To give this argument its full force, we need only have recourse to the numerous facts relative to absorption, related by the favourers of the lymphatic theory.

UPON the whole, I conceive it a method much less exposed to doubt and uncertainty, and consequently much more useful in a practical view, to form our judgment of the uses of saturnine topics, from their sensible and primary effects upon the parts with which they immediately come into contact, than from a theory of the intimate penetration of their particles; a theory which must be merely hypothetical, since we are confessedly deprived of assistance from the analogy of their internal action. I shall therefore proceed upon this principle, endeavour-

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ing to elucidate and confirm observations of the real effects of these medicines, by a theoretical reasoning, simple and intelligible; which however I would willingly include in that modest apology of Tully: *Nec tamen quasi Pythius Apollo, certa ut sint, et fixa, quæ dixero; sed ut homunculus unus e multis, probabilia conjectura sequens.*

SECTION III.

On the primary Effects of Saturnine Applications.

THE most manifest effect of saline preparations of lead externally applied, is contraction of the fibres. An animal fibre is capable of being shortened or contracted in two different ways; either from the property common to all matter of its particles being brought nearer to each other by external causes, or from an internal power of action resulting from the vital principle.

THE first species of contraction is produced by *astringents*, which exert their efficacy equally on dead and living flesh. The second is excited by *stimulants*, for the operation of which the vital principle is necessary. These powers may exist se-

parate from each other, or they may be united. In general, most of the medicinal applications belonging to either of these classes, which we are acquainted with, unite in various proportions a stimulant and astringent quality.

THERE is no doubt concerning the *astringency* of lead. The senses bear a sufficient testimony to this effect.

WHETHER or no it has a *stimulating* quality is much more dubious.

IN order to consider this question more clearly, we must premise, that there is a great difference between impressing the nerves with an immediate sensation, and rendering them more susceptible of impressions. Many substances produce the first effect in a great degree, and yet totally destroy the latter. All saline bodies without exception applied to the tongue, or to any part divested of the cuticle, prove immediately stimulant, yet their effect may be afterwards to render the part less sensible of another stimulus. A saline preparation of lead, applied in a concentrated form to a very sensible part, will

will therefore stimulate the fibres to immediate action, yet there is great reason to believe that its lasting effects will be quite opposite.

THE symptoms arising from the internal use of lead, all show a remarkable power in destroying nervous influence. The obstinate constipations, tremors, and paralytic affections consequent upon it, proceed from this cause. Yet in what degree its external application can produce this, is very questionable. Mr. Goulard speaks, in many places, with great applause of the sedative virtue of saturnine topics; and indeed the facts related seem fully to justify what he says on this head. At the same time, he nowhere allows of any bad effects arising from the destruction of nervous influence, such as palsies, and the like; nor have I ever observed their freest application attended with any symptoms of that kind. But how can we conceive that just so much power is exerted as to prove beneficial, and that it never proceeds to be injurious? I apprehend nothing can ac-

count for this, but what was before laid down concerning the confined action of these topics. We may easily imagine, that by diminishing the sensibility of the nerves of the skin they may appease pains seated there, while, not being able to penetrate to the nerves supplying the muscles, they cannot affect the moving powers of the body.

THE *antiseptic quality* of saturnine topics is also celebrated by Mr. Goulard. Putrefaction in a living body may be resisted, either by such applications as stimulate the moving powers to a more vigorous action, or by such as have a chemical property of checking this process in the animal solids and fluids. Every combination of a metallic body with an acid is chemically antiseptic, so that in this view the extract of saturn will rank among this class of medicines; though did its sedative quality penetrate considerably to the moving powers, it would produce an opposite effect with respect to them. Simple astringency however is found to render a body less liable to putrefaction;

trefaction; so that upon the whole we may expect a good degree of antiseptic power from saturnine topics, especially the saturnine water of Mr. Goulard, which has a portion of vinous spirit added to it.

SATURNINE preparations outwardly applied, appear therefore to exert an astringent and antiseptic property on the simple solids and the fluids they come into contact with, and a sedative property on the living solids; and this, as far as I am able to judge, seems to be the whole of their primary action. The secondary effects resulting from these, particularly with regard to the motion of the fluids, will be hereafter treated of.

IT is to be observed that a difference will arise in the effects of saturnine water, according to the degree of heat in which it is applied. This is referable to the effects of simple heat and cold; with regard to which it is universally known that heat relaxes, and cold constricts the fibres—the former applied in a moderate degree will therefore assist its sedative, the latter its astringent property.

SECTION IV.

On the Repellent Quality of Saturnine Topics.

MR. Goulard very copiously insists on the efficacy of lead in discussing tumours of every kind, and even abscesses after the matter is formed, and in dispersing eruptions; yet he takes great pains to prove, or rather indeed to affirm, that it has no *repellent quality*. As this position seems somewhat paradoxical, and he has by no means cleared up the paradox, it may be useful to make some general observations upon Repellents and Discuti-ents.

IN every tumour there is a præternatural congestion of fluids, which may be faulty, either from the too great quantity in which they are collected, or from
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a morbid affection added to this. In the first case, no bad consequences can ensue from causing them to re-enter the circulation, and flow in their natural course; but in the latter, throwing back a vitiated humour on the blood, from whence an effort of nature has separated it, may give rise to disorder in other parts of the system.

IN either case, the congested fluids seem to have no other possible way of escaping, but by an external discharge, or by a return into the circulating mass; which last, if terms mean any thing, must certainly be understood by the word *repulsion*. Mr. Goulard has therefore done nothing towards the proof of his favourite position, that lead does not repel, by supposing its particles capable of penetrating to the fluids in a tumour, and producing great changes in their texture and properties; since, if after all they re-enter the circulation, they are still repelled; and no advantage is gained with respect to the dreadful idea of repulsion, except

except it were proved that their vitiation was corrected by the saturnine particles, and consequently the repulsion rendered innocent.

HE has indeed related, what I believe will appear very extraordinary, and scarce credible to most surgeons, that in an abscess where matter was evidently formed, the application of a saturnine cataplasm has evacuated it externally by way of transudation through the pores of the skin, so that the dressings were moistened with real pus, and the abscess gradually vanished without opening. This phenomenon, so contradictory to what we know of the nature of abscesses, and the operation of medicines, merits a stronger confirmation, than a few cases in which the fact seems rather to have been taken for granted, than clearly demonstrated. It may indeed easily be conceived, that a powerful stimulant or astringent may repel into the blood the matter of an abscess; and we find this sometimes naturally happen in cases of
Metastasis,

Metastasis, though the event is rare where the pus is fully formed; but if it were possible for a transfusion to take place, we ought rather to expect it from emollient applications, which powerfully relax the solids and dilute the fluids, than from topics which have a manifest astringent quality. The cuticle, while entire, we know is capable of retaining the serum of a blister, a fluid of far greater tenuity than pus. Mr. Goulard's theory to account for this effect of Saturnine topics, is so very artificial and improbable, that it does not deserve a refutation.

HE does not however pretend that this transfusion commonly happens in the dispersion of a tumour; therefore, as its contents usually find an internal issue, that is, return into the circulation, they are in every true sense of the word, *repelled*, and observations accumulated to prove the strong *discutient* quality of lead, do in effect prove its *repellent* quality.

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THE same reasoning will hold good with regard to eruptions, which like tumours contain a congested fluid, either innocent or morbid. The powerful effects of lead in causing these to disappear, have long been well known, and much dreaded. Mr. Goulard may have proved that the use of lead is safer than has been imagined; but certainly he has not shown, that when eruptions which roughened the whole surface of the body, suddenly disappear without any visible external discharge, they are not repelled.

