

Clinical experiments, histories, and dissections / by Francis Home, M.D., one of his Majesty's physicians, fellow of the Royal College of Physicians of Edinburgh, and professor of materia medica in the University of Edinburgh.

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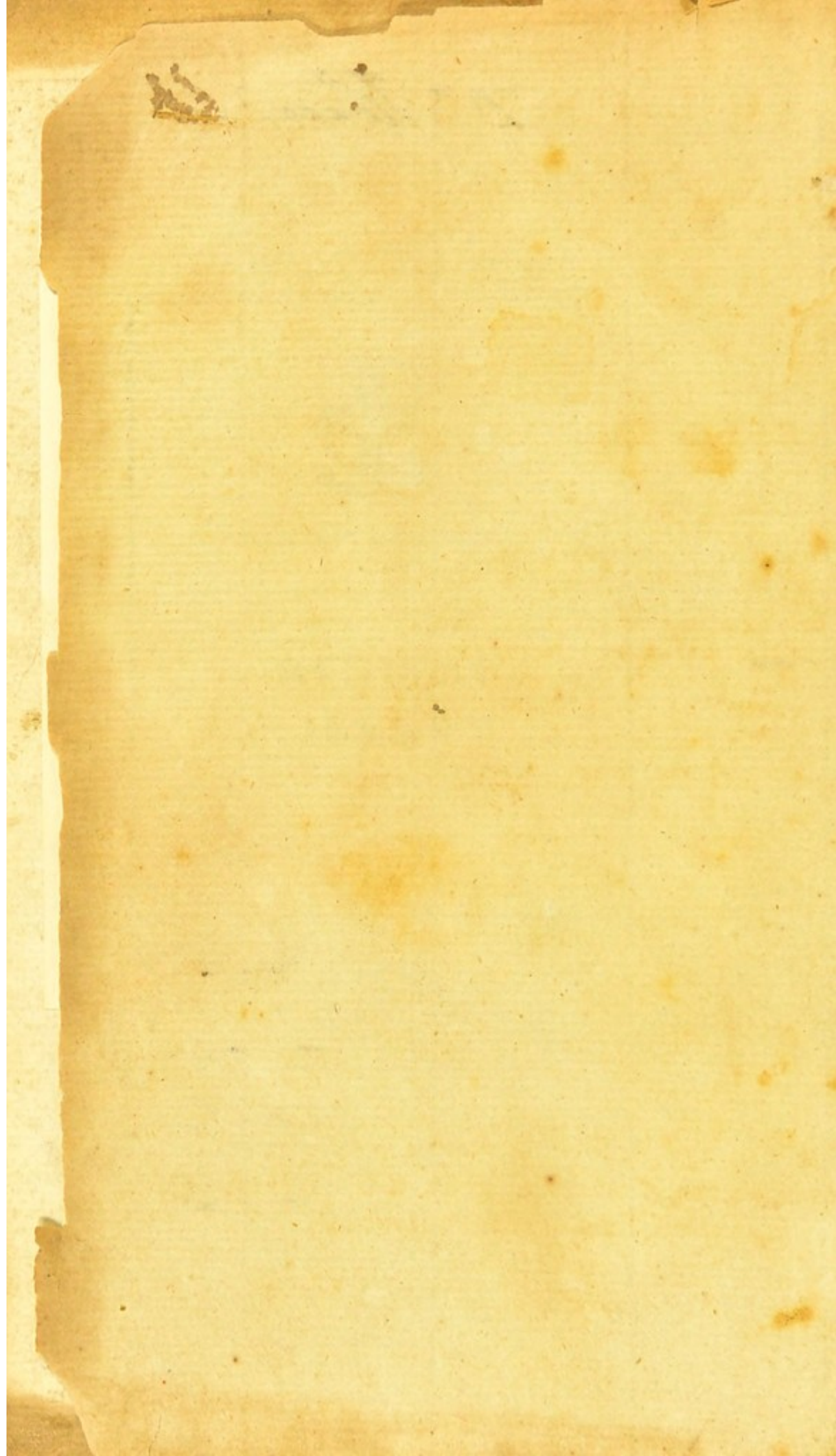
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C L I N I C A L
E X P E R I M E N T S,
H I S T O R I E S,
AND
D I S S E R T A T I O N S.

By FRANCIS HOME, M.D.

ONE OF HIS MAJESTY'S PHYSICIANS, FELLOW OF THE
ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH,
AND PROFESSOR OF MATERIA MEDICA IN THE UNI-
VERSITY OF EDINBURGH.

SECOND EDITION, CORRECTED.



L O N D O N :
PRINTED FOR J. MURRAY, N° 32, FLEET STREET,
AND WILLIAM CREECH, EDINBURGH.

MDCLXXXII.

COLLEGE

EXPERIMENT

REPORT

ON

THE

TEACHING

OF

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OF

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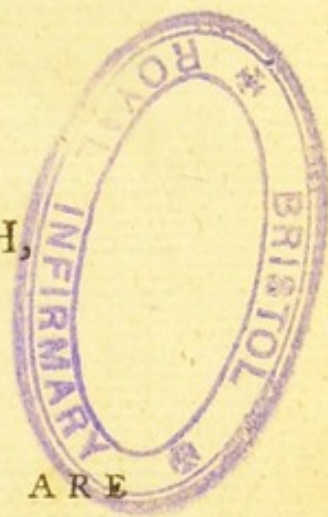
THE

ART

OF

TEACHING

TO THE
MANAGERS
OF THE
ROYAL INFIRMARY
OF
EDINBURGH,



THE FOLLOWING SHEETS ARE
DEDICATED,

BY THEIR MOST OBEDIENT,

HUMBLE SERVANT,

FRANCIS HOME.



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NOTHING, at present, more distinguishes civilized from barbarous nations than the institution of hospitals for the relief of the sick. They keep proportion with, and are the most certain tests of polished and humane manners. Besides the pleasure which arises in a benevolent mind from the contemplation of the relief which hospitals afford, these charitable institutions amply repay the expence which the public bestows on them, by promoting the study and practice of medicine. Under one roof are collected a great variety of morbid cases, to which students have an easy access, and where a wide field is opened to physicians for the improvement of their science.

The student has there an opportunity of seeing a variety of diseases, without much loss of time; and becomes a skilful practitioner, before he claims, as a physician, the confidence of his fellow-citizens. He is there taught to avoid many dangerous mistakes, into which one who begins the practice of medicine, without this assistance, is apt to fall.

The physician finds many advantages there for the improvement of his art. The patients, with whom he meets, have seldom contributed to debilitate their constitutions; their complaints originate from the body, and but rarely
from

from the mind ; their theories and caprices are not so troublesome to him as those of people in higher life ; they have seldom undergone a long course of medicine ; and their diet is under absolute controul. On these and other accounts, their diseases have a greater chance of appearing in a simple and natural state.

Nothing hinders the physician from following his own reason and experience in the cure, and he is responsible to his own conscience alone. He can try different and new methods of cure, provided he has a probability of success, and proceeds with proper caution. Not the least advantage, which arises from hospital practice, is the simplicity with which remedies are prescribed, as to number and preparation, by which they do not disturb the operations and effects of each other ; and their natural and genuine properties are discovered and ascertained, from which medicine receives much improvement.

These advantages belong still in a higher degree, to the clinical ward of the Royal Infirmary of Edinburgh ; as the best marked diseases, the most singular in their nature, and the greatest variety of acute, as well as of chronic, are chosen for it. Regular and circumstantial reports of every symptom belonging to the disease, and of every effect produced by the remedies exhibited, are taken constantly once,
and

and in acute and urgent cases, generally twice every day, in presence of the students. These reports are all reviewed, when the case becomes the subject of the clinical lecture. There cannot, therefore, be a more useful addition to a medical college, nor a more favourable institution for the improvement of the student, of the physician, or of medicine itself. In that point of light I have always considered the clinical ward; and, therefore, think myself accountable to the public for the use which I have made of such advantages. That opinion produced the following publication.

As there are many obstacles to the improvement of medicine, so there are several aids, which, if carefully attended to, will give it a great degree of certainty. One of these, is a description of all the circumstances preceding, attending, and following the administration of different remedies, in morbid cases. Remedies exhibited in such diseased states of the body, and the effects resulting from their operation, when accurately and faithfully described, are real experiments in this branch of natural knowledge, and tend to make medicine as certain as most other sciences.

With this view, during my attendance on the clinical ward for two summers, and a part of six winters, the following experiments were made, to ascertain the effects and value of several

veral remedies in general use, and to discover new relations in others. To give these experiments the utmost degree of certainty, the day of the month, and the year in which the patients were received into the clinical ward, are constantly marked; so that any person may consult the cases in the clinical report-books, kept in the Infirmary, where he will find them at full length, as they have here been much shortened.

Another principal foundation of medicine, is an accurate history of diseases. An account, therefore, is given of such as seemed most uncommon, or whose nature has not yet been well ascertained; and we have, in them, been as attentive to the symptoms and progress of the disease, as in the others to the exhibition of the remedies.

Medicine owes much assistance to the inspection of morbid bodies by the moderns. That information is likewise subjoined when the issue was fatal, and when that inspection was allowed.

To some, a minute recital of facts may appear tedious. But then they ought to consider, that this was the first, and is still the most certain method of improving medicine; and that many of the conclusions are new, and contrary to the common opinions; on which account they ought not to be received on my word alone, but be subjected to the judgment of

every person. The pleasure arising from truth and conviction must, at least, attend them.

By the following experiments, the effects of remedies have rather been retrenched than extended, and the powers of many, in high repute, are rendered somewhat doubtful. To compensate that loss, we have endeavoured to establish, in others, some new properties, which we hope future trials will confirm. Conclusions from experiments made in the clinical ward, must meet with more credit than those derived from private practice; as they are performed before so many spectators; as they are reviewed in the clinical lectures; and as they are preserved in the private report-books of each gentleman present, and in those kept in the Royal Infirmary.

CON-

C O N T E N T S.

S E C T. I.

<i>Experiments with regard to the most proper time of giving the Bark in Intermittents</i>	-	-	Page 1
--	---	---	--------

S E C T. II.

<i>Experiments upon some Remedies used in the Typhus Nervosus. Cortex Peruvianus. Tinctura Canthari- dum. Epispastica. Fomentation of the Legs. Cam- phire. Antimonials; Tartar Emetic and James's Powder compared: Opiates. Petasites. Conclusion</i>			13
--	--	--	----

S E C T. III.

<i>Pleuritis Spuria Epidemica</i>	-	-	59
-----------------------------------	---	---	----

S E C T. IV.

<i>Febris Puerperalis</i>	-	-	70
---------------------------	---	---	----

S E C T. V.

<i>Morbilli</i>	-	-	95
-----------------	---	---	----

S E C T. VI.

<i>Experiments upon some Remedies used in the Phthisis Pul- monalis. Acidum Vitriolicum. Alumen. Cortex Pe- ruvianus. Amylum. Aër Mephiticus. Vapor Thu- ris</i>	-	-	112
--	---	---	-----

S E C T. VII.

<i>Melaene</i>	-	-	127
----------------	---	---	-----

S E C T. VIII.

<i>Experiments upon the Rhododendron Chrysanthemum Lin</i>	-	-	145
--	---	---	-----

S E C T.

S E C T. IX.

Cephalalgia - - - - 151

S E C T. X.

*Experiments on Sir Hans Sloane's Ointment in the Albugo
or Leucoma* - - - 157

S E C T. XI.

*Experiments upon Anſiſpaſmodics. Fear. Balneum Fri-
gidum. Venaſectio. Electricitas. Epipſtica. Va-
leriana Silveſtris. Moſchus. Camphora. Caſtoreum.
Aſſafoetida. Spiritus Æthereus Vitriolicus. Cortex
Peruvianus. Artemiſia. Peonia. Viscus Quercinus.
Extractum Hyoſcyami. Folia Aurantiorum. Carda-
mine Pratenſis Lin. Opium. Cuprum Ammoniacale.
Flores Zinci. Mercurius. Concluſion* - 162

S E C T. XII.

*Experiments upon ſome Antiparalytic Remedies. Vena-
ſectio Doronicum Germanicum Off. Urticatio. Balneum
Calidum* - - - 251

S E C T. XIII.

*Experiments upon the Effects of Oleum Terebinthinae in
the Sciatica* - - - 265

S E C T. XIV.

*Experiments upon the Effects of a Linament in the Lum-
bago* - - - 281

S E C T. XV.

*Iſchuria Rhenalis. Iſchuria Veſicalis. Iſchuria Ure-
thralis* - - - 288

S E C T. XVI.

Diabetes - - - 319

S E C T. XVII.

*Experiments upon ſome Remedies uſed in Dropsy. Gremor
Tartari. Scilla Exſiccata. Ulcus Perpetuum* 351

S E C T. XVIII.

Experiments upon some Remedies used in the Amenorrhœa.
Compression of the Crural Artery. Venaesection. Sa-
bina. Rubia Tinctorum - - - 409

S E C T. XIX.

Experiments upon some Remedies used in the Herpes, or
Lepra Graceorum. Cantharides. Cortex interior
Ulmae. Vipera. Sarsaparilla. Mercurius dulcis
and Sulphur Antimonii Praecipitatum. Acidum Vi-
triolicum - - - 437

S E C T. XX.

Experiments upon the Vermifuge Effects of the Spigelia
Marylandica - - - 457

S E C T. XXI.

Experiments upon the deobstruent Effects of Mezereon 466

S E C T. XXII.

Experiments upon the Effects of the Verbascum in Diar-
rhœa - - - 473

S E C T. XXIII.

Experiments upon the Antihæmorrhagic Effects of the
Cucurbitulae sine Ferro, or dry cupping. - - 479

S E C T. XXIV.

Experiments upon some Lithontriptics - - 483

C L I N I C A L
E X P E R I M E N T S
A N D
H I S T O R I E S.

S E C T. I.

*Experiments with regard to the most proper
time of giving the Bark in intermittents.*

WE trust, now, the cure of the ague
to the bark alone. We should,
therefore, be certainly acquainted with the
best time for giving it; that is to say, the
time in which it exerts, most powerfully,
and most safely, its effects. A disease, so
very apt to recur, demands its utmost pow-
ers. It is often necessary to save the bark,
as much as possible, in the army and navy.
It may become scarce during war, or fail
us from other accidents. Less will do,
A when

when given in the proper time ; more will be required in a less proper time.

It has been given at three different periods, just before the fit, just after the fit, and from the end of one fit to the beginning of the succeeding, at proper intervals ; for it has never been prescribed, so far as I know, during the paroxysm. When first introduced, two drachms of it were given, two hours before the fit ; and, as it was the common practice, it must, then, have often succeeded. Some, especially those who think that it acts directly on the nerves of the stomach, still prefer this method ; others, again, are of opinion, that it is most powerful after the fit. Amongst the latter is Sydenham, who says, in his epistle to Dr. Brady, “ that bark given before the fit, has not so good an effect as after it ; and that it, often, destroyed the patient, by throwing him into a continued fever.” Torti and Cleghorn are of the same opinion. Practitioners have, most commonly, given it in the third method, as including both the first and second. But, for what they knew, the cure may depend on the first or last doses ; and the others may be at least
useless,

useless, as they are always disagreeable and burthenfome to the stomach. Our enquiry must be, therefore, whether the first or second method be the best; and that can be determined by experiment alone.

EXPER. I. May 3, 1769. Katharine Frazer, aged 23, had a double tertian for a month. For some days the fit came on regularly at 3 A. M. After a vomit and a dose of the infusum amarum. On the 6th she took a drachm of the Peruvian bark at 12 at night, and the same dose at 1 in the morning. But the fit attacked her at a quarter of an hour before 2 A. M. 7th, This night she took three doses in the same way before the fit. She had a fit at the usual hour, but slighter. 8th, This night the same number of doses were repeated. But a severe fit followed. As she had a pain in her side, the bark was given up.

EXPER. II. May 17. Peter Taylor, 21, has had a double tertian for three weeks. Had been once bled, and taken two vomits. I ordered a dose of the tinctura rhei amara. 20th, As the fit was expected at 3 P. M. he began to take a drachm of the bark at 9 A. M. which was repeated every hour.

As he threw up the three first doses, the quantity was diminished to half a drachm every hour, which produced no vomiting. Had a gentle fit.

EXPER. III. May 18. Katharine Bremner, 20, had a tertian for three weeks. She took a vomit and the infusum amarum. 31st, Her fit, which, as to time, was variable, being expected about 9 A. M. she began at 6 A. M. to take a drachm of the bark every hour; and took four doses. The fit came on at 2 P. M. June 2d, Began at 5 A. M. and took six such doses. But the fit came on at 1 P. M. and she had another on the 4th.

EXPER. IV. May 11, 1770. James Thomson, 25, had been ill of an intermittent, sometimes tertian, sometimes quotidian, for five weeks. 19th, As he expected his fit at 4 P. M. I directed two drachms of bark to be taken at 2, and the same dose at 3 P. M. Some minutes after, the fit came on; but was slighter. On the 21st he had a severe fit. 23d, he took two drachms for four times every half hour, beginning at 1 P. M. but the fit came on half an hour after 2, immediately after the last dose. 29th, After having had several fits, he began the bark to day, before
the

the sweat ended, and took two drachms for a dose, each half hour, till he had used an ounce. After this he had no return.

EXPER. V. June 6. Peter M'Queen, 25, had a tertian of two weeks standing. I prescribed inf. amar. cum dupl. fenn. unc. iv. which operated eight times. 7th, Had his fit at 4 A. M. When the sweat was nearly ended at 1 P. M. he took a drachm of bark, which was repeated every hour for four times. Had no more fits.