HE brings an observation from the cure of the itch, to show that lead is not repellent; which is, that upon its first application, the eruptions are increased instead of being diminished. It is very extraordinary that in his long chapter on this disorder, not one word is mentioned of the prevailing opinion among medical writers that the itch is occasioned by animalculæ; an opinion apparently well founded, and, one would imagine, universally known. But this circumstance rendered

rendered the instance much less fit for his purpose, since it destroys the analogy with morbid matter in general, and gives room to account for the fact in a different way.

UPON the whole, considering the number of well stated facts adduced by Mr. Goulard, of the dispersion of tumours and eruptions by Saturnine applications, where no bad consequences have ensued from throwing back the matter on the system; we must conclude, either that lead has a remarkable property of destroying various noxious qualities in the fluids; or that our opinions concerning such noxious qualities, are erroneous and ill-grounded.

THE first supposition is rendered improbable, by the arguments before laid down against the penetrability of Saturnine topics. Nor can it be conceived, allowing them to mix with the fluids, how by a sort of miraculous power they are able equally to prevail against almost every

every kind of vitiation of which the fluids are capable.

ON the other hand, several cases of tumour and eruption, presuppose no noxious quality in the fluids, and consequently we have no reason to apprehend any bad effects from causing them to re-enter the circulation; and from many facts that have appeared since the modern changes of practice in the treatment of the small-pox and other eruptive fevers, which have shown that cuticular eruptions are rather a symptom, than a necessary crisis of these disorders, and that such a treatment as is calculated rather to check than to promote them, will render the disease milder and less dangerous, we have great reason to believe that the repulsion of fluids usually supposed to be vitiated, will not always produce those fatal consequences that have long been so much dreaded.

THERE is no occasion therefore, by imaginary hypotheses industriously to conceal

ceal the real action of lead, or to change the term by which its action should be specified; since, if its utility and innocence be clearly proved by facts, calling it a *repellent* will not, in this country at least, deter practitioners from making use of it.

SECTION V.

On Emollient Topics.

MANY of the diseases for which Mr. Goulard recommends his medicines, are such as have been usually treated with emollient applications; against which he brings very severe charges, and seems desirous of totally banishing them from the practice of surgery. The difference between these two classes of topics is so great, that it is impossible the use of both in similar cases can be generally proper. I shall therefore examine the nature and properties of Emollients, in the same manner as I have done those of Saturnine preparations, in order to bring them to a comparison.

EMOL-

EMOLLIENT TOPICS are such as relax the solids, and oppose acrimony in the fluids.

THIS seems to be the whole of their action, primarily considered.

THE substances which enter the class of emollients, are water, oil and mucilage.

WATER is absorbed with great facility from the whole surface of the body, and either in its liquid form, or that of vapour, is poured out into every cavity, and moistens every fibre. If we imagine a spongyness or porosity of texture in the simplest fibre of the human body, we may conceive how particles of water soaking into it may have a mechanical effect of enlarging its bulk, and consequently of relaxing it. Water when warm may also contribute to relaxation by being the vehicle of heat, which is more intimately and constantly applied to the body through its medium than that of air.

WATER is the most universal diluter possible of the animal fluids, since with

the assistance of heat, it may be united with almost all of them; consequently it is a powerful opposer of acrimony.

THE effects of oil in relaxing the solids are universally known and acknowledged. It seems to perform this office by absorption into the substance of the solid fibre. It is also capable of mixture with many of the fluids, on which it will act as a diluent and sheather of acrimony. Oil is not liable to evaporation or coagulation from a moderate heat; it is however subject to a ranceffency and putrid acrimony from warmth and stagnation.

MUCILAGE is less capable of absorption than the other two, and requires diffusion in a large portion of water to enter the pores and small vessels. It seems peculiarly adapted to cover acrimony in the fluids, by its remarkable sheathing or obtunding property.

As most of the fluids in the body contain a portion of oil and mucilage united by means of water, it seems probable that an artificial mixture of this kind, would
be

be best calculated for answering every purpose of an emollient. In the proportions we should allow a larger share to water than to mucilage, that it may be well fitted for absorption. Its application should be assisted by a warmth somewhat greater than that of the human body, and by gentle friction. An impure oil obtained from some animal substances by means of heat, such as neats-foot oil, is a mixture of this kind, and is celebrated as a peculiarly excellent emollient. The synovia of the joints is a liquor of this sort, prepared by nature as the best fitted for counteracting the injurious effects of violent friction.

I SHALL now consider the secondary effects resulting from the primary action of emollients.

EMOLLIENT applications are

I. SEDATIVE. WE may suppose pain to be owing either to an excessive tension of the sensible fibres, or to a chemical acrimony corroding them. The following example will serve to illustrate both

these causes of pain. If a puncture be made in a tense membranous part, a violent and continued pain will be produced, which must be owing to an unequal tension of the nerves, proceeding from a partial division; for compleating the division by a free incision will remove the pain.

BUT suppose this puncture be made by the bite of a viper or some other venomous animal; here is not only the former cause of pain, but a new one superadded, which is, the corrosive matter introduced; and the same treatment will not give relief. Emollient topics, by relaxing the solids and opposing acrimony in the fluids, are calculated to remove both these causes of pain, and therefore are most truly sedative.

THE relaxation occasioned by emollients is found not only to remove the painful tension of the parts to which they are immediately applied, but from the universal sympathy of the nerves throughout the body, to relieve pain in a distant
and

and deep seated part. Thus we find that the warm bath is the most powerful sedative in nature.

UPON the same principles, emollients have a claim to the title of

2. ANTISPASMODIC. SPASM and pain very frequently accompany each other, and proceed from the same causes. Whatever relaxes and appeases irritation must prove truly antispasmodic, not only to the part in contact with it, but to a distant one by sympathetic communication.

A CONTINUANCE of the relaxing power will cause emollients to prove

3. DEBILITATING. IN a natural state of the fibres, there is that due degree of tension, which enables them to contract in such a manner as to act with the greatest possible advantage. When they are lengthened by relaxation, it is obvious that the same contractile force cannot produce equal effects; as part of the power will be lost, in bringing them first to their natural degree of tension. All

motion therefore being produced by the contraction of muscular fibres, whatever impairs their contractile power, weakens the moving powers of the body.

THIS debilitating quality of emollients, when applied to a part overloaded by congested fluids, will certainly render it less able to free itself by a valid contraction of the fibres; on the contrary, the vessels by relaxation will become capable of admitting a larger quantity of fluids, and consequently their determination to the part will be increased. Further, the facility with which emollient liquors are absorbed and assimilated with the animal fluids will still augment their quantity.

FROM these considerations it would seem quite erroneous to attribute a *discutient* power to emollients; at least in any other view than as they may render hardened and coagulated juices more fluid and fit for circulation: but this is only a preparatory action, and it will be still requisite to give the vessels that due tone
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and elasticity, which may enable them to get rid of their contents. It may indeed be alledged that warm emollients, by softening the skin and opening its pores, will facilitate the exhalation of the contained fluids. But whoever will attend to the nature of oily and mucilaginous substances, must perceive that by entering the minute pores of the skin, and mouths of the exhalant tubes, they will rather tend to block up the accumulated fluids, than to promote their discharge. And this is confirmed by experiment. Let an emollient poultice composed of a mucilaginous farina, oil, and an aqueous fluid, be applied to the unbroken skin over a tumour; in a few hours it will be found that instead of acquiring additional moisture, it will have lost most of what it had, by absorption.

FROM what has been said it appears, that emollients have a much better claim to be considered as

4. SUPPURATIVE. SUPPURATION is produced by a kind of dissolution and fer-

mentation of the ruptured solids with the extravasated fluids. It is evident that whatever increases the congestion of the latter, and weakens the texture of the former, must contribute to this effect; which will also be further promoted by emollients as they are

5. SEPTIC. THE heat employed in the use of emollient applications will tend to increase putrefaction, when there is otherwise a predisposition to it; and the accumulation of the fluids, and debilitation of the solids will frequently give this predisposition. The tendency of oily substances to acquire a rancidity and putrid acrimony has before been remarked: this is very apparent when they are mixed with the purulent discharge of an ulcer, and greatly tends to promote and increase putrefaction. Upon this principle it is that those caries of bones, where the medullary oil is affected, become so peculiarly and intolerably fœtid.