EXPER. VI. June 12. Andrew Wilson, 19, had a tertian for a fortnight. He was ordered a vomit and infus. amar. cum fenn. 17th, Last night the fit came on; and, when going off at 3 A. M. he took two drachms of bark; and at 5 A. M. another dose. 19th, Had a slight coldness last night, but no fit.

EXPER. VII. Feb. 12, 1776. Murdoch M'Leod, 30, had been ill during a week of a quotidian, which attacked him at 4 P. M. After a vomit and purgative, on the 16th he took a drachm of the bark at 12; which was repeated at 1, 2, and 3 P. M. After this he had one fit, but no more.

EXPER. VIII. March 22. Donald Coutts, 21, had had a quotidian for three weeks, and had taken a vomit and a purge. His fit came on at 8 P. M. April 1, and he took a drachm of bark at 4, at 5, at 6, and at 7 P. M. The fit acceded at 8 P. M. as usual. Between 9 and 10, he was seized with a vomiting, during which he threw up his powders. No fit on the 2d, but a severe one on the 3d. After this he took the bark at proper intervals during the intermission, and the ague was cured.

EXPER. IX. Feb. 27. Isabel Sutherland, 36, was seized with a tertian three weeks ago. She took two vomits and a purge. March 8, the fit came on this morning at 8 A. M. When it was over, she took a drachm of bark, at 4, 5, 6, and 7 P. M. She missed the fit at the usual time, but used more bark for security.

EXPER. X. March 23. Henrietta Sutherland, 16, for a quotidian ague, took a vomit and some rhubarb. April 2, seized with her fit at 8 A. M. At 2 P. M. when the sweat was going off, she began to take a drachm of bark, and repeated it every hour for four times. 3d, Had no cold fit, but
a little

a little of the hot. 4th, Complained of a pain in her side, for which she was bled; but she had no more paroxysms.

EXPER. XI. March 10, 1774. Isabel Cummin, 16, ill of a quotidian, after a vomit and physic, on the 15th took four doses of bark, of a drachm each, after the fit. Next day, a slight fit appeared, after which the same number of doses were repeated. Still the fits returned, though gentle. 25th, Was ordered the same number of doses for four hours before the fit. After three doses, the fit came on. 27th, Took three doses, of two drachms each, before the fit, but threw them up during the fit, which still attacked her. She swallowed the same quantity, in six doses, after the next fit, which stopped the paroxysms for several days; but the ague was not completely cured till the powder of the Rad. Serpent. Virg. was joined to the bark.

EXPER. XII. Nov. 23, 1778. Elizabeth M'Kenzie, 25, in a quotidian, took, every hour, a drachm of the bark for four times, before the fit. After this, she had two returns, which were slighter than usual.

The bark was repeated in the same manner; and she had no more return.

EXPER. XIII. Nov. 26. David Stewart, 36, taken ill in the Fens of Lincolnshire, had, for several months, laboured under an ague, sometimes of a tertian, sometimes of a quotidian form. He was ordered four doses of the bark, as above, to be taken every hour before the fit. But he took only three doses, as his fit came on before the fourth was taken. After this, his fits still continued. After the second, he took three doses, of a drachm each, as soon as the sweat was over. This stopped the return of the fits for some time.

EXPER. XIV. Jan. 23, 1779. John Grant, 35, had first a tertian, then a quotidian. He took a drachm of the bark, four times, before the paroxysm. He had one fit as usual. But the subsequent were slighter, and without the cold stage: but more bark was necessary to compleat the cure.

From these experiments, we may conclude,

1. That the bark is more efficacious in stopping the paroxysms of intermittents, and curing the disease, when given at the
end

end of a fit, or at forty hours distance from the succeeding fit, than two, three, or four hours before it. *1st*, In Exper. I. II. III. VII. VIII. XII. XIII. XIV. it was given just before the expected fit; but in none of those cases was the fit prevented. But, in Exper. V. VI. IX. X. XIII. when given after the fit, it always succeeded. In fix of the former experiments, half an ounce was given, which was also the quantity used in the latter. In the remaining two, not above half the quantity was given. *2^{dly}*, Though the argument in favour of giving the medicine immediately after the fit appears strong, still some doubt may remain, as it may be said, that, had the bark been given in the former cases after the fit, it would likewise have failed; and, in the latter, if given before the fit, it would have succeeded. To render, therefore, an experiment of this nature entirely decisive, it must be made on the same patient. With this view, I made the IV. XI. and XIII. experiments. In the XI. the ague was obstinate, and yielded only when other medicines were joined with the bark. But, even in that, the bark, after
the

the fit, succeeded better than before the fit, as by this means the paroxysms were stopped for some days. But, in Exper. IV. and XIII. the question is clearly decided. We see in the former, first half an ounce, then a whole ounce given, before the fit, without success. After waiting till some fits were over, that no effects might be attributed to the first exhibition, an ounce was given after the fit, and the next was stopped. In the latter, the experiment is equally decisive. No room for doubting now remains. Hence, the same quantity of bark, of which half an ounce was generally used, will, when taken towards the end of the sweat, cure an intermittent; but will not, if given from one to four hours before the cold stage.

2. That bark given a few hours before the fit, seems to add to its severity. In Exper. VIII. and XI. vomiting was excited; but in none of these cases, where it was given after the fit, was this effect produced. Hence it is probable, that the other symptoms, had we remained to observe them with the patients, would have been likewise exasperated. It must have
the

the same effect, almost, as when given during the fit. As bark, in powder, lies long in the stomach, especially of one affected by an approaching fit, much of it must remain during the whole paroxysm, and must augment the spasm, increase the fever, and lessen the sweating.

3. That, as bark, when given at a greater distance from the fit, becomes more successful, it follows, that some considerable time is required for its operation. In Exper. VII. XII. and XIV. when given before the fit, it did not stop the immediate, but the succeeding paroxysm. This effect is generally seen in giving bark during the whole interval; it stops the second, though not the first fit. Does it not require at least two or three days, in every case in which it is given, before all its good effects are produced? This holds in the typhus nervosus*, typhus putridus†, dyspepsia, and gangraene. Were it to act on the stomach alone, it would still require some time to be digested, and to impregnate the

* Febris lenta vel Nervosa. Princ. Medic.

† Febris Maligna, Putrida vel Petechialis. Princ. Medic.

the gastric fluids before it could have any effect on that organ.

4. That the length of time before its effects appear, makes it probable that its operation is not on the stomach, or on its nerves, alone, but that it enters the vascular system, and there exerts its chief qualities. In thirty or forty hours, it has time sufficient for producing these. Its success in curing diseases, when applied to the skin by a bath or vest, shows that the topical action on the stomach is not necessary. If it act mostly on the nervous system, as appears probable, though we cannot exclude its action as an astringent on the muscular fibres, considered as inanimate solids, it must find a much greater field, and greater sensibility in the vascular system, than in the primae viae.

5. That there appears to be no difference in the effects of the bark given after the fit, whether the ague be quotidian or tertian; and that fifteen or sixteen hours are a sufficient time to enable the bark to operate. The distinctions, therefore, so often mentioned in the schools and by writers, appear not to be of much practical use, as
the

the different kinds so often alternate; which shows, that the cause of these different appearances of intermittents is not owing to different miasmata, but perhaps, to some more changeable circumstances of the patient.

S E C T. II.

Experiments upon some remedies used in the Typhus Nervosus.

Inflammatory diseases, in general, have much diminished, and those of an opposite nature have much increased, in the present age. The former, described so often by Sydenham, are hardly to be met with at present in London. In Edinburgh, a pure synocha is seldom seen, even among the commonalty. The low fever, or typhus nervosus, is by much the most frequent amongst them; and, what may seem more singular, is confined, as appears by all the cases in my report-books, to the age reckoned commonly most subject to inflammatory diseases, namely, to that between 18 and 30 years. This can never be attributed to the increased force of infection,

as our greater attention to cleanliness must diminish that cause, and it is only in few that we can trace any infection; but to the more debile state of our bodies, which the present habits of living have induced. I call this disease the typhus nervosus, in contradistinction to the typhus putridus, or petechialis; which two diseases, I think, ought to be kept distinct, as they appear to me to differ with regard to the places where they are found, the degree of infection which they communicate, the constitutions which they attack, the symptoms attending them, and the remedies used.

The catarrhal and low fevers are the most common in the clinical ward; and I have had many of both kinds epidemic, that is to say, eight or nine patients similarly affected. This was the case in the years 1773, 74, and 76, when the low fever was common. In the other years, the disease was only sporadic. To describe these constitutions, or their differences, would be useless, as the disease is so well known, and varies so little. Any small variety that appears, arises from the state of

the stomach, whether it is affected with nausea and vomiting, or not; of the intestines, whether bound, which they are generally in the beginning, or loose, which they are generally at the end; or of the skin, whether dry or moist. In most of the other symptoms, one typhus is very similar to another. The effects of medicine, accurately settled, in this disease, are of much more moment.

Bleeding has been, for a long while, condemned by authors. But sweating was fully as pernicious, as it was more constantly prescribed here, and universally practised some years ago, till experience pointed out its bad effects; and it is at present equally set aside with bleeding and purging. Wine is now allowed to be the principal remedy, the good effects of which are already well established. Our design is, therefore, chiefly to ascertain the value of some other remedies.

CORTEX PERUVIANUS.

The bark is recommended, and used in all fevers of this kind. But no author has
told

told us, that it may do hurt, as well as good, or in what situation it may be given with the greatest advantage.

EXPER. I. June 6, 1770. Margaret Baxter, 21, and at that time a wet nurse, in the twelfth day of the fever, complained of difficulty of breathing, sighing, slight dry cough, and gentle looseness, pulse 110 and weak. She was ordered a vomit and rhubarb. 14th, pulse 104, some sediment in the urine. Tongue moist. Partial moisture on her skin. Great debility. Cap. P. Cort. Peruv. drach. ss. 3tia quaq. hor. 15th, p. 108, Heat greater. Thirst and difficult breathing. 16th, pulse 112. Slept little. Skin hot. Slight delirium. Urine without sediment for these two days. Tongue dry. Looseness returned. The bark was then given up, as it evidently did harm. She continued much the same way for five days, with clear urine; and then the fever went off by degrees.

EXPER. II. Dec. 29. 1774. David Brown, 20, was in the seventh day of the fever, in which he had head-ach, slight cough, and a pain under the xiphoid cartilage. Urine high coloured, with a thick cloud,
and

and made with difficulty. Gentle delirium during two hours of the preceding evening, pulse 120, and weak. Cap. mixt. Cort. Per. unc. i. 5ta quaq. hor. which dose contained a drachm of bark triturated with water. On the 8th, pulse 102, in the morning; pulse 110, in the evening. On the 9th, pulse 108, and moisture on his arms. Lay in a comatose state, and had a gentle delirium each night since he began the bark. 10th, pulse 94, and a general moisture. 11th, pulse 87, and much sweat, which smelled strong. Notwithstanding the coma and delirium, which were common symptoms, at this time, I incline to think that the bark had good effects, as the skin was moist after it. For, when it does hurt, the skin becomes dry, and the breathing worse. But, that it carried off the fever, I cannot assert.

EXPER. III. December 5th, Susannah Wharton, 21, affected with typhus for seven days, took for some time a solution of tartar emetic. On 13th day of the fever, with a pulse at 92, took P. Cort. Peruv. drach. ss 4ta quaq. hor. 14th, pulse 80, head-

B

ach

ach better 15th all the symptoms gone, and her water had a plentiful sediment.

EXPER. IV. January 2, 1775. Ann Gunn, 24, was ill of a typhus, with a dry tongue, some sweating, difficult breathing, singultus at times, turbid urine, and nocturnal delirium. Pulse from 120, to 130. On the twelfth day of the fever, when the pulse was 108, and weak, and slight subfultus tendinum, she took a drachm of bark in mixture, every fifth hour. 13th, pulse 128, delirious during the night, and hoarseness. But tongue moist, and subfultus tendinum better. 14th, pulse 130, skin dry, and heat greater. 15th, pulse 104, a natural stool, and some appetite. 16th, pulse 110, sweats much, and three stools. 17th, pulse 100, and no complaints. Here the symptoms seem rather to have increased the second and third day after the exhibition of the bark, as the heat, dryness of skin, hoarseness, and delirium, came on; and were not fully compensated by a moister tongue, or less subfultus tendinum. On the 4th, she was remarkably better; which change, either might be owing to the natural crisis of the fever, or to the bark, as, about that time,

time, its effects might be supposed to be most powerful.

From these four cases, bark appears to be sometimes hurtful, sometimes useful, in the typhus, according to circumstances. With regard to these, authors are not explicit. They say that it is of use when the nerves are affected, the pulse flat, and there is sighing. But that is saying no more, than that the bark in general is good in the typhus. The first case shows, that it is not proper in difficulty of breathing. This observation I have made in other cases; and it is one of the most frequent bad effects of bark to increase such a symptom. When there is general symptomatic sweating, they recommend it; and I agree with them. I have always found it useful when there is a tremor, which is a frequent symptom. We may be almost assured of success, when there is little or no drought. The effects of bark are, in most points, similar to those of wine. There are few diseases in which they are not equally useful, or equally hurtful. They differ in this, that the effects of bark ap-

pear much later, and last much longer, than those of wine.

TINCTURA CANTHARIDUM.

Hillary, in his treatise on the diseases of Barbadoes, recommends the tincture of cantharides, given to the quantity of twenty drops twice a day, in some wine-whey, as an useful remedy in the typhus. This was sufficient to induce me to give it a trial, especially as none, so far as I know, had yet been made by any other. The certainty that cantharides were absorbed by the skin from blisters, and the probability that some share of their good effects, in this disease, might be owing to this absorption, were a further incitement.

EXPER. V. June 29, 1770. John Johnston, 24, has had a typhus for fourteen days, with vertigo, fighting, slight diarrhoea, frequent sweats; pulse 108, and weak. On the 16th, after having taken for two days the solution of emetic tartar, he began, when his pulse was 100, to take twenty drops of the tinct. canth. in six ounces of wine-whey; and it was repeated twice a day. On the 17th, pulse 79, no complaint,

complaint, except vertigo. A sweat appeared yesterday soon after he took his medicine. 18th, Fever gone; so the tincture was given up. An alteration so sudden, after taking this medicine, leaves some doubt, whether or not this salutary change was owing to it.

EXPER. IV. Aug. 28. Janet Craig, 25, had been affected with a typhus for three weeks. She had taken some doses of tart. emet. which had vomited, opened her body, and sweated her. On the 23d day of the fever, when the pulse was 100, R tinct. canth. gtt. x. mucil. g. Arab. aq. font. aa unc. fs. M. cap. ter in die. 24th, pulse 100, no difficulty of passing urine. Slept better. R tinct. canth. gtt. xv. muc. g. Arab. aq. font. aa unc. i. M. fiat haust. cap. ter in die. 25th, pulse 90, thirst diminished; tongue moist; less confusion of head. 26th, pulse 80, and stronger; head-ach better. 27th, Fever gone. Here the cantharides appear, without doubt, to have been attended with good effects.

EXPER. VII. April 7, 1774. Margaret Salmon, 18, had been ill of a typhus for five days. She had a vomit, blister, and

the julapium salinum. On the 12th day of the fever, with sighing, head-ach, and pulse 118, R tinct. canth. gtt. xx. aq. menth. cinnam. f. v. aa. unc. fs. M. fiat haust. cap. hor. fom. & rept. mane. 12th, pulse 96, head-ach easier; urine much increased. 14th, pulse 110, tongue natural, and no drought. As she only complained then of cough, the medicine was left off. Here it appears to have done service.

EXPER. VIII. Dec. 18. John Finlay, 22, in the eighth day of typhus, with his pulse 110, and weak, head-ach, vertigo, and purging from emetic tartar which he had taken the day before. R tinct. canth. gtt. xv. muc. g. Arab. aq. cinn. f. v. aa. unc. fs. M. fiat haust. cap. ter in die, superbibendo decoct. hord. unc. vi. 9th, pulse 110, fuller and stronger. Head-ach and vertigo. Slept better. Each draught produced a sensation of heat in his stomach. 10th, pulse 102, urine of a straw colour, with light and plentiful cloud. Head a little confused. R tinct. canth. gtt. xx. muc. g. Arab. unc. i. aq. font. unc. ii. aq. cinn. unc. fs. M. fiat haust. cap. ut antea. Took an opiate at bed-time. 11th, pulse 102, thinks himself

himself better, applic. episp. tempor. 12th, pulse 96, head easier; slept better; urine plentiful, of a straw colour, and without cloud. 13th, pulse 100, complains only of weakness, tremor, and a slight pain of his breast. His medicine was therefore changed for wine and castor, which recovered him. The medicine was of some use here.

EXPER. IX. Dec. 4, 1778. Elizabeth Henley, 15, on the 11th day of a typhus, and when her pulse was 110, got tinct. canth. gtt. xv. &c. every eighth hour. 12th, pulse 108, has taken three doses, and felt always a sensation of heat in her stomach after the draught. Some delirium; two loose stools, with gripes; slept some; augatur tinct. canth. ad gtt. xx. 13th, pulse 106, urine clear. 14th, pulse 82, and stronger; feels some difficulty in making her water; no complaints; omittatur haust.

From these experiments, the tinct. canth. to twenty drops thrice a day, appears to be a very innocent remedy, and scarcely to produce any sensible effects on the body, except a sensation of heat in the stomach. I gave a third more in the day than Hillary used, so joined the mucilage of gum arabic to it. By means of the mucilage, I have been

enabled to give thirty-five drops four times a day, in cutaneous diseases, and fifty, four times a day, in a diabetes, without any sensible effects on the urinary passages, or elsewhere, except some gripes and slight strangury, which also happened in Exper. IX.

As, in most of the preceding cases, the utility of this medicine is certain, I think, that, in the others, therefore, we ought to ascribe the merit to itself more than to the critical time in which it was given. More experiments, however, will be required to ascertain its value.

These effects in the vascular system, when exhibited internally, are much less sensible than those occasioned by absorption from blisters, which so often produce strangury, and heat of urine. Is not this a clear proof of a greater quantity entering the habit, or a greater acrimony of the cantharides, when they are introduced by the skin, than when given in the preceding method? and hence ought we not reasonably to expect more powerful internal effects than by the former way, from the greater quantity absorbed from blisters? If cantharides, taken by the mouth, produce
such

such effects in the vascular system, much greater should be expected when they enter by the skin.

B L I S T E R S.

There is no remedy, in fevers, that has stood its ground so long as blisters. Authors recommend them in the typhus so strongly, that they order a succession of them; and the patient suffers much certain pain, want of sleep, strangury, and uneasiness, for the sake of advantages, which he, so far as is yet established, may have but a small chance of reaping. The patient ought to expect advantage at least in proportion to what he suffers. Let us view a few cases, where blisters, alone, at the time, were used.

EXPER. X. May 22, 1769. James Innes, 21, was seized with fever on the 19th, and complained of head-ach, thirst, sighing, &c. pulse 88, and weak. On the 8th day of the fever, after a vomit and the saline mixture, pulse 76, but all the other symptoms worse, a blister was applied to his back, and he took a little wine. 9th, pulse 72, in
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the morning, and 66 at night. 10th, pulse 80, head-ach gone. Suspecting some compression on the brain from such a slow pulse attending a fever, I applied a blister to each temple. 11th, Delirious all night; a blister applied behind each ear. 12th, Great weakness, deliquium, and sighing; ordered a solution of camphor. 13th, pulse 108, frequent nausea; blisters were applied to each arm. 14th, pulse 108, slept none, and delirious all night. 15th, pulse 128, and intermitting. Died. When opened, nothing appeared uncommon in the abdominal viscera. The left lobe of the lungs, towards the inferior part, was a little inflamed. Nothing was found preternatural in the brain, except about two ounces of serum in the ventricles, which may be considered as the cause of the slow pulse. Here the blisters, in succession, did no good.

EXPER. XI. Feb. 16, 1714. Archibald M'Bane, 27, convalescent, after a fever, was seized, on the 11th, with typhus. He took a vomit, solution of emetic tartar, &c. On the 15th day of fever, when his pulse was 120, a blister was applied betwixt his shoulders. 16th, pulse 100, slept better.
17th,

17th, pulse 96. 18th, pulse 116. The fever continued for six or seven days. Here the blister diminished the fever for two days; but it recurred, though not in the same degree as before.

EXPER. XII. Feb. 7. Katherine Smith, 35, in a typhus, had blisters applied to her back, her arms, and her side, without any success; and she died on the 17th day of the fever. The vessels of the brain were found much distended with blood. About a pound of fluid was found in the thorax. The lungs were very livid, especially the left lobe, in which was found a small quantity of pus. The intestines adhered in several places to the peritoneum, the liver was larger than natural, and in the left kidney there was also a little pus.

EXPER. XIII. April 8. Margaret M'Farlane, 24, had a typhus, for five days, with thirst, vertigo, head-ach, white and moist tongue, no sleep, pulse at 90. On the 8th day of the fever, pulse 68, head-ach and nausea. Had a cold fit last night, after which she fell into a profuse sweat. Took a vomit, and had blisters applied behind her ears. 11th, pulse 60, she was seized with another

ther cold fit, and sweating after it, during which she died. On opening the head, we found the vessels of the brain uncommonly distended with blood. Both lobes of the lungs were much inflamed; and the left adhered firmly to the pleura and diaphragm, was diminished in its size, and its substance much softened. Was the preternatural flow pulse owing to a compression from the plethoric state of the vessels of the brain? It is probable.

EXPER. XIV. Anne Gunn, Exper. IV. had a blister applied to her back on the 8th day of the fever, and one to each arm on the 9th. On the 10th, her pulse was considerably quicker, her tongue was drier, and she was more delirious.

EXPER. XV. Dec. 4, 1776. Isabel Ferguson, 30, caught a typhus by infection. On the 8th day, a looseness seized her, and the fever diminished. On the 9th day, a blister was applied to her back. On the 10th, the symptoms were easier, but her pulse was much the same. On the 11th, the fever abated a little, and she continued to recover. But, whether this change happened

pened from the diarrhoea, or blister, appeared to be uncertain.

EXPER. XVI. Jan. 16, 1777. James Ramfay, 24, was ill of a typhus, with delirium, subfultus tendinum, alternate hot and cold fits, &c. On the 12th day of the fever, when the pulse was 132, a blister was applied to his back. During the night he was less delirious, slept some, and was at times distinct. In the morning, his pulse was 115; in the evening, 144. He died on the 16th, and, when opened, nothing preternatural was found in the head, thorax, or abdomen.

These few cases have been selected, as in them the blisters were more unconnected with other remedies. Many more could have been produced to the same effect, where other medicines accompanied them; but then our conclusions would not have been so certain.

From the above experiments, we see what small advantage arises from blisters used in the typhus. Out of seven cases, that in Exp. XI. was relieved for two days; and the advantage in Exp. XV. was probably owing to another cause. The other five were not sensibly relieved. In some of
them,

them, the pulse rather quickened after the application. Blistering seemed to have no good effect in any of the epidemic low fevers of the years 73, 74, or 76, in the clinical ward; so that I, from that time, almost gave over applying them. The advantages that result from them certainly do not counterbalance their disadvantages. I have long found them to be of more use in topical inflammatory fevers, than in the typhus. The reason seems to be this. The stimulant power of blisters lasts only for two or three hours during the pain, in which time the pulse commonly becomes quicker. After this, their antispasmodic effects take place; and the pulse, when they are successful, becomes slower. It is to this latter effect that topical inflammations owe their cure. But it can be of little use in the typhus, as every symptom in its progress points out extreme preternatural relaxation, rather than preternatural constriction, or spasm. They can have no advantage, therefore, in this fever, but from their stimulant power, which lasts too short a time to be of much service.

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Among the many disadvantages of blisters, strangury is none of the least. I find it easy, however, to prevent this effect; so that I seldom or never observe a strangury following a blister. Dr. Greenfield was the first who, in the beginning of this century, discovered, that camphor had a power of correcting this effect of cantharides. Some, however, have doubted this quality. I tried, many years ago, camphor rubbed on blisters, found it to answer, and have always used it with the greatest success. I once removed, suddenly, a strangury in a typhus, by rubbing camphorated oil on the ancles. Notwithstanding the advantage which rubbing a little powdered camphor on the plaister has in preventing one of its uneasy effects, yet I believe it is scarcely, if at all, used. More trust is put in great quantities of emulsion, and the like, which often load the stomach too much, relax it, and increase the general debility.

Blisters, therefore, appear to be of little use in curing the typhus; yet they are of the greatest utility in relieving the severe head-ach, a troublesome symptom which always attends

attends it. Blisters applied to the temples remove this symptom most successfully, without directly producing any good effect on the fever ; though they may indirectly, by removing one cause of watchfulness and weakness. To prove this by facts, would be to quote almost every low fever that has appeared in the clinical ward. I was led to this application, by observing, that the rind of a lemon, cut off thin, and the inside applied to the temples, excites a redness, and cures a head-ach. I tried blisters to the temples in a remitting fever, in Flanders, many years ago ; and they succeeded beyond my expectation. I have continued the use of them since that time, have introduced the practice into the clinical ward, and used them in every typhus with the greatest degree of certainty. This application has been much confirmed, though it did not take its rise there. This mode of application has almost superseded the use of blisters to the whole head, which have their inconveniences.

The effects of these topical blisters depend, 1. On their stimulus. The temples
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are very sensible, as the patients complain much of the pain of blisters applied there. It is near the part affected, and communicates directly with the nerves of the eyes. If the pain arises from the nervous system alone, nothing is more proper than nervous counter-irritation to relieve it, as the nervous system is but rarely capable of suffering two pains at once. In this way all rubefacients become antispasmodics.

2. On the evacuation produced. The external and internal vessels arise from the same source, often communicate through the cranium, and always by means of the arteria orbitalis. If, therefore, the head-ach arises from a plethoric state of the brain, it must be cured by the depletion which follows. Hence this application, and a running kept up for several days, by issue-ointment, is the most successful remedy in obstinate ophthalmias.

FOMENTATION OF THE LEGS.

This practice was first introduced, so far as I know, by the regimental surgeons of the army in Flanders, in the winter 1742-3,

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and was much used at that time, by all of them with success, in a typhus, which is described in the Medical Facts. Since that time it has become a common remedy here.

EXPER. XVII. Katharine Smith, Exp. XII. was fomented on the 9th day of the fever. Her pulse, during it, became fuller, but not quicker. She sweated after it; and her head-ach became easier.

EXPER. XVIII. Archibald M'Bane, Exp. XI. while his feet were fomenting, fell asleep, and slept for eight hours. His pulse quickened a little during the operation.

EXPER. XIX. John Finlay, Exp. VIII. after fomentation, his pulse was fuller and stronger.

EXPER. XX. December 4, 1774. Gavin Kerr, 20, was fomented on the 9th day of his fever, when his pulse was 104, with inflamed eyes, tremors, head-ach, thirst. Next day, his pulse was 90; and, though the fever continued, his pulse never returned to its former quickness.

EXPER. XXI. Isabel Ferguson, Exp. XV. when the fomentation was used on the seventh day of the fever, and afterwards continued, seemed to be eased by it.

EXPER. XXII. March 23, 1778. William Nilefon, 21, used the fomentation in the 10th day of a typhus. His pulse was 90 when the fomentation was begun; but in half an hour it was 98, stronger, and more regular. Though continued twice a day, it produced no visible effects.

EXPER. XXIII. Eliz. Henley, Exp. IX. on the 7th day of a typhus, while her pulse was 126, had her legs fomented. Half an hour after, her pulse was 136, but fuller. An hour after it was 126, and still continued fuller. She slept better the following night, and her head-ach was easier.

The practice of fomenting the legs appears, from the above cases, to be useful, as every application that makes the pulse stronger must be. It seems to dispose much to sleep. It disposes, also, to a moisture of the skin, which will be useful when it is dry; but which may be hurtful, in a disposition to symptomatic sweating. It must be of greatest use when the tongue is dry.

Its effects, however, must depend much on the degree of warmth. If the heat is within 100 degrees of Fahrenheit's thermo-

meter, it will stimulate less, and relax more. If above that degree, it will stimulate more, and relax less. The fomentation was tried when the heat was not above that of the human body, and the pulse became fuller, not quicker. But the heat should be greater, that it may, when applied in the typhus, stimulate more, as the chief use of it is to raise the pulse.

C A M P H I R E.

Camphire has been recommended and used in the typhus.

EXPER. XXIV. July 30, 1769. Duncan Clerk, 13, with head-ach, purging, nocturnal delirium, on the 12th day of the fever, had the camphire in this form; *R* camph. scrup. i. dissolv. in muc. gum. Arab. unc. i. add. aq. cinn. f. v. unc. i. aq. font. unc. ii. *M.* cap. unc. i. 4ta quaq. hor. When he took the medicine, his pulse was 112, and the heat of his body 102 deg. Ten minutes after, pulse 104, and heat the same. Twenty minutes after, pulse 108, and heat the same. On the 14th, his pulse was 84; but I attributed the change more to some wine he had taken, than to the camphire.

EXPER. XXV. James Innes, Exp. IX. was ordered seven grains of the camphire, dissolved as above, thrice a day. His pulse next day was quicker, and he was delirious during the night, till he died.

EXPER. XXVI. Katharine Smith, Exp. XII. had five grains of camphire every five hours ; but the quickness of her pulse, and the other symptoms increased, till she died.

EXPER. XXVII. Dec. 20, 1774. Mary Wilkie, 20, obstructed for six months, began to take an ounce of the solution of camphire every fifth hour, on the fifth day of the fever, when her pulse was 120. Next day, pulse 92, and head-ach easier. When her pulse was 94, she got the above dose. Ten minutes after, her pulse was 86. Half an hour after, it was 90. The exhibition of this medicine was attended with a gentle moisture, and seemed to procure rest.

From two of these cases it would appear, that camphire is of use in the typhus. But I am still dubious, with regard to the salutary effects of camphire in this disease, and must reserve the decision for further experiments, as the alteration in Exper. XXIV. might have arisen from the wine ;

and, in Exper. XXVII. from the peculiar nature of the fever, which, perhaps, took its rise, or was connected with amenorrhoea. I am the more inclined to this opinion from private practice, in which I have never seen any good effects from camphire in such fevers; sometimes, perhaps, bad effects. No sedatives, probably, can be good in low fevers, as they must all act by diminishing the nervous influence; and camphire appears, from the preceding experiments, to be of this class. As it is generally agreed, that camphire is good in inflammatory diseases, little advantage, therefore, can be expected from it, in those of an opposite nature, the anti-inflammatory.

ANTIMONIALS; EMETIC TARTAR, and JAMES'S POWDER compared.

The preparations of antimony, after having been long banished from the apothecaries shops, and from the prescriptions of physicians in some countries, under the severest penalties, have at last become one of the most
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certain antifebrile medicines which we know. Different preparations of it have, in their turn, shared the public favour, such as the pulvis Carthusianorum, vinum benedictum, tartarum emeticum, and emeticum mitius Boerhaavii, which, with no material alteration, is now called James's powder. These two last are, at present, most used here; the former by physicians, the latter by those not of the medical line. A candid comparison of them, from the experience of many years, will, I hope, be agreeable to both. I have always made use of James's powder, sold in the shops; but this last winter I sometimes used that made in the Infirmary; and I was not sensible of any difference in their effects. The solution of emetic tartar mentioned here, consists of two grains, dissolved in six ounces of water. I confine my experiments at present to the typhus fever alone.

EXPER. XXVIII. May 13, 1770. Thomas Bailie, 32, had been ill of a typhus for some days, attended with head-ach, sweating at times, tremor, and dyspnoea. Took a vomit. 14th, pulse 104, cap. sol. tart. emet. unc. i. 3tia quaq. hor. 16th, pulse 78,

tremor less. No nausea or sweating; but body loose and griped. 18th, Great looseness. 19th, pulse 100, purging gone. Solution has no sensible effect. 21st, pulse still quick, and head-ach. The solution was exchanged for bark and wine.

EXPER. XXIX. Joan Herrin, 18, on the 9th day of her fever, began the solution, unc. i. 3tia quaq. hor. It produced a nausea at first, and the symptoms abated a little on the 11th day. It afterwards purged her, and it was continued to the 16th without giving any relief.

EXPER. XXX. Archibald M'Bane, Exper. XI. in a typhus for seven days, took for six nights, at bed-time, tart. emet. gr. i. laud. liq. gtt. xx. aq. font. unc. fs. M. fiat haust. without any other effect than that of sleeping better. About the 20th day of his fever, he began with James's powder, five grains every fourth hour. The dose was increased next day to eight grains, and the day after to ten grains, without any visible effects, but that of procuring better rest. This medicine was continued for five days, after which the fever went off.

EXPER.

EXPER. XXXI. March 31, 1774. William Wightman, 23, was seized on the 24th. Complained of vertigo, thirst, weakness, nausea, and he had a delirium during the night. He had been bled, and afterwards lost much blood by the opening of the orifice. On the 9th day of the fever, pulse 110, tongue white and moist, and no complaint; took sol. tart. emet. unc. i. 4ta quaq. hor. 10th, pulse 130, and weak. After the first dose, he fell into a sweat, which still continues. Body bound; urine passed insensibly. A water clyster was ordered, which operated well, and two ounces of wine were given every four hours. 11th, pulse 168, sweating still continues; says he is very well. Died. On opening the head, the vessels on the surface of the brain were found to be much distended with blood. When the medullary part of the brain was cut into, there appeared numerous small dots of blood; and the choroid plexus was somewhat inflamed. The intestines were much distended with faeces, which in the rectum were hardened. The liver and spleen were of a livid colour, but of their natural size and firmness. The left kidney was inflamed
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and enlarged. Here is an instance of a mortal typhus without a complaint, of which I have seen many. Such cases are the most dangerous, as they show the sensibility to be much diminished. Here the emetic tartar did, at least, no good.

EXPER. XXXII. March 16. Francis Brooks, 16, was seized on the 13th with a typhus, attended with weakness, vertigo, cold, hot, and sweating fits, head-ach, noise in his ears, and looseness. Took a vomit. 6th day of fever, pulse 112, he was ordered James's powder, fifteen grains at bed-time. It was increased next night to a scruple, and it was continued for some nights. He had a moisture each night, and slept better. The fever gradually decreased, and went off about the 14th. The good effects of the powder were sensible here.

EXPER. XXXIII. March 5. Euphemia Pettie, 22, who had not menstruated for 12 months, was taken ill on the 3d. Was bled, and vomited. 6th day of fever, pulse 100, soft and weak. R Pulv. Jacob. gr. v. conf. ros. q. s. fiat bol. cap. 6ta quaq. hor. It had no sensible effect. Next day the dose was increased to eight grains, which

which produced nausea, and opened the body. 8th, pulse 90, the dose was increased to twelve grains. 9th, pulse 86, same effects. 10th, pulse 76; her remaining complaints now seemed to arise from the obstruction of her menses.