ON a comparison between emollient
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and saturnine topics, we shall now perceive the great difference between them.

PREPARATIONS of lead are—*astringent, discutient and antiseptic.*

EMOLLIENTS are—*relaxant, suppurative and septic.*

THEY both appear to be sedative, but the first from some occult quality, which for want of a more explicit term we must call specific, tending to destroy nervous influence; the second by an action which lessens the causes of irritation, but does not effect the susceptibility of the nerves to receive impressions.

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P A R T II.

I SHALL now proceed to consider some of the particular disorders, in which saturnine topics are recommended by Mr. Goulard, and compare their effects with those of emollients, and other applications in common use.

SECTION I.

On Inflammations.

SO large a share of the practice of surgery may be comprized under the head of inflammations, that to treat the subject fully would much exceed the limits I would prescribe to this work. I shall

shall therefore only endeavour to lay down some general rules concerning topical applications in these cases; which may be done the more freely, as inflammations, from whatever cause they proceed, have such a general similarity with regard to their several symptoms, stages, and terminations, that any peculiar mode of treatment will apply more universally than might at first be imagined.

I SHALL not here pretend to enter into a theoretical discussion of the proximate cause of inflammation: nothing has been more variously accounted for; and in all probability it is intimately connected with those operations of the minutest parts of the body which we are at present, and perhaps shall ever remain ignorant of. A careful attention to the symptoms and appearances, will prove a much better direction to our practice, than the most subtle hypothetical reasoning.

THE symptoms of every inflammation, are, a painful tumour, with increased heat, redness, and sensibility.

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THESE plainly shew, a congestion of fluids, a more frequent action of the moving powers, and a violent state of the nerves disposing them to communicate sensation in too great a degree.

INFLAMMATION must terminate, in resolution, suppuration, or gangrene. Schirrus is justly considered by some late writers rather as a peculiar disease, than as a termination of inflammation.

I. RESOLUTION. AN inflammation is said to be resolved, when the symptoms go off gradually, and leave the part in the same state in which it was before the disease took place. This is therefore the termination always to be preferred, unless the inflammation has been produced by morbid matter, which we chuse to discharge externally.

MR. Goulard very justly observes, that emollient topics are in great measure contrary to the indications that are to be fulfilled in resolving an inflammation. The tumour owing to accumulated fluids, must be increased by applications which
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add to their quantity, and at the same time render the vessels more yielding to their impulse, and less able to carry them off.

THE increased action of the vessels, and sensibility may seem indeed to require the sedative power of emollients; but as whatever augments the tumour must add a cause of pain and heat from the tension of the sensible parts, emollients will in this view counteract their own effects.

SATURNINE topics, on the other hand, seem peculiarly calculated to answer every indication of a resolvable inflammation. The astringent and sedative properties combined, tend to give a tone to the fibres, and make the vessels capable of emptying themselves, and at the same time to moderate the increased motion and sensation. From numerous instances that have fallen under my own inspection, and from Mr. Goulard's multiplied observations, I make no question of the efficacy of saturnine above emollient topics

pics in procuring resolution; I have only some doubts concerning the preference due to saturnine preparations, above the simple astringents and stimulants in common use.

It may be remembered that the specific sedative property in lead outwardly applied was supposed to act very superficially, principally from this argument, that no bad consequences to the nervous influence in general were ever observed to attend its use. Now if we imagine the pain and sensibility of an inflammation to be subsequent to the formation of the tumour, and owing chiefly to the tension occasioned by a congestion of fluids, it will follow that the sedative virtue of saturnine topics in this case may be best accounted for, merely from their astringent quality; and consequently that other astringents, and even stimulants will likewise prove sedative. This opinion is rendered probable by the success attending astringents and stimulants in the most painful inflammations, such as those at-

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tending burns, in which even rectified spirit of wine is often applied with relief.

THE swelled testicles frequently accompanying a gonorrhœa will very well illustrate the effects of emollient, saturnine, and common astringent and stimulant topics. These usually come on very suddenly, increase to a large bulk, and are extremely painful and sensible to the touch. The present practice of applying an emollient poultice indiscriminately to every kind of inflammatory tumour, has given me, and (I suppose) almost every surgeon, frequent opportunities of observing the effects of these topics: and I will venture to appeal to the experience of any practitioner, whether such a treatment does not always prove extremely tedious, painful and confining; and whether the cure is not generally incomplete, a considerable hardness of the epididymis remaining perhaps for life. Saturnine applications have been used in these cases with great success. I have seen the saturnine water made pretty strong,

strong, applied cold, and assisted by proper posture and bandage, remove the tumour and pain in a short time, and duly continued, take away all hardness: Common astringent and stimulant applications have also been recommended, and I once had a striking instance of their efficacy. A person suddenly attacked in the morning with a swelled testicle, was obliged on account of necessary business to walk about all that day. I applied a folded handkerchief well soaked with rum to the part, retained by another tied round the body. This was wetted twice or thrice during the day, and at night I found, notwithstanding his exercise, that the bulk was greatly reduced, and the pain and sensibility diminished. This application, with the addition of vinegar, was continued some days longer, and the part perfectly recovered without any confinement to the patient. I have heard a justly celebrated professor advise the emollient method in these cases, and condemn the use even of camphor as too

stimulating; but such a case as this, and many similar ones that are to be met with in practice, would prove, to me at least, a sufficient assurance against any ill consequences that might be apprehended theoretically from the use of this class of topics in inflammatory tumours; and I am well convinced that emollients are peculiarly ill calculated for the resolution of inflammations of lax glandular parts, while medicines pretty strongly stimulant may be applied with great safety and advantage. Where the part has not much sensibility, as in scrophulous tumours of the lymphatic glands, repeated experience has shown, that a blister is the most efficacious of all topical remedies.

AMONGST those inflammations, of which art should be particularly solicitous to procure the resolution, are the erysipelatous. Mr. Goulard has, in an able and striking manner, shewn the abuse of emollients in this point of practice. The corroding inflammation spreading along the skin, will most certainly be increased by
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all relaxing topics; and the acrimony of the discharge, frequently tending to gangrene, will be aggravated by the septic quality of oily and greasy application. These cases have indeed been long considered by many as exceptions to the general use of emollients, on account of the particular dread of a suppuration; and thereby a strong though involuntary testimony was given, that such topics were by no means to be depended upon to procure a resolution. The saturnine water by its mild astringency, its sedative and antiseptic quality, seems peculiarly adapted to this disease; and I have been witness to its good effects. Yet, though there is no doubt of its power to cure an erysipelatous inflammation, I would not mean to answer for the internal bad consequences which may sometimes proceed from its repellent quality. Where the erysipelas is occasioned by external injury, and is not preceded by, or attended with disorder of the system in general, it is a mere local complaint, and no danger, I

imagine, can arise from repellent applications; but where it seems to be a critical effort of nature to throw off something pernicious, and sensible relief is found from it, great caution may be necessary in its external treatment. Faithful observation can alone determine, how far we may venture the use of saturnine topics, or others of a like nature, in this case.

2. SUPPURATION. THERE are various cases in which the resolution of an inflammation cannot possibly be effected. This may happen in the most simple cause of inflammation, external injury, which may be so violent and attended with such destruction of the solids, that suppuration or mortification must be the consequence; but will more particularly be the case in such inflammatory tumours as are owing to the deposition of morbid matter, as those attending malignant and variolous fevers, the venereal lues, &c. In these cases the cause of the inflammation, existing in the fluids, cannot be removed without immediately correcting
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their peculiar acrimony, or giving them a discharge; and the first can very rarely be effected soon enough to stop the progress of an inflammation.