EXPER. XXXIV. Gavin Kerr, Exper. XX. on the 10th day of fever, pulse 90, complained of want of sleep, body bound. & Pulv. Jacob. gr. viii. &c. & rep. 8va quaq. hor. 11th, pulse 97. After his dose, last night vomited and had two motions; but he lay quieter, and slept better. The medicine had no effect this day. 12th, pulse 86, the bolus produced nausea, sweat, and opened the body. Slept well, and all symptoms easier. The dose was increased to twelve grains, which continued to produce the same effects. He had a crisis on the 14th.

EXPER. XXXV. Dec. 5, 1774. William M'Pherson, 20, in the 5th day of a typhus, and his pulse 116, took solut. tart. emet. unc. i. 3tia quaq. hor. for two days, without any sensible effects. 7th, pulse 116, and feeble. Delirious. Tongue dry. Was ordered Pulv. Jacob. gr. viii. &c. h. f. & mane.

mane. Nor did that produce any sensible effects. Delirium continued each night. Was ordered a blister, fomentation to his legs, and wine. His medicine was increased to twelve grains every eight hours. 11th, pulse 116, two loose stools. Slept better. 12th, pulse 110, purging severe, which made me stop the bolusses. But at night his pulse was 96, and fuller. 16th, Fever went off. It is not easy to say, whether the purging was owing to the disease, or James's powder. I am apt to attribute it to the former, as it is not a common effect of that medicine. But, from whatever cause the looseness arose, it seems to have done service.

EXPER. XXXVI. John Finlay, Exper. VIII. on the 6th day of the fever, pulse 110, and weak, took the sol. tart. emet. It vomited and purged him, without any good effect; so the medicine was stopped.

EXPER. XXXVII. Dec. 3. Agnes Anderson, 24, in the 16th day of fever, when her pulse was 100, took the sol. tart. emet. unc. i. 5ta quaq. hor. It produced nausea, vomiting, looseness, and moisture of her skin. 17th, pulse 102, and weak, Cap. Pulv. Jacob. gr. viii. &c. 8va quaq. hor.
18th,

18th, pulse 110, had after each bolus, a nausea, vomiting, purging, and general moisture. Slept some. 19th, pulse 86, no complaints.

EXPER. XXXVIII. James Ramsay, Exper. XVI. on the 6th day of the fever, began with Pulv. Jacob. gr. v. bis in die. The dose was increased to eight grains. It had no sensible effects; so we had recourse to other medicines. On the 12th, the sol. tart. emet. was tried; but it was attended with no visible or successful effects; and he died.

EXPER. XXXIX. Jan. 24, 1777. Robert Finlay, 20, on the 11th day of the fever, pulse 108, took sol. tart. emet. unc. i. 3tia quaq. hor. 13th, pulse 108, the medicine had no sensible effects; cap. unc. i. fs. pro dos. 14th, pulse 92, nausea and moisture. Recovered.

EXPER. XL. Dec. 11, 1776. Elizabeth M'Kain, 22, on the 11th day of fever, with bound belly, and her pulse 108, took Pulv. Jacob. in nosocomio, parat. gr. v. opii gr. fs. &c. morning and evening. 12th, pulse 80, no nausea after the bolus last evening, but sweated all night. Had a nausea after the bolus this morning. Recovered.

EXPER.

EXPER. XLI. William Nielson, Exper. XXI. on the 8th day of the fever, with his body rather loose, and pulse 84, took sol. tart. emet. unc. i. 3tia quaq. hor. 9th, pulse 96, and weak. Vomited after every dose; body loose; delirious during the night; slept none. The solution was given up. 11th, pulse 100; comatose. Cap. statim Pulv. Jacob. gr. viii. conf. ros. q. f. ut fiat bol. & rep. h. f. 12th, pulse 94, more quiet; no nausea, purging, nor sweating. Rep. bol. ex Pulv. Jacob. gr. xii. 8va quaq. hor. 13th, P. 94, takes the boluses regularly, and sleeps much, and calmly. 14th, pulse 90, less delirious. Sleeps much Boluses have no sensible effect. The fever after this disappeared. Here the good effects of James's powder were superior to the emetic tartar, as they were less evacuative, and more quieting.

EXPER. XLII. March 21, 1778. William Pearse, 20, has had a typhus for four days; pulse 106; frequent vomiting. Cap. sol. tart. emet. unc. i. 3tia quaq. hor. Vomitted after the two first doses; slept till towards morning, at which time a sweat broke out, and pulse 75. At night,
pulse

pulse 62, and the fever went off; but on the 7th day from the first attack it returned again, continued for three days, and then disappeared.

EXPER. XLIII. Jan. 27, 1779. George Dickson, 20, on the 10th day of a fever, in which his body was rather loose, took the solut. tart. emet. It vomited and increased the purging to such a degree, that it was given up. On the 15th day, he began James's powder, five grains thrice a day, which was gradually increased the following days to twelve grains. These doses brought a moisture on his skin, and at last vomited, but did not purge him. He recovered.

EXPER. XLIV. Dec. 22, 1778. John Leucher, 18, on the 8th day of the fever, took the solution of the emetic tartar. It occasioned nausea and purging. On the 10th, got Pulv. Jacob. gr. v. 8va quaq. hor. On the 11th, he had eight grains, and the day after, twelve. These quantities excited a moisture and sweat only, but no sickness or purging; for his body was rather bound. On the 13th, the fever went off.

From

From these facts, the following conclusions arise :

1. In thirteen cases of typhus, where emetic tartar was given, two were cured by it, one relieved, and ten received no benefit. That is, indeed, but a small proportion of the successful to the unsuccessful cases, and shows, that it is not so beneficial in this fever as in other fevers. In eleven, where James's powder was given, ten were cured, and one died ; which is a very great proportion of cases where it succeeded, to those where it did not succeed, and shows great febrifuge powers in that medicine. On comparing, therefore, the two medicines, James's powder appears to be a much more valuable remedy in the typhus than the emetic tartar.

2. The effects, especially the evacuative, of emetic tartar, are stronger than those of James's powder. The emetic tartar generally vomits, often purges much, produces a moisture of the skin, and sometimes sweat. It purged in seven of the thirteen cases. But the effects of James's powder are much gentler. In two cases only it vomited ; in two only it purged,

purged, and generally was attended with a gentle moisture. It commonly brings on a calmer state, and sleep, which the emetic tartar seldom does. It often relieves the head-ach. These different operations are not to be attributed to a greater proportional dose of emetic tartar than of James's powder; for, in three of the cases, the former had no observable effects; and a third of a grain, after many trials, is the quantity I can most rely on for sensibly affecting the stomach. Besides, the doses of James's powder, exhibited in the preceding experiments, are much greater than what are generally given here.

3. From the effects of the two medicines, as above stated, we may, perhaps, see the reason, why emetic tartar is not so successful in the typhus, as in the synochus*; nor so useful in the former as James's powder. That fever, especially in its progress, becomes worse after evacuation. I have seen purgatives, clysters, and gentle sweating, hurtful in it. It can be no surprise, then, that a medicine, such as

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* Genus Compositum ex fibre Inflammatoria & Nervosa.
Vid. Princ. Medic. De Morb. febril. Part 2d, sect. 4.

the emetic tartar, which evacuates by the intestines and skin so powerfully, should do no good in the typhus, or rather that it should do harm. This is strongly verified by the above cases. In Exper. XXXI. where it sweated most, the patient died. In none of the cases where it purged, did it do service. In Exper. XXIX. while it produced a nausea, it relieved. After the purging came on, the fever increased. I am always obliged to mix laudanum with it, or to give it up when it purges. In the only two cases where it was of use, it excited nausea and moisture in one, and gentle vomiting and moisture in the other. Emetic tartar acts more on the intestinal canal; James's powder more on the skin. If the cure depended on puking, as in many disorders of the lungs, intestinal canal, and others; if we wished to make a sudden and violent stimulus on all the organs of evacuation, we should use the emetic tartar. But in delirium, want of sleep, loose or irritable bowels, James's powder ought to be preferred.

4. As to the quantity of emetic tartar to be given for a dose, it may be either

one-fourth or one-third of a grain. The former often produced no effect on the stomach, so that one-third was the standing dose. In giving James's powder, I chuse to begin with five or six grains in the form of a bolus, thrice a day, as less than that quantity can hardly produce any visible effect, and more may operate too strongly. The dose may be augmented afterwards gradually, until it sensibly affects the stomach, intestines, or skin, which it does generally when ten or twelve grains are given. I have often increased the dose to a scruple in inflammatory cases; but we can rarely go so far in the typhus, as, in that disease, the intestines are more irritable.

5. As to the time of continuing both, we have no rule to determine us, but their effects. If these are good, the medicine must be continued till the fever go off, or a crisis appear. In two cases the emetic tartar was continued for eight days. Its effects are generally manifested sooner. If it be attended with any evacuative operation, that length of time may debilitate too much, and suspend the use of other medi-

cines ; but we may allow a longer time to James's powder, as its effects are more gentle, and as it seems, from these cases, to require longer time.

6. It is difficult to settle the mode of operation of these two medicines. But we can, from the above facts, say negatively, that they do not cure by evacuation ; as, in two of these cases where James's powder succeeded, the patients only slept better, without any sensibly increased evacuation. The same thing occurs every day in the use of emetic tartar. We can say further, that even the evacuations produced do not arise from the nausea ; because, in the above cases, an evacuation by the intestines and the skin was often produced, without any preceding nausea. This likewise frequently occurs. Do they act by a general stimulus ? This is probable, from their general evacuative powers ; from their being hurtful in the spasmodic state of fevers ; from their being most successful when the exacerbation of fever is over ; and from being most useful, when the pulse is just below the natural standard, with regard to strength.

O P I A T E S.

In inflammatory fevers we are, perhaps, justly afraid of prescribing opiates, as in these they diminish all the excretions, increase the heat and drought, and too much deaden those sensations of pain, which must often guide our operations. But, whether such considerations can take place in the anti-inflammatory fevers or typhus, may be very much doubted. Such medicines as repress excessive evacuations, and such as are, in other cases, heating and stimulating, generally are useful in it. The experiment is, at least, worth the making. I have often given opiates, with advantage, when the body in such fevers is loose; and they are often joined to emetic tartar, to lessen its purgative, and increase its sudorific quality, while the opiate is rendered, at the same time, less sedative. But the present experiments go no farther, than endeavouring to alleviate a troublesome symptom of the typhus, want of sleep, which, if they do, they are of no small utility.

EXPER. XLV. John Finlay, Exp. VIII. in the seventh day of the fever, had slept none since he was attacked with it. \mathcal{R} Laud. liq. gtt. xx. aq. cinn. aq. font. aa unc. fs. M. cap. h. f. An hour after he took it, his pulse became fuller and stronger. Slept better. Pulse the same next day. He took the opiate for five nights, and always slept better for it.

EXPER. XLVI. David Brown, Exp. II. in the seventh day of his fever, during which he had slept none, was ordered the same draught at bed-time. He slept some. It was repeated with advantage.

EXPER. XLVII. Ann Gunn, Exp. III. in the eighth day of the fever, having slept none the night before, from vomiting and purging, excited by a small dose of the antimonial wine, had the same draught at bed-time. She slept none. Sweated much, and had a slight degree of singultus. But her pulse was less quick. It was not repeated, because she began James's powder.

EXPER. XLVIII. William Nileson, Exper. XXII. body loose, slept none, and delirious during the night, got laud. liq. gtt. xxv. &c. h. f. Slept frequently during

during the night, and much during the forenoon. Looseness gone. His pulse less frequent. The castor was substituted for it, which did not succeed so well.

EXPER. XLIX. William Pierce, Exp. XLII, with purging, cough, and want of sleep, was ordered on the ninth day of the fever laud. liq. gtt. xx. &c. h. f. Slept some, and was a little delirious.

EXPER. L. November 23, 1778. Ann Riddle, 23, in the eighth day of a typhus, attended with head-ach, cough, and want of sleep, when her pulse was 140, got laud. liq. gtt. xx. &c. h. f. She slept better, and thought herself much refreshed. Her pulse next day was 126. The draught was continued, and the fever went off.

EXPER. LI. Elizabeth Henley, Exp. IX. in the eighth day, got laud. liq. gtt. xx. &c. h. f. and she slept for three hours, and her pulse became calmer after it.

EXPER. LII. December 17. Ann M'Queen, 20, in the seventh day of the fever, pulse 118, got laud. liq. gtt. xx. &c. h. f. Slept well and calm, having been delirious the preceding night. Next day pulse 82.

It appears, therefore, that opiates procure rest in the typhus, without any disadvantages attending their use. I cannot attribute the delirium in Exper. XLIX. to them, as it often takes place the first night, when the patients begin to sleep naturally, after the fever is gone. It would rather appear, from Exp. XLV. that they acted as cordials in the manner that wine does. Perhaps the doses were too small to produce that effect, as such cases require greater quantities of wine, which in small doses is not attended in the typhus with its usual effects. Perhaps the above quantities were not even sufficient for procuring sleep.

Want of sleep is a distressing symptom. Besides, it debilitates much, and adds to the weakness natural to this fever. Whatever gives sleep, must obviate these effects. The powers of nature must be stronger after opiates; more especially, if they act as a cordial, which I imagine they do. There is no fear of inducing any inflammatory state in such cases. If we could, perhaps it would be of advantage. I can see no reason, therefore, why we should not procure sleep artificially. Opium is
more

more to be depended on than camphire, castor, or sal sedativum Hombergii, which last I have often tried, and never but once found it succeed; and, besides, it seems too antiphlogistic for such a state. Opium is, therefore, alone to be trusted. It becomes more necessary and more useful than the above sedatives, where looseness or cough prevail.

P E T A S I T E S.

I had heard that the petasites, or butterbur, had been used with success, in Muscovy, in a malignant fever, which prevailed there some time ago, and I have been desirous ever since to try its effects in the typhus; but could not till lately procure it.

EXPER. LIII. November 23, 1778. Ann Riddle, took it from the eighth to the eleventh day of the typhus, beginning with half a drachm, and increasing the dose to a drachm, thrice a day. But it was attended with no success. It produced no sensible effects; and the pulse was not altered by this last quantity. The fever diminished during its use, which could hardly be attributed to the effect of the medicine.

From

From that trial I have no opinion of its powers, and shall scarcely try it again. Besides, from its taste, we cannot have a high opinion of its effects, which seem very innocent.

C O N C L U S I O N.

The preceding experiments, we hope, will not be found altogether without utility. It is of great use in medicine, to show, that what we trust to does not deserve our confidence. Camphire is of this kind; and I am much mistaken, if it is not even hurtful in the typhus. Blisters do not merit the trust we have so long placed in them. If emetic tartar is found less useful than what it is at present thought, it is the result of accurate experiment. James's powder appears worthy of the confidence the public has so long, but without proper foundation, placed in it. The effects of the bark depend much on the situation in which it is given. Fomentation of the legs is advantageous, though, I believe, more used here than elsewhere. The tincture of cantharides has met with a fair trial,

trial, and has been found worthy of further attention. Opiates, in the typhus, to procure rest, and blisters to the temples, to alleviate the head-ach, are not, so far as I know, recommended by any author*. The former have taken their rise in the clinical ward; the latter have been much confirmed in it. We, therefore, hope, that some new light has been thrown on the remedies used in the cure of the typhus nervosus.

S E C T. III.

Pleuritis Spuria.

There prevailed in the clinical ward, during the month of December 1776, a fever, with which several of the patients had been affected about the end of November, and which demands our attention, as it was the epidemic of the season, as epidemics are rare here, and as it differed widely in the cure from the pleurisy, though, in many respects, it much resembled

* After these observations were written, I was told that Dr. Cullen and the late Dr. Gregory used sometimes to give opiates in the typhus, in the clinical ward. But I am still ignorant of the result of their experiments.

bled this disease. I called it the Pleuritis Spuria, as it was attended with a severe pain in the side. The true pleurisy is a very rare disease here, although many fevers are attended with pleuritic pains.

Hippocrates has mentioned this fever. Galen described it well : ‘ Breathing not so severely affected ; fever less acute than in the true pleurisy ; no hardness of pulse ; no expectoration ; no cough ;’ in which last symptom our present disease differs from that described by him. Sydenham often mentions it, and cautions us ‘ against bleeding, as in the true pleurisy.’ Hoffman, in the chapter on pulmonary affections, gives a good account of it. It has not lately been taken notice of. If Sauvages means to describe it under Pleurodyne, he mistakes when he says, ‘ fine pyrexia acuta,’ as this disease was attended with much fever.

The patients were generally seized with shivering, which was soon succeeded by heat. But some of them had no coldness, and were first attacked by heat and moisture of the skin. So far this disease, in its approach, resembled the typhus, where,
often,

often, we can discover no cold fit ; we had a quartan, at the same time, that had no cold stage. It is not, therefore, a constant and necessary prelude to every fever.

They were soon afterwards attacked with a severe pain in the side, generally amongst the false ribs, which was increased on inspiration, and made the breathing difficult. The part was not swelled or discoloured ; but it was sore upon pressure, and they could not lie on that side. One of the patients could not lie with ease on either side ; but of the two he rather chose to lie on the affected side, which in all the patients was the left. The pain in the true pleurisy is thought oftener to attack the right than the left side ; the truth of which observation may be doubted, as not only the present disease is strongly against it, but in the preceding spring we had an epidemic catarrhal fever very similar to this ; where, in all the patients, the pain was situated in the left side. These pains seemed to be seated amongst the intercostals, and periosteum of the ribs, perhaps even in the pleura, as the pains were described to be so superficial, and as they were worse when
pressed,

pressed, or when the patient lay on that side. These pains are commonly looked on by authors to be of the rheumatic kind. This opinion may appear more probable, on observing, that the rheumatism was frequent at that time, and that one of our patients had pains in the scapula and elbow. But still there is much room for doubt. The part was neither discoloured nor swelled; the pains did not flit like those of the rheumatism; the pulse was not strong, nor the blood inflammatory. Was it of the catarrhal kind, from acrid ferous fluids determined to these parts? This opinion is not improbable. As this was the leading symptom, from its violence and duration, it properly gave name to the disease.