IT may, I think, be laid down as a rule in practice, that, when from the nature of the case, resolution seems impracticable, we should use no endeavours to attempt it, but immediately employ such means, as are most likely to promote a speedy and favourable suppuration. Resolution and suppuration are entirely different operations of nature. In the first, the solids are preserved entire, the fluids return to their usual course of circulation, and the inflamed part comes to its former state without suffering any change. The indication here is obviously, to assist nature by sustaining the tone of the solids, and lessening the determination of fluids to the part. In suppuration, on the other hand, the solids are ruptured, the fluids are extravasated, and undergoing a fermentation with the broken fibres, procure themselves an evacuation by pushing out-

wardly through the teguments. Here, the indications are, to dilute and soften the fluids, that the pus formed may be bland and free from irritation, and to relax the solids that they may yield kindly, and without violence. Now this is the very action of emollient topics; and I cannot discover upon what principles Mr. Goulard recommends saturnine applications in these cases, which do not seem to answer any one indication. In effect, nothing can have a greater sanction from practice, than the application of warm emollient fomentations and cataplasms in suppurating tumours. The ease and comfort they procure, and the favourable digestion and maturation of the pus, speak so strongly in their favour, that no prevailing fashion in medicine will probably ever supersede their use. Indeed, if the plan of resolution be carried so far as to attempt the discussion of tumours not only tending to suppurate, but containing pus actually formed, if it be found that saturnine topics will effect this, and
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that no bad consequences will ensue from such a practice ; I would willingly join with Mr. Goulard in sparing my patients the pain of a wound, and the deformity of a scar. But referring to my own experience of these remedies, and to the nature of the case itself, I am almost convinced that such an event would so seldom happen, as by no means to authorise a change of common practice. Can it be conceived from what we know of the nature of inflammation, after a violent injury, a severe symptomatic fever attended with pathognomic shiverings, the sure signs of forming matter ; when the solids are ruptured, and the fluids extravasated and changed in their nature, that all this mischief can be repaired, and every thing brought into a natural state, by any external application whatever ? I have no doubt that the proper means to effect a resolution, will frequently prove successful beyond what common practice has given us reason to expect ; but the discussion of a considerable and well matured suppuration

ration, is a phœnomenon that requires a weighty attestation indeed to make it credible.

IN abcesses proceeding from morbid matter, practitioners in general would be averse to resolution, could it be obtained; and the remarkably good effects to the constitution often attending such critical depositions, justify their caution in this respect. Indeed where we can charge the system in general with a certain antidote to the virus, as in the case of venereal buboes, it may be worth while to spare a delicate patient the pain of opening an abcess; though even in this case I believe a prudent surgeon would rather wish he was allowed to promote the discharge that nature has pointed out, than hazard the effects of morbid matter ranging at large through the system. It is too like letting the lion in at the door, in order to turn him out again. It is to be observed that most of the instances related by Mr. Goulard of the resolution of a maturated abcess, are in cases of venereal

neral buboes ; in all of which the use of mercurial frictions was subjoined. Now it is a fact well known, that these tumours will frequently disappear without any external application whatsoever, when the virus is overcome by the introduction of a sufficient quantity of mercury into the system.

WITH regard to large wounds, violent contusions, and other considerable injuries, where there is no probability of bringing about a cure by the first intention as it is called, that is without suppuration ; it is I believe universally allowed by the best surgeons, that this operation of nature should be promoted, and not retarded. Emollients therefore seem plainly indicated, and are in general use. The same may be said of all artificial wounds made in surgical operations, in which a kind and speedy maturation is always considered as the most favourable symptom. I do not therefore understand what Mr. Goulard would attempt by the use of saturnine water as a *defensative* after

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ter the great operations ; or upon what principles he would use it as a lotion for fresh wounds. Very contrary to this is the practice, successfully followed in some of the London hospitals, of applying a large emollient poultice immediately after amputations ; and in my opinion much better calculated to prevent the access of a violent symptomatic fever. There seems to be a considerable analogy between the application of astringent topics, and tight bandage, in these cases. Both restrain the fibres from gradually yielding to the impulse of the fluids, and disturb the natural progress of that inflammatory tumefaction, which always precedes a kindly suppuration. The one is now universally banished from practice, and the other, upon the same principles, will not probably obtain admission.

3. WITH regard to the third termination of inflammation, gangrene or sphacelus, it is the business of art never to promote, but always to oppose this event ; yet as it is sometimes inevitable,
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the surgeon will be required to limit its progress, and prevent its fatal consequences. In order to direct our practice in this point, a consideration of the cause and particular state of the disease is necessary; for the want of which an indiscriminate and empirical treatment has too much prevailed. Mr. Kirkland has contributed a good deal to establish this upon a proper footing, by pointing out the distinction of gangrene from an internal, and from an external cause.

WHEN the violence of an external injury has totally destroyed the organization of the living fibres, all the part thus affected may be considered as dead flesh; and this state, to which the term *mortification* may be properly applied, is not consequent upon, but preceding inflammation. It is the spreading gangrene which must be regarded as one of the terminations of inflammation; and this is produced by a putrefaction generated in the mortified flesh, and communicating its ferment to the surrounding part. The indications

indications to prevent or limit the progress of a gangrene from this cause, are therefore separation of the dead flesh, or checking the putrefactive fermentation in it. The first, if not performed by an operation, seems most likely to be effected by emollients; for the relaxation of the solids, brought on by their use, assists the action of the uninjured fibres in pushing off the dead parts. Yet since emollients have a tendency to promote putrefaction, their use may be prejudicial with regard to the other part of the indication, unless care is taken to ballance this effect by a proper mixture of antiseptics. Practice therefore has rightly introduced the application of warm poultices composed of farinaceous substances, and vinegar, strong beer grounds, and the like; and the cataplasm made with saturnine water appears very well calculated for this purpose. These applications will be found much preferable to spirituous and astringent fomentations; which by hardening and contracting the fibres, tend to increase
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the inflammation of the surrounding parts, and counteract the operation of nature in throwing off the mortified flesh. But when a spreading gangrene comes on from an internal cause, a different topical treatment will be requisite; though indeed very little is to be expected from external remedies of any kind. These usually happen in dropical and leucophlegmatic habits, or in extreme old age, and show a debility and want of power in the solids to carry on the animal functions. In such cases the disease can hardly be considered as topical, and separation of the affected part cannot be procured without giving a general vigour to the vital powers. As the fibres are already too much relaxed, emollients of every kind are certainly to be avoided, and the warmest stimulants and most powerful antiseptics are indicated. Much more effectual and suitable applications than saturnine topics may be thought of for this purpose; such particularly as spirituous and terebinthinate

nate medicines, and all the natural vegetable balsams.

IT may be proper here to add a word or two concerning *fchirri*, which, as we before observed, cannot indeed be considered as one of the terminations of inflammation, yet are a good deal connected with it. I wish it was in my power to second the sanguine hopes Mr. Goulard conceives of saturnine topics in these cases; but neither reasoning nor experience seem to confirm them. With respect to the dissolvent power of lead, on which he relies so much, what has been said in a former chapter concerning its penetrability will serve, if justly founded, to lessen our expectations from this supposed quality. And if *fchirri* generally depend upon something constitutional, as I believe may be safely asserted, there will be still less reason to hope for a cure from external remedies. I have frequently seen Mr. Goulard's topics tried in these cases, but never with any striking efficacy; and if a remarkable cure should sometimes
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happen from their use, it would seem to me more rational, to attribute it, either to the friction employed in rubbing in the soap ointment, or to some tonic power communicated sympathetically to the fibres of the affected part, from the outward application of an astringent, than to any specific property in the particles of lead.

SECTION II.

On Ulcers.

AN inflammation, terminating in suppuration or gangrene, produces an ulcer.

WHEN the inflammation has been owing to external injury in a sound state of the body, the healing of an ulcer is merely a work of nature, and requires little or no assistance from art. All that is to be attempted by topical applications, is to maintain the fibres in such a moderate state between laxity and rigidity, as will render them most able to carry on this natural operation. As long as the inflammatory hardness subsists, emollients, particularly in form of cataplasm, answer extremely well. They gently soften the solids, and produce a mild suppuration,
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free from a putrefactive tendency. Afterwards, dry-lint, and moderate astringents will be adviseable, to give a tone to the new flesh; and the saturnine water may be usefully applied for this purpose. A prudent use of these means, with great cleanliness, and cautiously avoiding every cause of putrefaction, will in general render this part of surgery easy and successful. But the great difficulties attending the treatment of ulcers, arise from their connection with general diseases of the system; and to this is owing their many different appearances and complicated symptoms.

WE may remark concerning such ulcers in general, that little dependance is to be had on external remedies alone of any kind. The particular vice of the habit must be first corrected by suitable internal medicines, before any important change can be effected by topical applications. Nevertheless, as external treatment will very much influence the cure of ulcers, according as it is appropriated to

their particular state, it will be worth while to enquire into the principles upon which it is founded.

THE circumstances to be attended to in the appearance of ulcers, are, the state of the surrounding flesh, and the condition of the discharge.

THE most common fault of the lips or margin of an ulcer is callosity. This in a particular manner attends some kinds of ulcers from an internal cause, as the venereal and cancerous. Those ulcers of the legs also which have been much neglected, though at first proceeding from an external cause, as well as those which come spontaneously in a depraved habit of body, are extremely subject to callosity. In such cases, the hardness of the fibres prevents that shooting out, and elongation of the vascular parts, which is necessary to the production of new flesh. It has long been a common practice to treat all callosities with escharotic medicines; but this method has been justly exploded by some of our best late writers, as tend-

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ing to increase the disease by the continual inflammation it excites, and to render the vessels still more impervious and incapable of acting.

WELL chosen emollients assisted by gentle warmth, seem the best calculated to answer every indication of a callous ulcer. Without bringing on any destruction of the solids, they produce such a gradual change in their texture, as brings them to that due state of tension which is the most favourable for their action; and by enlarging the diameter of the vessels, they give admission to the nutritious juices necessary for the generation of new flesh. This effect of emollients is plainly demonstrated from the luxuriant fungus brought on by their use, which though it frequently requires suppression in order to bring the skin over it, yet in some degree or other is a necessary symptom in a healing ulcer. By the use of a simple poultice, and a reclined posture strictly observed, I have often seen the most unpromising and formidable ulcers of the

legs heal kindly, with very little assistance from internal medicines. I have observed with great pleasure the opaque callous edges gradually soften and change colour, and beautiful ramifications of the arteries appear spreading through them, giving an evident proof to the senses of the natural progress of healing, and the propriety of emollient applications to assist it. This will seem extremely difficult to reconcile with Mr. Goulard's idea of the efficacy of saturnine topics in these cases; with regard to which he goes so far as to alledge that they are as specific in the cure of callous ulcers, as mercury for the venereal lues. He grounds this assertion upon the supposition of a remarkable dissolvent power in lead, which however I have not been able either theoretically or practically to discover; and if his observations suffice to prove great success in the treatment of ulcers of this kind, I would attribute it to the application of his topics in form of cataplasm, in which, from the warmth and quantity of aqueous fluid,

fluid, a considerable emollient power will probably reside. Considered as mere astringents, I think we may very safely assert that they cannot be favourable to the dissolution of callosity.

A FAULT entirely opposite to callosity, is a flabby, spongy texture of the flesh surrounding an ulcer. This frequently happens in languid, relaxed constitutions, and is almost the inseparable attendant of scrophulous ulcers. In this case the natural operation of incarning goes on very slowly, and the ulcer remains for a long time in the same state. The manifest indication here is to stimulate and brace the insensible and inactive fibres, and emollients are as improper, as they are suitable in the former case. Astringents and stimulants of almost every kind will supply their place with advantage, and among the rest saturnine topics in the form of the saturnine water, or the pure extract, may be usefully applied. Yet in many cases remedies that have a stimu-

lant as well as astringent property will succeed better.

THE discharge from an ulcer may be faulty in several respects; but as most of these are consequent upon diseases of the solids, and will of course be remedied in proportion as they are, we cannot properly have an eye to them in topical applications. We have only to consider the action of topics upon the fluids already discharged, and stagnating on the surface of an ulcer, and in this view the correction of acrimony seems to be our sole object. Acrimonious matter may be produced in two ways; either from good pus running into putrefaction, or from an internal disease in the fluids, which gives them an acrimony when first discharged.

As every animal juice, stagnating and exposed to a considerable warmth and the contact of the air, is strongly inclined to become putrid, we should be particularly careful to correct this disposition in the dressings of an ulcer. I have formerly remarked the propensity of oily substances

stances to contract a putrid rancefcency, and to increafe the putrefaction of the animal fluids. Practitioners in many cafes have been fenfible of this, yet in others they feem to have forgot it. The ufe of oily applications in caries, that is ulcers, of the bones has long been condemned; and in eryfipelatous inflammations their bad effects have been juftly dreaded. Yet in various cafes where the putrid difpofition is equally ftrong, they are ftill in daily ufe. Where emollients are indicated, warm farinaceous poultices offer an innocent and a more efficaceous form; and from attentive obfervation I am convinced, that if the application of oily and greafy dreflings to the naked flefh of an ulcer was in every cafe totally prohibited, furgery would gain much more than it would lofe. In general, foft dry lint changed fufficiently often will prevent any mifchief from ftagnation; yet if there be a peculiarly ftrong tendency to putrefaction, as in carious ulcers, antifeptics are certainly indicated,

and the saturnine water of Mr. Goulard is a very useful medicine of this class. As the corrosive acrimony of the discharge frequently excites great pain, the sedative quality of saturnine topics will make them more suitable than the stimulant antiseptics or common astringents.

ULCERS which have a peculiar acrimony in their discharge, are principally those from the venereal and cancerous virus.

FOR the first of these, we are furnished with a real antidote in mercury, and accordingly mercurial preparations topically applied have the sanction of practice in these cases. Yet as the general use of mercury is always combined, and our great dependance is upon this alone, I am inclined to think that the usual indications for suitable topics ought to take place of the specific indication for mercury. Indeed mercurial preparations are so various, that suitable topics may be chosen from them in almost every state of a venereal ulcer, but if there was rea-
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son to think in any case that different applications would suit the state of the ulcer better, I should not hesitate to give them the preference. And as the saline preparations of mercury are stimulant, whereas those of lead are sedative, perhaps the latter may be more advantageously employed in irritable habits, and where the ulcer is attended with much pain.

CANCEROUS ulcers are the most melancholy of all the diseases to which the surgeon is called. Neither art nor nature can stop their dreadful ravages, and a man of humanity finds himself in the painful situation of being a witness to afflictions which he knows are not to be removed. Still however something may be done to palliate and alleviate. External applications in these cases should be calculated to correct the acrimony of the discharge, and to mitigate the acute pains in the part; or rather only the former, since the sole cause of pain perhaps which topical remedies can relieve, is the cor-
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rosive matter preying upon the naked fibres.