They always had a painful dry cough; sometimes a little viscid expectoration attended it. This symptom arises, I believe, generally from a determination to the lungs of acrid fluids, generated in the body, or retained in it from a stoppage of perspiration, of which near a third part goes off always by the lungs; or from acrid particles introduced into the habit,

as in epidemic catarrhs, morbilli, variolae, &c. But may it not arise likewise from irritation of the intercostal muscles? This is probable, as the motion of the intercostals seems to arise from an irritation of the lungs, and as emollient ointment rubbed on the breast eases a cough.

They were harrassed with constant severe head-ach, which, with the cough, kept them from sleeping. As no inflammation of the eyes, violent delirium, or strong pulse, accompanied the head-ach, there was not the least suspicion that it arose from any inflammation of the brain, or its membranes, which is too often supposed to be the cause of this system. It arises, probably, in this disease, from nervous irritation; because smells, mephitic air, and nervous poisons, excite it.

A moisture of the skin generally attended them through the disease; and they often felt themselves cold even while sweating. Sometimes they had alternate sweating and shivering. This shows laxity and debility.

The tongue was clean, moist, and a little white: The thirst was not great: The appetite was not so bad as might have been expected.

expected. They often complained of nausea. The state of the body was very various; in most, it was natural; but in one, it was bound, and in another, loose.

The pulse was from 90 to 136 in a minute, always soft and weak; in some, it could hardly be felt. There was little opportunity, from this state of the pulse, to examine the blood. A very little was taken from one, which appeared natural. As the pulse was weak, and no inflammatory symptoms, this was probably the state of the blood in all.

From these symptoms, the character of this disease appears to be, 'A painful stitch, ' constant dry cough, severe head-ach, difficult breathing, quick and weak pulse.'

It was not attended with any danger; and generally terminated on the 6th or 7th day, without any evident crisis. In one of the women, it did not terminate until the 11th. But a defect of the menstrual flux, which was the case with her, probably made her worse. The typhus, which prevailed at this time, ended sooner than usual; often on the 7th; and it never exceeded the 12th day.

It is natural to enquire, from what cause an epidemic fever arises. None accused contagion. I scarcely think it arose from miasmata in the air, as it would, in that case, have been more epidemic in the city, and attacked those of higher station, which it did not do. It seemed rather to arise from the application of cold to the body, under certain circumstances. The half of the patients assigned that as the cause of their fever. We must, then, search for its origin in the sensible qualities of the air. There was, some time before this fever appeared, a frost for several days. In this state of the air, perspiration is always great, as is proved from statical experiments; because it strengthens the action of the heart and vessels. To this succeeded very mild weather; the consequence of which was a retention of the perspirable matter. Besides, mild air makes the body more susceptible of cold. Hence arose an immediate spasmodic affection, on the sudden application of cold, to which, perhaps, they had been all exposed; and many had coriza and cough at that time. We had an epidemic catarrhal fever here in the end

of the year 1774, and another in the beginning of 1776, which evidently took their rise from a thaw, after long frost, and were attended, like this, with pleuritic pains; but they differed from it, in being very inflammatory.

In the cure of common diseases, we are chiefly conducted by what has been observed to be useful or hurtful. But, in an uncommon disease, such as this, that general rule fails. We have still, however, some guides left; an observation of the occasional causes which excite it, of its symptoms, and of its similitude to some other well known distemper. We have observed, that mild weather prevailed when it appeared; that the symptoms inclined more to the typhus than synocha; that it went off without any remarkable evacuation; and that it had a considerable analogy to the preceding catarrhal fevers. These considerations rendered the expediency of great evacuations dubious.

The first question which naturally occurred was, Shall we bleed? In most attacks on the breast, attended with stitch, cough, and difficult breathing, bleeding is proper,

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as the cough increafes the determination to the lungs. On the other hand, the ftitch appeared not inflammatory, the pulse was weak, the fkin moift, the debility great, and all authors who have treated of this difeafe diffuaded from bleeding. As I am moftly determined, in fuch circumftances, by the ftrength of the pulse, I was rather averfe to bleeding. But, as the pain was violent in one of the patients, a little blood was ordered to be taken from him. From his weaknefs, only three ounces came; nor did we obferve any difadvantage arifing from having taken fo little blood from him, and from omitting that evacuation in others. If bleeding had been ufed, perhaps the difeafe would have lafted longer, and the recovery have been more tedious.

Some of the patients had a nausea which might be thought to have indicated emetics. But, from the remarkable cleanness of the tongue, from no bad tafte in the mouth, from no vomiting attending that fymptom, I confidered this fymptom as rather arifing from nervous irritation, the moft common caufe, than from a diforder of the ftomach; perhaps, from a fymphony

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with

with the breast, where irritation is often attended with vomiting; so that emetics were not ordered. Besides, the pain of the side would scarcely have permitted their use. After the stitch went off, they were not indicated. Purging did not appear necessary. One of the patients had a looseness during the illness; but it appeared rather symptomatical, than critical. Laxatives must make a derivation from the intercostal muscles. I tried them in one. He took a dose of the *infusum tamarindosum*; after which the pain of his side, and cough, were better; but the pulse was 10 beats quicker in a minute. After the second dose, all his complaints were easier. But it was about the time of the crisis.

Sweating may seem to have been pointed out from the moisture of the skin, and it appeared safe from the softness of the pulse. But, as I have so often seen it do hurt in similar fevers, it was not prescribed. As this fever appears now to have been of short duration, sweating might have shortened it yet more.

The disease scarcely seemed to be of that severity as to require antimonials. The

patient who had it most severely, took Pulv. Jacob. gr. v. opii. gr. ss. for two nights, at bed-time. It occasioned sweating each night, but no sleep.

Blisters seemed of use in removing the fever; as, in two cases where they were applied, the fever went off after their application. In all those fevers of a catarrhal nature I find them of use.

As the disease was short, and not attended with danger, the alleviation of the symptoms claimed most of our attention. There were four which harraressed the patient much, the stitch, cough, head-ach, and want of sleep.

The pleuritic pains were so severe, that they required medicine. Topical bleeding by leeches, and by cupping, were of some use. A very little blood taken from the neighbouring vessels, by relaxing them most, eases the pain. But blisters were still more effectual; for, besides the evacuation from the part, they excite pain and inflammation there, by which they powerfully relieve the parts first affected.

The want of sleep is a distressing symptom, increases the general irritation, and

exhausts the strength. It is a never failing attendant on all catarrhal fevers. There seemed to be no objection against the exhibition of opiates. They were given, and found to promote sleep. I once gave Tart. emet. gr. fs. laud. liq. gtt. xx. at bed-time; but the patient passed a bad night.

For the cough, a mixture of the mucilage of gum Arabic was used, without any acid, in which state it is more softening, and corrective of acrimony. By too great attention to the palate, in mixing lemon juice with the mucilage, we hurt the qualities of this medicine. Blisters to the back always relieved this complaint.

The head-ach was a severe symptom. Blisters applied to the temples never failed to relieve it. They were as efficacious in this fever as in the typhus.

S E C T. IV.

Febris Puerperalis.

Hippocrates has very well described this fever of lying-in-women. A distemper so
fatal

fatal to them, met with little attention till of late, when the morbid body has been much inspected. Though nearly uniform in its symptoms and appearances on dissection; yet, perhaps, no disease is at present less understood. In the clinical ward we can seldom have such patients. But, in spring 1774, while the lying-in-ward was purifying, two patients were sent to us. As such cases are not very common, and as five died in the lying-in-ward, we shall give a particular account of those two cases.

Jean Reid and Margaret Myrtle were affected so much alike, that we shall treat of them together. But as the former had the symptoms most distinct, we shall chiefly describe it, and mark what difference there was in the latter.

March 4, 1774. Reid, 23, delivered of her third child, was taken ill on the 2d day after delivery. February 21. Myrtle, 21, delivered of her first child, after a tedious labour of four days, attended with much flooding, was seized on the 12th day. Authors have remarked, that this disease comes on from the 2d to the 12th, which our cases shew; and that the sooner it ap-

pears, the more dangerous it becomes, which is likewise verified in our patients. Coldness and shivering attended the attack in both. Both were seized with head-ach in the beginning. This symptom preceded the complaints in the abdomen, in all that were affected with this fever in the lying-in-ward. Reid was not seized with nausea and vomiting of bilious matter till the 3d day of the fever. Myrtle, from the first, had nausea, and frequent efforts of vomiting, but threw up nothing. Reid was at first costive; but at last a diarrhoea came on, with faeces of a natural colour. But Myrtle had from the beginning a diarrhoea, attended with blood and tenesmus, which latter symptom continued long after the former left her. This diarrhoea is always symptomatic. It has been observed, that looseness comes on when the vomiting ceases, which happened in Myrtle. This fact, with the quantity of bile which is evacuated both ways, makes it probable that the diarrhoea is owing to bile.

Reid complained, from the 1st day of pains in the stomach, and across the belly
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and loins ; on the 2d, of pains in the lower part of the abdomen ; on the 3d, of pain in the region of the uterus, and of swelling and fullness of the belly ; on the 4th, the region of the uterus, especially on the left side, was swelled, and sore to the touch, and a pain was felt stretching down the thighs and legs ; and on the last day she had pains in the legs only. Myrtle had pains in the thorax, affecting her breathing, and in the stomach and belly, especially when pressed ; so that she could not lie so well on either side, as on her back. She complained of great pain in the thighs, especially when she drew up her legs. Even on a relapse, the pain of her stomach and belly, which had gone off, recurred again with the fever, which seems to show, that they do not arise from a fixed cause. The belly generally swells on the third and fourth day ; and if it does not fall when the diarrhoea comes on, it is thought a mortal symptom, as the tumefaction must arise from air contained in the cavity of the abdomen, and not in that of the intestines.

In both there was great thirst, with a white and moist tongue. Reid had a deep crimson

crimson colour on her cheeks, which was also observed in most of those who died in the lying-in-ward; but Myrtle had it not. This symptom is reckoned, especially if attended with livid lips, and a wild countenance, a fatal sign: and this case confirms the observation. Both had constant inclination to pass urine, which they were unable to do. This symptom cannot be any distinguishing mark of this disease, as it so often follows difficult labour.

Reid's pulse was from 130 to 146; and on the fifth day it was 160, Myrtle's pulse was from 120 to 126, and on a relapse it was 156; yet she recovered. Dr. Leake fixes the quickness of the pulse from 90 to 137. The former patient's pulse was much above that degree. But this must depend much on the irritability of the body. In both, the pulse was weak and soft. But this is not always the case, although it generally happens. I once found the pulse, in this disease, so strong, that it required two bleedings.

Reid had a dry burning heat of her skin; Myrtle had frequent cold fits, after which a dry heat came on, succeeded by sweating.

ing. These cases prove the observation of authors to be true, that a dry is worse than a moist skin. In both, there was a great degree of weakness; no sleep, even when opiates were given; and a cough, which was very severe in Myrtle; but no pain, swelling, or secretion of milk in her breasts. There is no wonder that a fever, attended by such great evacuations, should hinder that deposition, which appears critical.

Reid had the lochia in small quantity; and they stopped on the third day. Myrtle had also a stoppage of that discharge; but then her fever began on the 12th day after delivery. The lochia are not always suppressed, though the disease has been attributed to that cause. Of five in the lying-in-ward, in three there was no alteration; in the rest only a little diminution of that discharge.

Reid had on many parts of her body small red tumors under the skin, moveable and painful; and, on the last day, the back of her right hand was swelled and red. These appearances were uncommon, and not mentioned by any author. Myrtle had a swelling, and severe pain in the left elbow-joint.

These,

These, perhaps, were attempts to some critical deposition.

The crisis happens between the 5th and 11th day. Reid died on the 6th, on which day no pulse was felt, breathing very quick, and tongue dry; and yet she was distinct, had no pain, and no moisture on her skin. All those who died in the lying-in-ward, for several hours, and some for several days, preceding their death, became easy, felt no pain, and thought themselves better; but the pulse was quicker, and, as in ours, could not at last be felt; the face was flushed, and the breathing was laborious. These symptoms show no appearance of internal mortification, which is always attended by a general sweat. When they recover, there is no perfect crisis. On the 10th and 11th days of the fever we found Myrtle much better. She recovered after this for three days; but, on getting out of bed, and combing her hair, she relapsed, had delirium, head-ach, and a pulse at 156. After she began to recover, her vision was not distinct, and the pupil was much dilated. Her menses appeared a month after her delivery,

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On examining the body, appearances are found as similar as the symptoms. In Reid, the uterus was not inflamed, and not contracted, as it was found by Dr. Hulme. The os tincae was of a deep livid colour, but not mortified; and it had the same appearance in those who died in the lying-in-ward. The left ovarium was indurated and covered with a whitish film, as is sometimes seen on the surface of the lungs, or other viscera after inflammation. The liver, especially the posterior part, was a little inflamed, and covered with the same film. The gall-bladder was much distended with bile. The cavity of the abdomen contained about two pounds of a fetid milky fluid, thicker than serum, with some blood, and curd-like matter, or filmy substances in it. In one of those who died in the lying-in-ward, there was no fluid found; in another, it approached to a purulent state; in the rest, it was sanious; Dr. Hulme mentions fetid air and pus; Dr. Leake, a purulent fluid. The intestines adhered to the peritoneum; and all the intestinal canal, especially the small intestines on the left side, were a little inflamed:

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The intestines of all those who died here at this time, had a similar appearance. Jussieu, in the Memoirs of the Academy of Sciences for the year 1746, Pouteau, Hulme in six dissections, and Leake in many, observed this. The omentum was a little inflamed; but no suppuration was seen in it. Dr. Hulme says, that the intestines and omentum were inflamed and mortified; Dr. Leake, that the omentum was not only suppurated, but often consumed. Nothing like this appeared in the others opened here, except a slight inflammation, especially on that side next the intestines. There was found more fluid in the pericardium than ought naturally to have been; but no symptom seemed to arise from this, and the pulse never intermitted.

Having related the facts, let us proceed to consider the proximate cause, about which there have been many various opinions; but they may be all reduced to seven; stoppage of the lochia; inflammation of the uterus; translocation of milk; inflammation of the intestines and omentum; suppuration of the omentum, and puru-

purulent matter in the abdomen ; infection ; and a state of the air favouring the production of an epidemic disease.

Hippocrates, and most authors, have attributed the puerperal fever to a suppression of the lochia, having observed that evacuation was generally diminished or stopped before, or during this fever. This opinion was the more natural, as they believed the lochia to be of an acrid nature. To this opinion, it may be objected, 1. That the lochia are not acrid, but pure blood, such as circulates through the body, and runs out after the separation of the placenta, whose absorbing vessels convey chyle or blood from the uterus. There is no proof of acrimony ; and, although it existed, it could not excite fever so soon, or prove so mortal. 2. The lochia are often diminished, when no fever succeeds. 3. The lochia often continue for two or three days after the fever has begun, as in Reid. In all the patients in the lying-in-ward, the lochia were little altered in quantity. 4. Myrtle's fever appeared on the 12th day after delivery, when
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the lochia must have contained but little blood ; at least, none acrid.

Most authors have attributed this disease to an inflammation of the uterus ; and no wonder, as, in both our patients, pains were felt about that organ, and down the thighs. It was natural to think, that the fever arose from the part which seemed most affected. But strong objections arise against this opinion. 1. This disease and the Hysteritis differ in their symptoms, degree of danger, and cure. The pain in the hysteritis is about the uterus and thighs only ; but here it was about the stomach and intestines. In the former, the body is bound ; in the latter, loose. The former is less dangerous, and cured by bleeding and fomentations, by which the latter is not. 2. When it proved mortal, a gangrene would generally happen, and be discovered, which is not the case. 3. No inflammation of the uterus was found, on inspection, by us, and seldom by any other person.

Baron Van Swieten has attributed it to a translocation of the milk. But, 1. The milk fever appears on the 3d or 4th day ;
but

but this fever, from the 2d to the 12th day after delivery: 2. If this was the cause the symptoms would be milder: 3. It would be often attended with plethora, which is seldom the case: 4. Wet-nurses would be subject to it: 5. Many women, who have had little or no milk, have escaped; and many, who have had milk in sufficient quantity, have been seized with this fever.