THE usual dressings for a cancer, are the most mild and simple ointments; and indeed if oily substances seemed to possess a property of sheathing the cancerous venom, like that of a viper, their application would be proper. But practice shows us nothing of this; and as a high putrid tendency accompanies the discharge, which according to what has been before observed should be increased by every thing oily, I imagine the indication for antiseptics is more important. Of these, the saturnine water, made very dilute and with little or no spirit, seems extremely well calculated for the purpose, and its sedative property may give an additional advantage.

MR. Goulard indeed has very sanguine expectations from saturnine topics, not only for the palliation, but the radical cure of cancers. I have before endeavoured to show how little adequate these applications are to the resolution of a schirrus;

schirrus; and these arguments will weigh still more against their efficacy in cancers, which are confessedly in great measure constitutional. The very few observations related of the cure of cancers by this method, are so extremely equivocal, that only one of them deserves much attention, and it is presumed, after such repeated and unexpected disappointments in this particular disease, the public will expect much stronger proofs before they give credit to the efficacy of any new remedy. At present I cannot express my sentiments on this head, so well as in the words of that very candid and judicious surgeon Mr. Pott, by whose free and unprejudiced spirit the art has been so much benefited. “As I do not know what
“will cure a cancer, I leave the discuffi-
“on of this to those who say that they do;
“most sincerely wishing that it was in
“my power to say, that I had, once in
“my life, known them to have fulfilled
“their promise.”

IF a cure for cancers be ever discovered,
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ed, we have reason to think that it will not be in a topical remedy; for how can any external application do more in removing the cancerous virus, than an operation which at once takes away all the affected part? Yet we see that even this is very rarely attended with lasting success.

WITH regard to scrophulous ulcers, I can speak of their treatment with the full confidence of a very extensive experience. This has convinced me, that emollient applications of all sorts are highly improper and injurious. By weakening the solids already too much disposed to relaxation, they prevent all endeavours of nature to bring about a firm incarnation; and by giving the fluids an acrimony, to which in this disease they are not remarkably disposed, they occasion a kind of erysipelatous corrosive spreading of the sore, which often makes a case, at first trifling, appear truly formidable. The mischiefs of this practice are still more clearly shown, by the speedy change produced

duced by almost every kind of topics of the opposite classes, the astringent and stimulant. The most simple of these, cold water, has frequently a very good effect, on throwing aside every dressing and washing the sores with it. The Malvern waters in Worcestershire, much celebrated in scrophulous cases, are acknowledged to act externally and internally, merely as a very pure cold water. Water with every kind of saline and mineral impregnation, is also used to advantage, and in particular sea water has been found very beneficial. I have seen Mr. Goulard's saturnine water employed in a very great number of these cases, and with a manifest advantage over all emollient topics, but without any peculiar efficacy above others of the astringent and antiseptic class. With regard to the saturnine ointments of Mr. Goulard and others, I conceive their good effects, as preparations of lead, to be over ballanced by their injurious effects, as greasy applications, in all cases where emollients are prejudicial.

SECTION III.

On Anchylofes.

VARIOUS are the causes which may destroy or impair the mobility of a joint. One of these, the coalition of the opposite bones by osseous matter, is justly reckoned among those diseases which in their nature are absolutely incurable; and in most of the others, the operation of remedies is extremely precarious and uncertain, on account of the difficulty of coming at the seat of the disorder. Neither in many cases are we clear with respect to the part affected; and there are few diseases in which we have been more amused with hypotheses concerning the cause, founded merely upon conjecture. Of this kind seems to be the notion of inspissation of the synovia, which some of
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the best anatomists in our times consider merely as the supposition of professed theorists willing to account for every thing, without the support of any authentic observations. Yet it is upon the imaginary dissolvent power of saturnine topics in this supposed cause of anchylofis, that Mr. Goulard's application of them in these cases appears to be founded.

THE most simple case of a stiff joint, is that which is consequent upon long continued confinement of a limb in one posture, as frequently happens in the treatment of a fracture. The vulgar expression to describe this disease, is that the joint is finew-grown; and it is not the only instance where illiterate persons, judging merely from external appearance, have decided better than those who have carried their researches deeper. The evident rigidity of the tendons in these cases, justifies the idea of their being the seat of the disease; whereas the notion of inspissation of the synovia does not seem consonant to what we conceive of the use
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and nature of this fluid. Its use is supposed to be counteracting the effects of violent friction, and for this purpose its secretion must be proportional to the motion of the joint, and influenced by it. Therefore when the joint is perfectly at rest, in all probability little or none of the liquor is generated. Neither does the synovia appear to be a fluid very susceptible of coagulation or inspissation from stagnating, much less so than the semen, which yet is never found inspissated much beyond the usual degree, though stagnating ever so long in the seminal vesicles.

A STIFF joint is frequently the consequence of external injury, as a violent contusion. Here there can be no pretence to accuse the synovial liquor, as the suddenness of the complaint, and sensibility of the joint, plainly show the cause to be an inflammatory affection of the ligaments. Arthritic, and rheumatic humours falling upon the joints, and impairing their mobility, seem likewise to affect the ligaments, from their tendency

to attack other ligamentous and membranous parts, and from the painful tumefaction they excite.

BUT the most frequent and dangerous species of anchylofis is that melancholy disease called a white swelling, which I believe is always owing to the scrophulous virus. I have dissected many of these joints after amputation, but have never found the least appearance of an inspissated synovia, gluing, as it were, the ends of the bones together. In all of them there was a great thickening of the ligaments, confounding the several parts, so that they could scarcely be known; together with collections of crude matter forming sinusses through this undistinguished mass, and generally erosion of the articular cartilages and ends of the bones.

WHERE a stiff joint proceeds merely from rigidity of the tendons, nothing can be more evident than the indication for emollient topics. Every remedy of this class may be usefully employed; but unctuous liniments assisted by warmth and

friction seem the best adapted, and the mucilaginous oil obtained from certain animal substances, called neats-foot oil, appears to succeed as well as any artificial combinations that can be contrived.

WHERE an inflammatory state of the ligaments seems to occasion immobility of the joint, it should be treated with remedies proper for the resolution of inflammation in a deep seated part; which I have before attempted to show are rather those of the astringent and stimulant, than the emollient class. The antiphlogistic power of saturnine preparations may give them place in these cases, but perhaps more active medicines are generally requisite to reach the cause. Blisters, which have the sanction of experience in deep seated inflammations beyond any topics we are acquainted with, have been frequently employed with success in recent anchylofes; and in all probability their action was the discussion of inflammation in the ligaments. This is an event we are with the utmost assiduity to promote,

promote, since the dreadful consequences of suppuration in a joint are known to every furgeon. We must therefore condemn as dangerous trifling, the use of any means less powerful than others we are acquainted with.

WHEN the case is become more inveterate, and the rigidity of the joint habitual, we shall find ourselves much at a loss for remedies which we can depend upon. There are a few instances of a cure being affected by means of a stream of warm water falling on the joint from a height. This application the French call *la douche*, and it is much more in use there than in this country.

MR. Le Dran's Observations in Surgery, afford two remarkable cases of its efficacy (Obs. 93 and 94) to which is subjoined, a theoretical exposition of its action; but like most attempts to account for the operation of medicines, it is rather specious than satisfactory. In all the instances Mr. Goulard brings of the success attending saturnine applications in

anchylofes, we find the chief remedy was a *douche* of the saturnine water; and I think we may very safely infer that this produced its effect, merely as warm water applied in a peculiar mode, and not as a preparation of lead. I am still further convinced that his observations prove no specific power in lead against this disease; since the only saturnine preparation which he used in concert with the *douche* was the ointment with soap, which, as was before observed, can scarcely contain a particle of lead in an active state.

WITH regard to scrophulous affections of the joints, they are as desperate cases as any in the whole practice of surgery. Even from the very beginning they seem to resist every remedy, and though topics of every class have had their trial, all have proved entirely inadequate to the desired effect. I am sorry to say, from an extensive observation of this disease, that when it was arrived to any considerable height, I have never seen topical applications of any manifest service whatever.