The most recent opinion is, that it arises from an inflammation of the intestines and omentum. This Dr. Hulme published as his discovery, although Dr. Leake afterwards claimed it, as first mentioned by him. But Pouteau, in the *Melange de Chirurgie &c.* described, in the year 1750, those appearances, in a fever that attacked lying-in-women between the 5th and 15th day after delivery; in which, his dissections showed the omentum thickened, suppurated in several parts, and fixed to the intestines; the intestines inflamed, and adhering to one another; and the uterus swelled, inflamed, and often gangrened. Jussieu may, perhaps, have a prior right, who described the intestines inflamed, in

the Memoirs of the Academy of Sciences for the year 1746. But, notwithstanding these observations, it seems not owing to an inflammation of the intestines and omentum. Because, 1. It must have been, in that case, attended with more pain and vomiting than our patients had. 2. In the inflammation of the intestines, the pulse is always weak. But, I have more than once met with a strong pulse in a puerperal fever. 3. The intestines would have often been found mortified, as in an inflammation of these parts. But in none here was there such an appearance. 4. What inflammation we saw, or was found in the others who died here, was not sufficient to produce such mortal symptoms. 5. Bleeding would be the chief remedy, which it is not, if this were the cause. 6. An inflammation cannot be the necessary consequence, according to Dr. Hulme, of the pressure by the foetus for so long a time; as, in that case, the pregnant would be equally subject to this disease; against which cause the author of Nature has certainly made ample provision. This inflammation, mistaken for the cause, seems to be the effect
only

only of their situation and fever. The vessels of these parts must always be more full after delivery, as the blood will rush into them after the compression from the foetus is taken off. Besides, the irritation of acrid matter in the abdomen, and acrid bile in the intestines, must inflame those parts.

Dr. Leake, besides inflammation, has supposed the putrescency of a purulent fluid, from a suppuration of the omentum, which putrid fluid being absorbed, in his opinion, produces a purulent fever, and increases the acrimony of the bile. But, 1. No suppuration of the omentum was discovered in Reid, or in the others opened here. 2. The omentum cannot inflame and suppurate in one day after delivery; yet women are seized on the 2d. 3. If absorbed pus were the cause, the symptoms would be very different, and the disease slower in its progress, as in the purulent hectic from the phthisis pulmonalis, empyema, &c. When such fluid is collected, it must, however, add to the severity of the symptoms.

It has been thought to arise from infection. I shall state the arguments that occur to me on both sides. Those against it are, 1. When this fever prevails, those delivered in their own houses, who are not exposed to infection, are nevertheless subject to this disease. But none in private houses were, in Edinburgh, at that time, seized with it; and nurses may always be supposed to carry it from one house to another. 2. Distress and anxiety of mind, alone, are found to occasion it. 3. Other women delivered, and nurses, though in the same ward, are often not infected, which ought generally to happen. 4. Patients, who assist as nurses, are not infected before, but after delivery. 5. The time from delivery to the commencement of the fever, is often too short for the effects of contagion to take place, as the fever sometimes appears the 2d day.

The arguments in favour of infection are, 1. This fever has been long observed to prevail, in a greater degree, and to be more dangerous, in hospitals, than in private houses. In 1746, at Paris none recovered. In the hospitals at London, during
January

January and February 1770, it was epidemic, and fatal to many. It is more fatal in small hospitals than in large. In the first hospital at Manchester, which was small, there died one of eighteen; but, in the present, which is larger, one only died out of twenty-four. 2. It has been remarked, that women delivered among wounded men do not recover. 3. From the regulations and method observed by Dr. Young, in the lying-in ward, very few deaths have happened since it was opened. Yet five died, in a short space, at this time. The midwife, and one of the nurses, were seized with fevers, of a different kind indeed, as in these two there was no vomiting or purging; but still their disorder was suspected to arise from infection. Reid had been in the house for three weeks, and lay in the room with one who died. 4. Dr. Young, after these deaths, thought it prudent to purify the wards, by ventilation, cleaning, white-washing, &c. after which this fever totally disappeared, and has never since that time occurred there.

The last opinion, in favour of infection, appears to me to be the strongest. Is

it of the erysipelatous nature, as Pouteau thought? This appears probable, as, 1. This fever has much the appearance of the erysipelas, from the sensation of internal heat, from the quickness of its course, &c. 2. Purgatives and camphire are found successful in it, as in the erysipelas. 3. Reid had small tumors on the skin, which seemed to have some resemblance to the erysipelas, and were perhaps partial attempts of nature to produce it externally. 4. The erysipelas, at that time, was epidemic in the Infirmary; and, beyond all doubt, infectious, though it was never before thought to be so. For the patients, in the beds next to those who had the erysipelas, and the nurses attending them, were infected; and the surgeons of the hospital found, that an erysipelas supervened on every incision.

That there may be some preceding epidemic state of the air, favourable to the production of this fever, is not improbable; as, 1. It is thought to happen at certain periods. It is a vulgar observation, that it occurs once in seven years. 2. At certain times it rages equally in hospitals, and private

vate houses. What that state of the air is, cannot easily be ascertained. Dr. Leake thinks that moisture is favourable to its production. But our season was dry; and it appeared after a long frost. It seems peculiar to certain situations, as Mr. Brydone says, that none die of it in Sicily; but many in the hills of Switzerland.

There are many circumstances in the puerperal state, that render the body, at that time, more susceptible of miasmata or infection. 1. Women are, in such a situation, particularly anxious. Hence, the unmarried are most subject to this fever. 2. The nervous system is in an irritable state. Some parts have been much stretched, some much compressed, during the preceding months. The pain and irritation at delivery are so great, that it is often attended with delirium. Hence a spasmodic state is easily induced. 3. The body must be in a strongly absorbing state after delivery, from the loss of blood, and the removal of pressure. 4. The fluids are in a more acrid state than usual. The body has been more bound, and therefore more acrid particles are absorbed from the

primae viae. The constant quickness of pulse must have generated a greater quantity of these acrid particles in the blood. All of those formed by the foetus, as it performs no excretions, must return to the mother. 5. The bile becomes more acrid from the acrimony of the fluids, and more plentiful, from the blood, after delivery, rushing into the vessels of the intestines. Hence the gall-bladder is always found full of bile. To its redundancy and acrimony, are probably owing nausea, bilious vomiting, pains in the stomach and intestines, diarrhoea, and inflammation of those parts. 6. The milk fever, which supervenes on the 3d or 4th day, must, in such a state of the body, excite a more dangerous fever. 7. The purulent putrid matter found in the abdomen helps to bring on a fever, which has much of the putrid appearance, as the pulse is so low in general, and accompanied with such weakness, so much bile, such wildness in the countenance, &c. This putrid fluid does not arise from the suppuration of the omentum and intestines, as it was seen in our patients, where there was no suppuration, but from a stagnation of
of

of fluids in these parts during the last weeks of pregnancy, by which there is more lymph, and perhaps of greater viscosity, secreted, while absorption is diminished. The coagulable particles found in it show its origin, and that it neither arises from suppuration, nor corruption of the viscera. It is from this lymph that the preternatural coats of the uterus and liver are produced; and from this pus will be formed, and afterwards, during the fever, putrid matter. From these reasons, a slighter cause in the air, or less contagion, must more powerfully affect women at this, than at any other time.

In the cure of this disease, authors, who have treated of it, are divided in their opinions.

1. As to bleeding, they differ widely; and each draws arguments for his practice from his own theory. Those who affirm that an inflammation of the uterus and intestines is the cause of the disease, as Dr. Hulme and Dr. Leake, advise this evacuation, as rendering the circulation through the vessels easier, diminishing the secretion of bile, obviating the plethoric habit of body

body in those who do not give suck, and as being the only cure for that inflammation, which must precede suppuration. Those, again, who accuse putrescency, or putrid bile, as Dr. White, are against bleeding; and say, that it diminishes the lochia, sinks the pulse, which is always weak, and forwards putrescency. As practitioners are of such different opinions, we may conclude, that bleeding is sometimes good, sometimes bad, according to the state of the body, and the strength of the pulse; and that it never is a cure for the disease, but sometimes, though seldom, it may be necessary to remove a plethora. Of this the following case is an instance. A young Lady, 26 years of age, of an inflammatory habit, and who was not bled during her pregnancy, next night after the delivery of her first child, was affected with feverish symptoms, which increased, though she sweated well, and discharged plentifully. On the 5th day after delivery, her pulse was strong; and nine ounces of blood were taken from her arm, which was fizy. On the 6th, her skin was hot and dry; but the lochia went on well. At 4 P. M. she

she was seized with a violent feverish fit, and felt an uneasy burning heat within her. Her pulse, after this, was 140, and weak. She died the same night. As the pulse in none of our patients was strong, I therefore did not bleed; and in those who were bled in the lying-in-ward, it was observed, that the pulse sunk after the bleeding, though the blood appeared to be fizy.

2. Vomits, especially of emetic tartar, are recommended, where there is much bile. When that is the case, it may be proper to assist Nature in her endeavour to relieve herself from that load. But when there is no redundancy of bile, I see no good purpose emetics can serve. It was not from any acrid matter in the stomach that Myrtle had such vomiting. Reid had it not in the beginning; and that symptom in Myrtle had already ceased; so they were not vomited. If the vomiting is severe, Dr. White recommends colombo root. The saline draughts, in an effervescent state, may also be used.

3. Dr. Denman first proposed to cure this disease by laxatives and clysters. He recommended the sal catharticum amarum, castor

castor oil, or emetic tartar in the quantity of one fourth of a grain given frequently so as to purge. Dr. Hulme confirmed their use, as necessary to carry off the compressing faeces, to abate the inflammation, and to relieve the head-ach as the diarrhoea points them out and as they do not stop the lochia. Those of an opposite opinion will say, that purgatives are not good in putrid fevers, and that the diarrhoea is symptomatic only, and does not relieve. But, as laxatives are recommended as the only effectual cure, we tried that method with the *sal cathart. amar.* given to both patients every day, in such doses as to keep the body loose. The salts had no effect on Reid the two first days, and I was obliged to order a clyster on the second, which operated twice. They had a gentle effect on the third and fourth; but the looseness supervened on the fifth day of the fever, and on the next day she died. Here they had no success. Myrtle took three doses of the *sal catharticum amarum*, to the quantity of half an ounce each, which operated well, and she recovered. So that, from these two cases, it cannot yet
be

be determined, whether purgatives are useful or not. It is observed, that, in this disease, the intestines are very irritable, as acids and neutral saline julaps bring on a looseness. The contrary, however, appeared in Reid.

4. Opium was first used after delivery by Chamberlane, and first published by Deventer. Opiates are recommended by all authors, to diminish the irritable state of the nerves, to give sleep, and produce moisture. But their good effects in this disease may be doubted, as far as we may judge from Reid's case, who took them every night at bed-time without any advantage; and they did not seem to contribute to Myrtle's recovery. In both inflammatory and putrid cases, they must probably be hurtful.

5. Diaphoretics and gentle sudorifics are recommended. Dr. Leake proposes one third of a grain of emetic tartar, along with an opiate, to be given often; but this diaphoretic has been seldom used of late in this fever.

6. Pouteau found camphire to be successful, when given, at first, to the quantity

tity of fifteen grains, and in smaller doses afterwards, and often repeated. We gave ten grains of it to Myrtle after she relapsed, when her pulse was 150, and repeated it every eighth hour. After the two first doses she fell into a sweat, and her pulse next day was 100. After this she recovered.

7. Dr. Hulme recommends blistering. Dr. Leake, on the contrary, says, that it is hurtful, as it inflames the tender uterus, and increases putrefaction. Blisters were tried in the lying-in-ward. They relieved the local pains; but were of no use in the cure of the fever.

8. Dr. Gilchrist recommended the warm bath, as he imagined that the disease was owing to an inflammation of the uterus. Dr. Leake says that it does not answer. We tried it with Reid, and she was in the semicupium for a quarter of an hour. After it, she slept four hours, and calmly, which was a good effect; but it produced no moisture of her skin. It was used, perhaps, too late, as she died next day.

Bark was tried, in clysters, in the lying-in-ward; but without success. Wine was found likewise to be of no use.

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From the above cases, and from all that has been yet written on this subject, we may, with great truth, conclude, that we know little of the theory, and still less of the cure, of the puerperal fever; and that our chief aim, therefore, should be to prevent this disease, which may probably be done by a proper ventilation of the rooms, by not allowing the curtains to be shut, by discharging all fire, and load of bed-cloths, by giving cool drink, by abstaining from all animal food, unless in nervous habits; and by avoiding, after delivery, all strait binding over the belly.

S E C T. V.

Morbilli.

The measles were epidemic in Edinburgh in spring 1778; and though, in general, they were of a mild nature, yet I had, in the clinical ward, one mortal case, which, from the symptoms, the inefficacy of the remedies employed, and the dissection, affords much instruction. Till lately the cure was little understood. I was puzzled 26 years ago, what to do in the most dan-

gerous circumstances of this disease; and the cure of it is still capable of some improvement.

February 27, 1778. Elizabeth Craig, 24, of a habit rather full, and a wet nurse, exposed herself to the infection of the measles, on the 14th of February. She was seized on the 21st, the seventh or eighth day after this. I had before, in general, traced its appearance to the sixth day from the infection; and, on that day, the symptoms were first observed in the inoculated. But they probably vary a day or two. In the small-pox they are seized, generally, from the 7th to the 11th; so that in them the virus spreads somewhat slower in the habit, than in the measles.

She had complained, during the first stage or primary fever, of "alternate hot and cold fits; pain of her back and legs; head-ach; pain of her stomach, and vomiting; severe cough, which was mostly dry, but sometimes attended with a little viscid expectoration; great watering of the eyes; swelling of face; bad taste of her mouth; frequent sneezing; and much thirst."

What the effect of this stage is, whether critical, salutary, and to be encouraged; or whether assimilative, hurtful, and to be checked, is a question not intirely speculative. Many arguments may be adduced on both sides. But, certainly, the practice founded on the latter opinion has succeeded best in the treatment of the small-pox. It is not yet, however, ascertained by experiment, whether extreme cold agrees with the measles, as with the small-pox. Whatever checks the feverish state in the latter, as keeping them much out of bed; exposing them to the coldest air, and in the worst weather; and giving them cold drink, has been found most successful. This treatment diminishes the number of pustules, and promotes, instead of retarding, the eruption. But, whether it will do the same good in the measles, which is rather more inflammatory, and so liable dangerously to affect the lungs, may be doubted. Besides, in the small-pox, when there are few pustules, there is less suppuration, and less absorption; but neither take place here. Experiments alone can decide; and we were as much surpris'd at first, when cold

air was introduced in the treatment of the small-pox, as at present, we may be when proposed for the measles.

The measles are similar to the small-pox in several circumstances. Both have their origin from the same country; both exanthematous; both regular in their stadia; both of an inflammatory nature; both disagree with the hot method, and agree with the antiphlogistic. The eruptive fever, in the measles, shows stronger marks of inflammatory disposition than the same stage of the small-pox; as there is in the former more cough, more heat, and the eyes are oftener inflamed. These symptoms point out clearly the antiphlogistic method of cure. 1. Bleeding makes the most important article of that treatment. It is surprising, that so few authors recommend it in the first stage. Sydenham, who considered this disease as highly inflammatory, never mentions it; not even to prevent the peripneumony; yet it is, at least, as necessary as in the small-pox. It is never ordered by physicians, unless some violent symptom appears. But the present case will convince us, that it generally ought to be used,

used, as a means of preventing or alleviating bad symptoms. 2. Keeping the body open, in this stage, and thro' the whole disease, which we endeavoured to do by clysters, seems equally useful. Gentle laxatives appear more necessary here than in the eruptive fever of the variolae, as they promote a derivation from the lungs, and carry off some of the morbillous matter. 3. In this case, after the patient came into the hospital, the room was kept cool; no fire was allowed; and a little of the window was kept open, although it was then the middle of winter. The drink was cold, and the diet low.

“ On the 6th, the eruption appeared on the face. On the 7th, she came into the clinical ward. At noon, her pulse was 116; at night it was 100. The eruption was now seen over all her body, but especially on her face. She sleeps ill; has some difficulty of breathing; no moisture on her skin; her body is bound; and her urine is less in quantity, and high coloured. 8th, pulse 108 in the forenoon, and in the evening 90, and of natural strength. More eruption appears on her arms. Cough and

head-ach easier; but she has a little pain of her breast. Skin moist. Drought less. Her milk is disappearing." This is the stadium of eruption.

To observe the time of eruption, is of moment in the prognosis. Diemerbroeck has remarked, that the disease is always milder, when the eruption happens on the 3d, than when on the 5th day. This observation is just the reverse of what has been made in the small-pox, and is confirmed by the present case, where the eruption happened on the 6th, and it was mortal; and, by another patient formerly in the clinical ward, where it happened on the 5th, and the case was attended with much danger. The eruption is seen first, and in greatest quantity, on the face. The parts which perspire most, as the groin, ham, glans, &c. seem to have least of it. I never observed any on the tongue or palate.

In our patient, the vomiting and cough abated on the appearance of the eruption; but I am not sure with regard to the state of the fever at that time, as on the 7th day, when she came in, her pulse was 116.

In the favourable cases, the fever, and other symptoms, diminish; in the unfavourable, they always increase.

On the 1st and 2d day of this stage, no moisture appeared on the skin; but a little on the 3d. A moist skin is always a good sign, as it shows general relaxation, and frees the internal parts. Here, as in the small-pox, much goes off by the cutaneous excretion; and in both diseases there is a peculiar smell. A purging, along with the sweat, is favourable, as it carries off part of the morbillous matter; but here the body was bound.

The urine was in small quantity. I have often seen a total suppression of urine, not from any fault in the bladder, but of the kidneys.

Why is there no suppuration here, as in the variolae? The only answer is, that such is the nature of the disease. Perhaps the acrid matter lies here above the membrana adiposa, where, in the small-pox, it seems to be lodged; perhaps as it lies, even above the cutis, and is not sufficient to raise there such a degree of inflammation as to burst the perspiratory vessels,

vessels, which the erysipelas and cantharides do. Hence, it is surprising, that these two diseases should ever have been by authors considered as the same.