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I have been witness to the use of Mr. Goulard's medicines in these cases, much more than he himself appears to have been; and the utmost I can say in their favour is, that when the joint has ulcerated externally, their antiseptic power renders them as good palliatives as any we can use, and much preferable to emollients. But till some general remedy be discovered for the scrophulous virus, we must, I fear, despair of expelling it from a joint which it has once attacked; and amputation, though justly proscribed by some late writers in many cases of external injury, will keep its place in this disease, as the only certain palliative, and very frequently the radical cure.

WITH regard to strains, and relaxation of the ligaments, there seems to be no doubt of the preference due to astringents of any kind above emollients, which are certainly opposite to every indication of cure. However the common application of vinegar and brandy, uniting a stimulant with an astringent property, ap-

pears to rank higher in efficacy than a simple astringent.

ONE can scarcely forbear smiling, to see incomplete luxations put among those disorders which saturnine topics are expected to cure—certainly Mr. Goulard can only mean to recommend their anti-phlogistic virtue, in the contusion and inflammation attending this accident.

SECTION IV.

On the Herpes and Itch.

THE idea of an intimate connexion between cutaneous eruptions, and internal depravation of the fluids, is of very antient date among the articles of medical belief, and it appears to be one of those opinions, which, from a sort of implicit assent and veneration, have hitherto escaped that free examination, which it is the peculiar glory of the present age, to apply indiscriminately, without regard to the personal authority with which any dogma is delivered. It would be an undertaking highly useful to the healing art, and well worthy the employment of a man of abilities, to prosecute a strict and extensive enquiry into the nature of these diseases, and how far,

and with what limitation the principle of internal depravation may be admitted. I am sensible of my own inequality to the task, which would require great experience and minute investigation; yet I will venture to offer a few remarks, which may tend to shew that there are in fact some errors in the common doctrines on this subject.

THERE is no state of the human body in which the fluids can be conceived so pure and free from morbid impregnations, as that of an infant just born; yet as far as my acquaintance with medical authors reaches, I find that they universally impute the red eruption constantly attending this state to an internal cause; and though experience has convinced practitioners that the custom of purging is unnecessary, yet the notion of the cause remains the same. But may not this appearance be much more simply and probably accounted for, by considering the great change of climate and atmosphere, that the tender skin undergoes at this
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time, from maceration in a liquor of the animal heat, to exposure in air perhaps not half as warm?—a change even in the adult body, capable of producing very visible effects on the skin. A peculiar disposition to cutaneous eruptions continues during childhood, which seems evidently connected with this tender state of the skin, rendering it more liable to irritation from external acrimony. This is exemplified by the disagreeable eruptions behind the ears, and spreading over the whole scalp, which are so frequent in children, and which, though in some cases perhaps connected with particular habits of body, yet in all may be certainly produced by want of care and cleanliness, and therefore are not in general to be looked upon as conducive to health, or dangerous to be cured. There are various other eruptions which in like manner are the offspring of filth and neglect; and in general, cutaneous diseases are most prevalent in those countries, and amongst that rank of people,
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where these occasional causes most take place.

IF we form our distinctions of cutaneous eruptions from varieties in their appearance, a great number of classes may be made, since the appearance is not exactly similar in any two patients; but in a practical view numerous distinctions are unnecessary and superfluous, and almost the only circumstance which requires attention is, whether the disease be merely local, or connected with internal depravation of the fluids. The same class of topics will apply almost universally for the cure of local cutaneous eruptions, and are as universally to be avoided when the eruption is beneficial by the discharge of morbid matter.

THE cure of *herpes* by astringent and stimulant topics has long been familiar to practitioners, and a great latitude has been allowed in the choice. There is no reason to doubt of the efficacy of saturnine applications in this case; they have been celebrated both in antient and modern

modern practice in this and every other species of cutaneous eruptions; Mr. Goulard's observations amply confirm their use, and I can freely add my testimony. So far we may safely join him; but when we find him making a formal distinction of herpes into local, and connected with internal depravation, when he strongly condemns the use of astringents in the latter on account of their repellent quality, but as highly extols saturnine topics, inventing an artificial theory of their action, repugnant to their obvious and sensible effects, we cannot in too strong terms disapprove of a hypothesis that may become as dangerous as it is chimerical. If it be urged that his facts in reality prove the safety and efficacy of these topics in every kind of herpes, let us boldly make the more rational deduction, that this disorder is in all cases merely local, and that all astringents and repellents may be used with equal safety.

THE efficacy of saturnine topics in curing the itch, is much extolled by Mr. Goulard, and seems well confirmed by numerous observations. I have before taken notice of his apparent ignorance of the doctrine of animalculæ causing this disease, which yet is a circumstance of moment with regard to its treatment. Various topics have from time to time been employed in the cure of the itch, particularly those of the stimulant and astringent classes, both from the vegetable and mineral kingdom, but principally the latter. In all of these, except sulphur, it has been found necessary to apply the remedy topically to every affected part; even mercury will scarcely cure unless this rule be observed, as instances are related of persons passing through a salivation for the venereal lues, without obtaining a cure of the itch. Sulphur however proves effectual, when only rubbed into a small surface of the skin, as the palms of the hands and soles of the feet, and therefore may be considered

dered as a specific for this disease. This is also a confirmation of the doctrine of animalculæ, since the deleterious effects of sulphureous vapours upon all animals is well known, whereas its efficacy, as an internal medicine, is by no means considerable. Upon this principle, bleeding, purging, and alteratives, have been very much rejected from the cure of the itch in this country, and dependance has been solely had on the external use of sulphur. The certainty of this remedy above mercury and all the common topical applications, is established beyond dispute, and in the present improved method of partial frictions, it is not very liable to the objections of an ill smell, and uncleanness. It seems therefore very questionable whether it would be a real improvement in practice to reject sulphur in favour of lead, which seems in this case to act merely like other topics of the same class, and requires, like them, a general application to the affected skin. We may easily conceive
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of circumstances in which it will be inconvenient, and even dangerous to apply an astringent wash to so large a surface, whereby perspiration may be checked, and other accompanying eruptions, which it would perhaps be unsafe to repel, may be struck in. In military hospitals particularly, it may often be necessary to treat a person for the itch, while under a mercurial course, a case in which there would be no doubt of the impropriety of the saturnine water.

SECTION V.

On Herniæ.

TOPICAL applications of very different, and even opposite qualities, are recommended by authors to assist the reduction of herniæ; but in order to distinguish practice founded upon rational principles, from that which is merely empirical, it will be necessary to consider the nature of the disease, and the state of the parts concerned.

IN consequence of some sudden effort, part of the contents of the abdomen are forced through the interstices left between the tendinous expansions of the abdominal muscles, for the passage of nerves and blood vessels, and a tumour is formed which is called a hernia. This accident being unattended with rupture,
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or division of the containing parts, the whole of the disease must at first be considered as a change of situation in the contained parts ; and as such, were they immediately returned and kept in their place, the disease would entirely cease. But continuing in that preternatural situation, they are pressed upon by the tendons through which they pass, and the circulation of blood being obstructed, inflammation and mortification speedily supervene ; which however is not owing to any change of state in the tendons, but merely to their natural elasticity, acting upon an increased and yielding subjacent bulk. The obstacle to reduction of the prelaps'd contents, is therefore the increased bulk which they have acquired from stricture, making them incapable of returning through the same passage at which they escaped. This is to be removed by such remedies as cause the vessels to contract, thereby diminishing the bulk of the solids, and repelling the fluids, and not by such as expand the solids,
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and make them more yielding to the impulse of the fluids. The former action belongs to cold, astringents, and stimulants; the latter to heat, and emollients. We are not to apply these last with a view of relaxing the tendons, since they have only their natural degree of tension, which can be very little altered by external applications of any kind. I have read a case (in what author I do not at present recollect) which will serve extremely well to illustrate this idea of herniæ. A boy having thrust his penis through the ring of a key, it immediately swelled in such a manner, that he could not get it off again, and alarming symptoms soon came on. The cure was performed by dipping the part in cold water, and certainly no body in this case would think of applying a warm poultice to relax the iron ring. It appears to me that not less absurd is the application of emollients to relax the tendinous ring in a hernia; and it is to be observed that this treatment, if ineffectual for the purpose

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pose designed, must do great mischief with regard to the indication respecting the hernial contents. Not only from this strain of reasoning, but from experience I would heartily join with Mr. Goulard in the substitution of cold astringents to warm emollients, as topical remedies for herniæ; and I have seen in particular his saturnine water eminently useful in assisting reduction. Still greater confidence however would I place in the very gradual method of the taxis which he judiciously recommends. It is surprizing what may be done towards emptying overloaded vessels by a gentle and continued manual compression; and I cannot forbear relating an instance in which this effect is very happily demonstrated.