Our attendance on this patient began only on the 2d day of this stage. Though bleeding is forbid by authors during the eruptive stage, yet I have long been convinced of the impropriety of this rule. All eruptions go on better with a moderate than with too strong a pulse. I have often bled in the beginning of this stage, and always found the eruption increased, not diminished, by it. If any signs of plethora had been discovered, bleeding would not, at present, have been omitted. But there appeared no pressing indication; and an attention to preserve her milk, about which the patient was anxious, had some small influence. I must own, such temporising, and often frivolous reasons, prevail too much in medicine.

“ The third stadium, or that of exaref-
cence, which generally begins on the 6th,
did not happen until the 9th day. The
pulse in the morning was 96, and soft.
Eruption on the arms retiring; but rather
more

more plentiful on the face. The cough was increased; and some pain was felt in the breast. Fiat venæsect. ad unc. viii. Blood in a natural state & Rad. alth. unc. i. coq. in aq. font. lib. iii. ad lib. ii. & cola. cap. unc. iv. 3tia quaq. hor. Hor. 7ma, P. M. pulse 76. On the 10th, hor. 10ma, A. M. pulse 72, and soft; but at night, 92. Cough easier; pain of the breast gone; eruption still appears on the face, but not on the body. 11th, Pulse 100, at night 92. Nausea, oppression about the region of the stomach, severe head-ach, and her left eye inflamed and painful. Applicent. hirudines No. iii. temp. Injiciat. clyfma. 12th, Pulse the same. Cough and head-ach. Applic. emplast. epispast. terg. 13th, Pulse 100, in the morning, 92 at night, and soft. Blister discharges well. Inflammation of the eye, head-ach, and cough easier. Oppression and anxiety of stomach still continue. 14th, Pulse 104, and soft. Slept ill, from a constant tickling cough. Hor. 3tia P.M. breathing laborious; great anxiety; cheeks red; pulse 132, and soft. She was bled twice that afternoon. Blood has

a thick fizy coat. Breathing relieved, for a little, by each bleeding. She got a solution of emetic tartar. After the second dose, she vomited and purged thrice. Her breathing became easier, the expectoration was in considerable quantity, and she slept an hour. Applic. empl. episp. later. 15th, Hor. 4ta, A. M. breathing more difficult. Rep. venaesect. ad unc. vii. Blood in a natural state. Breathing and expectoration easier. Inspiret vaporem aquae calidae. Hor. 12ma, pulse 160, and weak. The vapour was continued for half an hour, seemed to relieve her breathing a little, and a general moisture appeared, which still continues. Breathing at present laborious, and somewhat convulsive. Expectoration plentiful, thick, and yellow. Urine passed insensibly. Hands tremble much. Eyes inflamed. Face and cheeks pale. Eruption still to be seen on the face. Tongue white and clammy. Thirst considerable. Applic. cucurbit. sine ferro statim later. & postea fatus later. R Pulv. Jacob. gr. xii. conf. ros. q. s. fiat bol. cap. statim. Injiciat. clysm. ex aq. tepid. unc. viii. Applicent. sinapism. pedibus.

bus. Hor. 7ma, P. M. pulse 150, and weak. Shoulders much raised in respiration. Expectoration difficult and diminished. Lips pale and dry. No pain. Died at 10 P. M.

When her body was opened, the trachea was found filled with matter of a purulent appearance; but no preternatural membrane, or ulceration, were seen. The internal membrane of the trachea was much inflamed; but no eruption or pustules were found upon it; nor was it preternaturally thickened. On cutting into the substance of the right lobe of the lungs, a considerable quantity of blood flowed from the incised vessels and cellular membranes; and some of the smaller ramifications of the bronchia emitted the same purulent matter before-mentioned. On cutting the left lobe, the blood-vessels were much less filled with blood; but the smallest visible ramifications of the bronchia seemed every where filled with purulent matter. The lungs had no adhesions, and externally were of a natural colour. About two or three ounces of water were found in the pericardium. Abdominal viscera natural.

From

From this case, the following reflections arise :

1. In the third stage, many uncommon and unfavourable symptoms appeared. It did not begin till the 9th day; whereas it usually commences on the 6th. I suspect that the later the exarefcence, as well as the eruption, fo much the worfe. The latter happening late, muft make the former fo too. The puftules continued longer on the face than on the body and arms, which is not common. The body was always bound; but, to have enabled us to form a favourable prognoftic, it fhould have been open. The fkin was always dry, whereas it fhould have been moift. A conftant fevere tickling cough, and no fleep. Severe head-ach, and inflamed eyes. The pulse quickened on the 2d night of this ftage, though fhe had been bled the day before. All thefe portended danger.

2. The fymptoms in the third ftage appeared to be very fimilar to thofe of the peripneumony, as dull pain in the breaft, difficult breathing, fevere cough, thick and yellow expeftoration, hoarfenefs, cheeks flufhed, eyes inflamed, foft pulse, and fizy blood.

blood. Indeed, it resembles a peripneumony so much, that there can be no wonder that authors consider the measles, when ending fatally, as terminating in a peripneumony. Still, however, they seem to be different. In all the mortal peripneumonies which have occurred to me, the blood had the fizy crust to the last; but the blood taken from this patient, towards the latter end of the disease, had it not. On dissection, no inflammation or hard congestion was discovered in the substance of the lungs of our patient, which is always found in mortal peripneumonies.

3. Though the symptoms seemed to point out a topical pulmonary affection as the cause of her death, yet dissection does not warrant this opinion. The inflammation of the internal membrane of the trachea; the plethoric state of the pulmonary vessels; the purulent matter in the bronchia, which must have been formed from mucus collected in them, as there was no ulceration; and the hydrops pericardii, the only appearances found on dissection, seem not to have been the cause of her death, but rather the effects of the
dis-

disease. The collection of purulent matter, no doubt, aggravated the symptoms; but then the danger took place, probably, before that began. The fever appears to have been the mortal cause. This fever could hardly take its rise from cuticular absorption, as it must be small from such a dry eruption; but from a great quantity of morbillous matter remaining in the blood, after the eruption. Perhaps the stoppage of the milk increased the plethoric state.

4. When the peripneumonic symptoms appear, bleeding is allowed to be the principal remedy. Sydenham recommends it as the only one. "*Profecto haud paucos infantes, hoc statim symptomate enecandos, misso sanguine, eripui.*" Our patient was bled on the first day of this stage, as the cough had increased, and she had some pain in the breast. After bleeding, her pulse diminished 20 beats, in a minute, on that day, and the next, till the evening.

When the peripneumonic symptoms afterwards appeared severe, she was bled thrice. Each bleeding was attended with immediate relief; but it was of short duration.

ration. On the third bleeding, the blood was not fizy, and the pulse became weak; so we could proceed no farther in that evacuation. The dissection too, showed, that there was no inflammation in the substance of the lungs. After this, dry cupping was applied to the breast. Hence bleeding, the principal remedy, fails when the danger is great; and it will more easily prevent any danger in the first stage, than alleviate it in the third.

5. As natural purging is of such use during the exarefcence, the body was kept constantly open by repeated clysters. The emetic tartar purged her thrice. I have often given the infusum tamarindorum with success in this stage. Oleum ricini, appears to be a more eligible remedy, as, besides being purgative, it is also pectoral. Purging, as well as bleeding, ought to be pursued in the first stage, when the fever is considerable; the advantage of which practice, is evident from the following case. A young lady, of an inflammatory habit, who, at the beginning of the disease, was seized with very severe symptoms, was, in the first stage, purged frequently by a dose
of

of emetic tartar, and she had no fever in the third stage. Purgatives, and emetic tartar, may, perhaps, have as good effects, in the first stage of the measles, as of the small-pox.

6. When the symptoms began to appear dangerous, and the breast was more affected, on the 12th day a blister was applied to her back. The cough was easier after it. On the 14th, when the breathing was difficult, another was applied to her side. But, though it rose well, yet it had no lasting good effect. I doubt whether their advantages compensated their disadvantages.

7. On the 14th, when there appeared much expectoration, I ordered an ounce of the solution of emetic tartar to be taken every hour till it should excite vomiting. After the second dose, she vomited much, and purged thrice. The breathing and expectoration were easier afterwards; and she fell asleep. She got no more of the solution, as she could not bear much purging; and I was afraid lest it might stop expectoration, as purgatives do in the peripneumony. These two diseases appeared to me more allied at that time, than they

they do at present. Perhaps the vomiting might have been continued with advantage, from the quantity of purulent matter which we found in the bronchia, as that appears the only method to carry it off. She took two doses of James's powder, each consisting of twelve grains, without any sensible effect or advantage.

8. As the vapour of warm water drawn into the lungs, is found to be of use in the peripneumony, it was applied. The breathing seemed at first relieved, and a sweat appeared after it; but this symptom might be owing to the general debility. On continuing the vapour, she became faint. Some vinegar was afterwards mixed with the water; but it was to little purpose.

9. She had a fomentation applied to her breast, to relax the inflammatory state. It brought on a general sweat, and did no good.

10. Sinapisms were applied to her feet to rouse the vital motions, and to produce a derivation from the breast; but without any good effect.

This case affords many important instructions in practice: That we should at-

tend more to evacuations in the first stage, than we do; that cold air, cold drink, &c. so very successful in the small-pox, were not attended, in this case, with similar success; that the symptoms of danger do not arise from the inflammation of the substance of the lungs, but from some other cause; that bleeding does not always obviate the cause, though it is necessary to diminish the symptoms; and, that we need not be afraid that vomiting will prove hurtful, from its increasing any inflammation of the lungs, but may rather judge that it will be of use by aiding expectoration. Many other inferences will occur from this curious case.

S E C T. VI.

Experiments upon some Remedies used in the Phthisis Pulmonalis.

There is no disease more common here than plumonary consumption; and none, especially in its second stage of ulceration, is more incurable. The number of young ladies who die, in this place, of this disease, is very great; and surpasses, in my circle,

circle, those of the other sex. Their breast is much better covered at home; than when they go abroad; and their bodies, after being heated, are not so able to bear the cold as those of men. But it is otherwise in the lower ranks. Of sixteen phthifical cases, in my report-books, only four of them are those of women. Men of that station are more subjected to all irregularities, and every inclemency of the weather. Nor are those of middle age secure against its attacks, as is commonly observed. About the half of these patients are at least about forty years of age, and some of them are much beyond that period.

In a disease so general and so destructive, we ought to pay attention to every new method of cure, give it a fair trial, and from that judge of its merit. I propose, therefore, to collect some of these experiments made upon remedies lately recommended in the cure of the phthisis.

ACIDUM VITRIOLICUM.

The vitriolic acid, and the elixir vitrioli acidum have been much used of late, as

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I am told, in the London hospitals. It is the vitriolic acid alone, in the latter medicine, that is capable of producing any effects. De Haen has given us some cases, in which this medicine was successful. Hence, further trials became requisite to confirm or reject its use.

EXPER. I. November 29th, 1774. William M'Pherson, 30, a taylor, about six weeks before this, after exposure to cold, was seized with cough, dyspnoea, and frequent haemoptoe. Of late his expectoration has been free from blood; sometimes white, sometimes yellow; and swimming mostly upon the surface of water. He has some pain in his right side, and his legs swell in the evening. His pulse is soft, about 100, and much the same in the morning as in the evening. Sweats none. Much thirst. Appetite tolerable. As the matter here had vent, and as there was much mucus secreted by the lax glands, I thought it a favourable situation for the exhibition of this medicine. He began, therefore, on December 3d, with twenty drops of the elix. vitriol. acid. in four ounces of water, twice a day. He took at
bed-

bed-time Pill. Thebaic. gr. viii. each night. 7th, The drops were repeated four times a day. 10th, Each dose was increased to twenty-five drops. 11th, Thirst as great, pain of side the same, matter more yellow. A purging seized him last night. 12th, Pulse 120, purging continues. Cap. Pulv. Rhei gr. xxv. h. f. 13th, Still purging. The drops were suspended, and an astringent mixture was ordered. 15th, Purging gone. Repet. elix. vitr. gtt. xx. quater in die, & pil. thebaic. 21st, Pulse 108, hoarse. An eruption of red spots, which are above the skin, appears on his hand, each morning. 23d, Looseness returned. The elix. vitr. was given up, after using it for seventeen days, without benefit. The looseness appears to be owing to it, especially, as I find no mention, after this medicine was omitted, of any purging.

EXPER. II. February 16, 1778. John Laidlaw, 52, a waiter at the port, had laboured under pulmonary complaints for three years. Has a severe cough, with plentiful expectoration of a yellow matter. His pulse is between 80 and 90; and the

same at night as in the morning. He feels frequent cold and hot fits; and he has an obtuse pain of his breast. Vomits sometimes. 26th, R Mucil. gum. Arab. unc. fs. aq. font. unc. iii. spt. vitriol. ten. gtt. xxv. M. fiat haust. cap. ter. in die. Cap. pil. pacif. gr. viii. h. f. March 3d, repet. haust. addend. spt. vitr. gtt. xv. 6th, A severe looseness has attacked him for three nights, which made me give up the vitriolic acid. Expectoration is diminished in quantity; but it is as yellow as formerly. Here again it brought on a purging, which continued for several days.

EXPER. III. Feb. 28, John Cowie, 32, a labourer, a fortnight ago, after exposure to cold while he was sweating, was seized with cough, dyspnoea, diarrhoea, and a stitch in his right side, on which he lies easiest. Expectoration yellow. Hoarse. Pulse from 90 to 100, and strong. After some bleedings, where his blood was always fizy, and after taking a vomit, castor oil, and an astringent mixture, his looseness disappeared for two days. March 5th, R Mucil. gum. Arab. unc. ii. fs. aq. font. unc. v. fyr. alth. unc. fs. spt. vitr. ten. gtt.

c. M. cap. unc. i. 6ta quaq. hor. On the 7th, the looseness appeared again; so that the medicine was given up. He died on the 15th. On opening his body, the right lobe of his lungs was found to be entirely consumed; and there was nothing left but a large sack, which contained about seven pounds of a purulent matter, and with which the remaining bronchia communicated. The left lobe was found. In the pericardium, there were about six ounces of a clear fluid; and a little was also found in the abdomen. The upper part of the liver and diaphragm adhered together; and, when separated, a large abscess appeared, which contained about two pounds of a brown, fluid, and gelatinous matter, in which were some hydatides, and many films of others. There was no communication between this and the sack in the lungs, and the diaphragm only intervened. The internal surface of this cavity was in part ulcerous, in part horny, tending to an ossified substance. At the inferior edge of the liver there was a tumour, of the size of the hand, quite filled with hydatides, of various sizes and shapes, the

films of which were very thick, and so compressed, that each bore the impression of those contiguous. The internal surface of this sack was horny and white, but not osseous. The tunica vaginalis of the right testicle was dropfical.

From these three cases, two of which were perhaps rather unfavourable, no advantage was obtained by the vitriolic acid. But the first was as favourable a case as could occur for the exhibition of this medicine, and its effects in that gives me no great opinion of its utility. Its astringency and strong antiseptic power may sometimes correct the laxity of the solids, and the purulent dissolution of the fluids. But we find, that it strongly tends to promote purging, even though joined to the mucilage of gum Arabic, and accompanied with opiates. This is certainly a bad effect.

A L U M E N.

Monfieur Goddard recommends alum in the phthisis, to stop the purging and colliquative sweats, and correct the dissolution of the fluids.

EXPER. IV. William M'Pherson, Exp. I. took, at first ten, and then fifteen grains of alum, thrice a day, for six days. At the end of this period he was no better; and while he took it, his pulse seemed to become quicker; so it was given up.

I should expect no greater advantage from it than from any other astringent, that is, to diminish a looseness, when there is any. It does not appear to have any powers in curing the disease.

C O R T E X P E R U V I A N U S.

The bark has been recommended by several authors, and is at present used in this disease. But, as this is so powerful a medicine, we ought always to remember, that, when not useful, it may not be entirely innocent.

EXPER. V. Will, M'Pherson, Exper. I. to diminish the quantity of matter expectorated, was put on a course of it. On Jan. 1st, he took half a drachm of it, four times a day. 6th, Thirst greater; more heat in the soles of his feet; breathing more difficult. 10th, The fever during the night

increased. 15th, Difficulty of breathing much worse, and he sweated all night.

Thus it was tried for fifteen days; but all the symptoms were evidently worse. I have had several cases before, in private practice, some of which are to be found in the Medical Facts, of the bark not only being useless, but very hurtful, in this disease. In one case of a Lady, the paroxysm, instead of going off in the morning, as usual, retired about 8 P. M. Her disease, though with every other symptom of a phthisis, was thought to be an intermittent. She was advised, therefore, to take the bark. In a few days, the dyspnoea and cough were worse, which obliged her to give up that medicine. She died; and, when opened, many ulcers were found in the lungs. The natural effects of the bark, which is to bind the breast, might make us suspicious of its bad effects, in a disorder where a free expectoration is so necessary. I have always observed it highly detrimental in this disease,

A M Y L U M.

As starch is classed amongst the increasants and demulcents, it was natural to try it in the phthisis.

EXPER. VI. May 16, 1770. Alexander M'Laughlan, 60, after a fever, some weeks ago, was seized with severe cough, expectoration of yellow ill-tasted matter, stitch in his right side, on which he cannot lie, and a hot fit in the evening, preceded by chilliness, and succeeded by a sweat in the night-time; pulse 94, and rather weak. R Amyl. unc. i. aq. font. lib. i. coq. ad unc. xii. dein add. Syr. alth. unc. i. cap. unc. ii. 4ta quaq. hor. He had Tussilago tea for common drink, and an opiate at bed-time. 23d, Expectoration easier, and its taste not so bad. 28th, Expectoration has lost the putrid taste. June 3d, pulse 88, cough much abated, and sweats none. Sleeps well. 20th, Dismissed cured.