FREQUENTLY in children, and sometimes in adults, the prepuce, by friction, or some other external injury, becomes vastly tumified, and producing a stricture where the skin is attached to the root of the glans, occasions a troublesome and alarming paraphimosis. Among several
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useful lessons, in points of practice where books give little assistance, which I learnt under Mr. White of Manchester, was a very simple and successful method of treating this accident by a gradual, patient, and gentle compression of the tumefied skin with the fingers, assisted with small bolsters of soft linen, which, as the tumour is rather of the serous and œdematous, than of the phlegmonous kind, may be so managed as to give little pain. On continuing these efforts for some time, the vessels become visibly less distended, the swelling grows flaccid, and at length the stricture gives way, and the disorder is terminated. A similar method is to be observed in those prolapsus ani, which from their bulk are not easily reduced, and become strangulated. In all these cases it is egregious trifling to wait for the effect of topical applications, which can only perform in a very inconsiderable degree, what manual operation does compleatly.

SECTION VI.

On the Action of Bougies.

THE causes assigned to obstructions in the urethra are so various, and so little certainty has been obtained with regard to them, even from anatomical enquiries, that we need not wonder at the variety of opinions concerning the action of remedies in removing them. The remarkable efficacy of bougies is acknowledged on all hands, yet much obscurity prevails concerning their mode of action, and consequently the most suitable forms of their composition. Mr. Daran, who has probably made a more extensive and successful use of these remedies than any man in Europe, has rather involved the matter in greater obscurity, than thrown any new light upon it,
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by keeping his composition secret; rather chusing to acquire wealth under the unworthy character of an empiric, than just reputation in his profession under that of a candid and ingenious surgeon. He has however published his opinion of the mode of action of his bougies, in which he chiefly attributes to them a suppurative quality. Mr. Goulard on the other hand, who has extended the use of preparations of lead to the composition of bougies, conceives the action of his saturnine bougies to be that dissolvent and discutient power, which in every instance he so warmly arrogates to his favourite metal. Mr. Sharp, who has written with great candour and judgment on this subject, seems cautious of advancing any thing positively concerning the action of bougies, yet rather inclines to the idea of their acting by compression, and in some measure also by suppuration. The compositions which he gives for bougies, and those in common practice among us, are chiefly mercurial, which doubtless

were first thought of on account of the venereal affection, of which diseases of the urethra are so frequently the offspring. In order to estimate properly the validity of these different opinions, let us attend to the following facts.

MR. Daran pretends to a specific action in his secret, very different from, and superior to that of any other kind of bougies.

MR. Goulard, without attempting the least proof that his saturnine bougies are similar to Daran's, seems willing to allow the exclusive excellence of these, only stipulating for an exception in favour of his own.

MR. Sharp clearly shows, and daily practice in this country evinces, that bougies of various sorts are successful, and nearly equally so, if used with equal manual skill; infomuch that it is common for our best surgeons to commit the care of making them to the instrument-makers, being little solicitous concerning the ingredi-

redients, if they be exact in form and texture.

FROM hence we may infer, that since bougies of very different compositions succeed in the cure of disorders in the urethra, they do not act by means of any peculiar qualities in their composition, but by means of some property common to all.

THIS must be their mechanical form and texture; and therefore their mode of action must probably be, simple compression.

THE efficacy of mere compression in many cases of constriction is well known, as in the use of sponge tents to open a callous sinus, to widen a natural passage, as the rectum or vagina, when streightened by cicatrises. Now admitting the most probable causes of obstructions in the urethra to be a constriction from cicatrized ulcers, and projection of the spongy substance of the urethra into the canal (which among the various opinions on this subject seem in fact the best authentic-

thenticated) we may easily conceive that a gentle, continued, elastic compression will in time overcome the disease. We may readily account for the inferior efficacy of metallic or whalebone bougies, from their not having the property of swelling with moisture, and therefore not making so equal a compression. With regard to the effect of bougies in procuring a discharge of matter, there is no question but the mechanical stimulus of a foreign body in such a tender part, though free from disease, must produce it in some degree, and that this will be varied according to the chemically irritating quality of the composition, and the irritable state of the urethra; but it seems an absurdity of practice to apply a topic made uniform throughout, to the whole length of a canal, with a view of producing extraordinary effects upon a particular part of it, by means of some powerful quality in the ingredients. It is not difficult to account for the appearance, observed in the use of bougies, of that
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part being more covered with matter which was in contact with the diseased portion, since the disease will probably render it more susceptible of irritation.

ON the whole we may allow Mr. Goulard to rival Daran in his bougies, without subscribing to the violent degree of self approbation he assumes from it; and I see no reason for supposing either the secret of the one, or the specific of the other, at all preferable to the candid and unassuming varieties of composition proposed by Mr. Sharp, and admitted in common practice.

C O N C L U S I O N .

WE have now gone through an examination of the properties of saturnine topics, both in a general view, and in many particular cases in which their virtues are celebrated by Mr. Goulard. In looking over his catalogue however, the reader will find several which I have totally omitted. My reasons were, either that the similitude of these cases with others before treated rendered it very obvious what judgment to form, or that they appeared too trifling to require particular notice. Of the former kind are the numerous classes of inflammations distinguished by their causes, or the parts occupied by them. It will be very easy to refer these to what is said of inflammation in general, with its three terminations, and the indications to be observed in each.

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ALTHOUGH a review of Mr. Goulard's book has served me as a ground work for the observations which seemed worthy of offering to the public, it would, I apprehend, be a too limited view of my design, to consider this little pamphlet merely as a piece of criticism upon an author, whose reputation, though in his own country it may have attained an eminent rank, yet in this, has not acquired such distinction as to render the canvassing his merit an interesting object. The plan I have gone upon, has been to lay down certain principles, which though here particularly applied to saturnine topics, may be capable of application to topical remedies of all kinds; and if the public are pleased to approve of the design upon which this piece is executed, I may possibly be induced to pursue it to its full extent, and to attempt a work never yet performed, in an improved and scientific manner, a general treatise on the external applications used in surgery. Great improvements have, no doubt, been

been made by late writers, especially of our own country, in particular points relative to this part of surgery; and that taste for simplicity which has wrought so great a reformation in the pharmaceutical part of internal medicine, has also extended its influence to external remedies. But I cannot help thinking that a methodical system is still wanting, to bring this branch of our profession near to that certainty and perfection, which the operative part has in a great measure required; and I have a striking remembrance, how much my thoughts on this subject were embarrassed, when I began my studies in surgery.

FOR the present, and any future attempt, I would bespeak the candour of the reader in favour of one, who, while it is his aim to afford instruction, will at all times most willingly receive it, even though the purport of it should be to show him his own errors.

The E N D.