EXPER. VII. William M'Pherson, Exper. I. tried it for nine days, without much advantage.

EXPER.

EXPER. VIII. Feb. 9, 1778. Ephebia M'Glassan, 14, affected during a year with cough, expectoration, haemoptoe at times, and pain in her breast. When I saw her, the expectoration was white; pulse 90. She had been in the house for two weeks, and been bled, blistered, &c. and was rather easier. R Amyl. unc. fs. diff. in aq. font, unc. viii. fyr. alth. unc. i. M. cap. unc. i. 4ta quaq. hor. An issue was put between her shoulders. 20th, Complaints gone, and she was dismissed cured.

This remedy seems to have some beneficial powers in this disease. It did not succeed in Exper. VII. where much mucus was secreted from a laxity of the glands. It will be most useful when the expectoration is thin, in small quantity, and attended with much tickling in the trachea and fauces.

MEPHITIC AIR.

This has been recommended by Dr. Priestley and others; and some cases of its success, in changing the putrid nature of the expectoration, have been published by them.

EXPER,

EXPER. IX. Feb. 24, 1774. Robert Dunbar, 30, has been for some months affected with phthisis, attended with much yellow and saltish tasted expectoration. March 10th, Mephitic air, generated from chalk and the vitriolic acid, was, by inspiration, drawn into his lungs, and the application continued for a quarter of an hour this night. He felt no other effect from it, but that of a sharp taste. 11th, During a severe fit of coughing this evening, the mephitic air was applied at 5 P. M. but the coughing lasted till 8 P. M. 17th, Defluxion less yellow; much eructation follows the mephitic air. 26th, Defluxion less yellow, and in less quantity. Complaints easier; and he was dismissed at his own desire. This patient seemed to gain ground while using the mephitic air; but he was taking, at the same time, a starch mixture and opiates.

EXPER. X. March 15. John Stewart, 20, for three weeks past has been affected with cough, a defluxion which is very yellow and of a saltish taste, pain of his side, head-ach, and vomiting. Pulse 120, and weak. He had a vomit, an opiate each night at bed-time, and

and an issue was put in his side. 18th, Began the use of the mephitic air for a quarter of an hour each day. 25th, Matter expectorated neither so yellow, nor so bad tasted as formerly. Pains in his breast easier, and breathing better. 28th, Expectorated matter is much diminished in quantity, does not sink in water, as it used to do, and is less yellow. April 8th, recovered his smell, which he had quite lost; says the mephitic air produces a nausea. 21st, All complaints better. Dismissed on the 25th. A share of this cure may justly be attributed to the mephitic air.

EXPER. XI. William M'Pherson, Exp. I. after the first application of the mephitic air, felt himself sick and faint. The 2d day, about two hours after using it, he was seized with dyspnoea, giddiness, and fainting. His pulse, before using it, was 112; after it, 108. Though I could not say that these effects certainly arose from the application of the mephitic air, as they should have appeared at the time, and not two hours after, yet I deemed it prudent to desist.

EXPER.

EXPER. XII. John Laidlaw, Exper. II. tried the mephitic air for a few days. He felt the vapour warm in his breast; and it had a sour taste. But he seemed not to be relieved by it, though he continued to use it for about twelve days.

From these experiments, mephitic air appears sometimes to be of use. It may act, 1. Directly on the purulent matter, and mitigate its acrid nature. This the two first experiments, and those of Dr. Priestley, show. 2. It may be absorbed into the vascular system, and correct the effects of pus after it is absorbed. The 2d case gives us some reason to think so. 3. It may affect the nerves and vessels of the part, and of the whole system, as it appears to be an excellent tonic medicine. Many of the German waters, and especially those of Seltzer, are much used in consumptions; and they owe almost all their powers to mephitic air. But more experiments are necessary, to fix its effects in this disease, and the degree of trust it deserves.

V A P O U R O F T H U S .

Mead recommends the vapour of thus, of styrax, and of succinum thrown on live coals, or balsam of Tolu smoaked like tobacco, to correct the sharp defluxion. Others chuse benzoin. But benzoin and succinum, from the quantity of salts which they contain, seem to be too acrid. I, therefore, preferred Thus.

EXPER. XIII. Alexander M'Lauchlan, Exp. VI. had the vapour of frankincense applied for several days, while he was taking the starch. It did not seem to do any good, and I thought that he coughed much after its application.

EXPER. XIV. John Laidlaw, Exp. II. after trying it, had severe fits of coughing; so that, after the second time, he would not use it any longer.

From these, and other trials made with this remedy, I have no opinion of it, especially when we consider, that it is, in effect, the application of stimulating essential volatile oils, and acid volatile salts, to an irritable and diseased part. I found the
effects

effects of these vapours much gentler, when the gum was thrown on heated brick, than on coals, as the vapour of the coal itself is offensive. It would probably be still better to fumigate the room, and to use no stronger, or nearer application of it. Perhaps, these gums may emit some mephitic air, to which they owe their salutary qualities, if ever they possess any.

Upon the whole, most of these medicines have been found to exasperate, rather than mitigate the symptoms. Starch and mephitic air are the only remedies which seem to have alleviated their severity. More cannot be done; for, while matter continues pent up in the lungs, it must produce its effects, and at last destroy. If the ulcer is open, it will, generally, of itself, and without any assistance, heal.

S E C T. VII.

Melaene.

There are few disputes between the ancients and moderns, in the practical, but many in the theoretical branch of medicine. The former were not used to dissection;

section; knew not the principles of chemistry; and seldom inspected morbid bodies. Hence they are not to be trusted in the pathology of diseases. The present is a strong proof of this observation; as there has been much difference of opinion betwixt them, with regard to its seat and origin. It is the *νῆσος μελαίνη*, or Morbus Niger of Hippocrates, the *Seceffus Cruentus* of Hoffman, and the *Melaene* of Sauvages. It is often a symptomatic disease only, arising from obstruction of the liver, spleen, stomach, and of the other intestines. When it thus appears at the latter end of a disorder, it is justly reckoned very fatal. But it is sometimes idiopathic; and then I have found it not to be very dangerous. As I have met with three cases of this latter sort, and as this state of the disease is very rare, I think them well worth our attention, especially as I could not find in authors, any practical observations that were of much assistance to me, in the treatment of these cases.

HISTORY I. December 24, 1776.
George Blyth, 27, a taylor, about twelve years ago, had an ague, attended with a
3 swelling

swelling of the abdomen, which was painful on pressure, and after eating. Since that time, each Spring and Autumn, he has complained of pains in the region of the liver, in the shoulders, ancles, and wrists. He had in June the last attack of these complaints, during which he felt a strong desire for acids and bitters. December 23d, without any known cause, he first perceived his stools to become black and loose; and, after the first and second, he was very faint. When he came into the clinical ward, he had passed about two pound of a liquid matter, which was black, shining, very foetid, and about the consistency of honey. Some scybala were mixed with it. He had not much pain, only a little griping, which he attributed to a dose of Anderson's pills he had taken the day before; but which probably arose from the disease, as he had afterwards the same symptom. He complained of much weakness. No hardness or obstruction could be discovered in the liver, spleen, or any part of the abdomen, when examined or pressed. Head-ach. Tongue moist. Bad taste in his mouth. Pulse 104, and soft.

3d, Took a vomit. 4th, Pulse 130, vomit operated well; and stomach foul, but the contents are not acid. Thirst. Has passed many scybala, and black stools. Head-ach, but he has no pain in the abdomen. Cap. Pulv. Rhei scrup. i. merc. dulc. gr. iii. 5th, Pulse 108, had seven loose stools, of the same black matter, as already described. Cap. elix. vitr. acid. gtt. xx. in aq. unc. iv. ter in die. 6th, Pulse 136, and strong. Violent head-ach. His stools, during the night were of a black colour; but he had one, this morning, which was natural. The acid is agreeable, and produces no pain of his belly. Fiat venaesect. ad unc. ix. Hor. 8va, P. M. Pulse 108. 7th, He was not bled till this morning. Blood has a natural appearance. Pulse 106, and rather strong. Has had two black, and two yellow stools. Great debility follows the former, but not the latter. He sweated much last night, and thought himself easier after it. 8th, Pulse 96, and of natural strength. Urine pale; but has a little white sediment. His stools are of a natural colour, but they are still loose. Head-ach easier. His tongue is white and dry; but

but his thirst is abated. Some slight pains of his belly. Debility is diminished. 9th, Pulse 96, has moisture on his skin. No pains of his belly. After this he continued to recover; and on the 17th, pulse 76; but body still loose. 21st, He was ordered the bark. 24th, Dismissed cured.

HIST. II. February 7, 1778. Jean Cubie, 25, unmarried, regular as to the appearance of the menses, and affected with frequent vomiting and loss of appetite during the winter, was seized, on January 30th, with violent vomiting of a tough viscid, and purging of a black, tar-like matter, both which continued that night and next day, attended with severe gripes. February 3d, the vomiting and purging ceased; but her stools were still black, and attended with nausea, and pain of belly. 8th, The vomiting and purging returned, and continued all day. The first stool was black; but afterwards she passed, with much pain, florid blood, without any faeces. Great weakness, and frequent fainting fits, in one of which she continued ten minutes. 9th day of her disease, on which she came into the clinical ward,

her vomiting was much abated, and blood in less quantity. No schirrosity or hardness can be felt in the abdomen. Great weakness. Skin hot. Mouth dry and clammy. Pulse 80, and of natural strength. No appetite. Sweated some after vomiting. Attributes her disease to fatigue. *Fiat venæsect. ad unc. vii. & Spt. vitr. ten. drach. ii. aq. font. unc. ii. fyr. e ros. ficc. drach. ii. M. fiat Julap. Cap. cochl. parv. ex seyath. aq. 4ta quaq. hor. Cap. cras mane; inf. tamar. unc. ii. unaq. hor. donec alvus soluta sit.* 10th, Pulse 78, and rather weak. Blood of a loose texture, and it has not much serum. Stools, during the night, are thin; full of mucus mixed with a little blood, and passed with much pain; but they are not foetid. The vitriolic julap produces no gripes. The physic vomited her a little, purged her twice, and griped her. 11th, Pulse 74, and of natural strength. Slept well. No complaint, but a little pain in the stomach, and weakness. 12th, Pulse 64, pain of breast and belly. Had this night a black stool, with some blood in it. 14th, Pulse 64, urine turbid, with some sediment. 15th, Body

Body costive. R Ol. ricin. drach. vi. fpt. vin. ten. drach. ii. M. cap. cras mane. Dismissed cured.

HIST. III. April 14. James Leslie, 42, a labourer, formerly subject to intermittents, about a fortnight ago, after exposure to cold in the night-time, was affected with pain and weakness in the lower extremities, head-ach, and loss of appetite. These symptoms increased during the succeeding days; and he was then attacked with nausea and vomiting. For a week past, had been much affected with pains of the stomach and belly. Has hot fits, without any preceding coldness. The head-ach and vomiting, especially after food, still continue. The pains of his legs are gone. His strength is much impaired. He sleeps ill, and sweats during the night, from the pains. His body has been costive for three days. Tongue moist, and white. Urine at first high-coloured, and turbid for two days. Pulse 160. Took on the 9th and 11th a vomit, and on the 10th and 12th a laxative, which relieved his complaints; but they have recurred again. 15th day of the disease, pulse 70,

and of natural strength. No vomiting or sweating. Pains easier. Cap. sol. tart. emet. unc. i. 4ta quaq. hor. 16th, Pulse 66, and weak. Yesterday, at 3 P. M. before taking the solution, he was seized with a purging of black matter, like tar. At 5 P. M. he began to take the solution, as ordered before this symptom appeared; and half an hour afterwards, he had another black stool, and three more this morning, after the second dose. He took a third dose at 5 A. M. this day; and at 6 he fainted, on going to stool. At 7 A. M. he vomited a pound of black and seemingly pretty pure blood. Complains of nausea, weakness, shiverings, coldness of his feet, and thirst. The solution was omitted. R Mucil. gum. Arab, aq. font. aa unc. iv. sp. vitr. ten. gtt. c. fyr. alth. unc. i. M. fiat julap. cap. unc. i. 3tia quaq. hor. 17th, Pulse 86, about the same hour as yesterday, the vomiting, and purging of the same black bloody matter returned, with great sickness, debility, and some scybala. It lasted a quarter of an hour, with a little tenesmus. Cap. statim pulv. rhei gr. xxv. Fiant ligaturae supra genua. Beef tea was

ordered. Hor. 7ma, pulse 120, he was seized with the same black vomiting, in which the crassamentum is like a firm adhesive jelly; and he had one black stool, which was owing partly to the rhubarb. 18th, Pulse 106, and stronger. Restless during the night. The ligatures continued applied until 3 o'clock this morning, and they were then taken off, as they were uneasy. He vomited again at 9 A. M. but the matter thrown up was not so black. Utatur pediluvio ex aqua frigida statim, & repet. vesp. Hor. 7ma, P. M. pulse 96. 19th, pulse 96, and strong. Matter vomited was not black; but he had severe pains before vomiting. Body costive for two days. Fiat venaesect. ad unc. vii. Injiciatur clyisma. Hor. 7ma, P. M. pulse 80. 20th, Pulse 76, and rather strong. Blood in a natural state. Pains of belly were severe during the night, but they are now easier. He has no vomiting or purging, but frequent tenesmus. The clysters had no effect. Rep. venaes. ad unc. viii. Repet. clysm. 21st, Pulse 78, and rather strong. Blood in a natural state. Cap. inf. tamar. cras mane. 22d, Pulse still strong. He

complains of dyspnoea. Has a pain amongst the short ribs of the right side, increased by full inspiration. Tongue black, but moist. Rep. venaef. ad unc. x. Injiciatur clysm. domest. 23d, Pulse 76, and rather strong. Blood natural, and the crassamentum adheres firmly. A hard stool after the clyster. Pains easier. Rep. clysm. 24th, Complains of a head-ach, and pain of stomach. One black stool after the clyster. 26th, Complains of gripes, and his body is bound. Cap. ol. ricin. unc. i. h. f. This he got for three nights following, as it scarcely proved laxative, and as a little black matter still appeared in the faeces. After this, he recovered, by degrees, after having been 12 or 14 days under the black vomiting and purging.

Let us now draw some conclusions from these three remarkable cases.

1. Hippocrates, Boerhaave, Van Swieten, and perhaps Morgagni, thought that the atra bilis was the cause of this disease. But, 1. The bile is often black, when there are no black stools. 2. The bile could not afford the great quantity of black matter passed by our patients. 3. Bile does not easily become putrid, as the matter evacuated

evacuated was in the first case. 4. Morgagni errs in thinking that the two pounds of fluid which he found in the stomach could not, on account of its quantity, be blood; and hence in concluding it to be atrabilis. But from these cases, the black stools appear evidently to be owing to blood effused from the meseraic vessels. 1. A hemorrhagy of blood by stool followed in Case II. by both vomiting and stool in Case III. and, in both, it alternated with the black matter. 2. More debility was felt than attends a common diarrhoea. All the three patients had great debility and faintings; and the first felt a sensible difference when he passed yellow or black stools; the latter being always attended with great debility. When we add to these proofs, that this disease often follows other hemorrhagies; that scorbutics are most subject to it; that the meseraic veins are found swelled and turgid after death; and that it often arises from obstructed viscera; there can remain no doubt from what cause the black stools arise.

2. It is difficult to settle the precise seat of the disease in our patients. As all the three complained much, during the disease,
and

and after it was gone, of pain in the stomach, the seat may be thought to be in that viscus. But, if seated there, the two first patients must have vomited blood also, as well as the last. In the two first, therefore, the disease was perhaps situated in the ilium; and in the last, probably in the stomach, or beginning of the small guts. As black blood is often found in the spleen, Van Swieten deduces its origin from thence, by the liver, or *vas breve*. But there is no proof of a passage either way; and, at the same time, he supposes it to be *atrabilis*.

3. We find, in all the three cases, previous complaints in the intestinal canal, as loss of appetite, pains, vomiting, &c. before the disease appeared. These point out obstruction and irritation there for some time; but the obstruction could not be great, as the disease was so soon cured. From this obstruction, assisted by vomiting, hemorrhagy will naturally happen, as the internal coat of the intestines is but weak.

4. Severe gripes attended; as the vessels were either ruptured, or much dilated; as
blood,

blood, by stagnation, becomes acrid; as scybala are formed, which occasion pain in the dysentery; and, as spasms take place in the intestinal canal, of which the scybala are a proof.

5. The black matter was very foetid in the first case, but not in the two last. Blood exposed to heat and air turns black and foetid. Perhaps, if it stagnates long in the meseraic viens, as it does in those of the uterus before the menses appear, it may become so. It did not seem to have remained in the intestines very long in Case I. as in it there was most purging.

6. Great debility, and frequent fainting, attend this disease, as there is much blood lost, which, on the whole, might have amounted to several pounds; and as, while stagnating in the intestines, it becomes acrid and putrid, it may in this way weaken the nervous power.

7. Though this disease is acute, and terminates soon, yet the degree of quickness in the pulse is not great, generally not above 80 or 90 beats in a minute. Hence the fever may be suspected to be mostly symptomatic. In Case II, the degree of
5 fever

fever kept exact proportion with the number of stools.

8. In Case I. the crisis happened on the 8th day; in the II. on the 14th day; and in the III. if we count only from the appearance of black matter, about the 14th day also, but if from the beginning of the previous symptoms, near double that time. The coincidence, in this uncommon disease, of the time of the crisis, with fevers in general, is singular, and gives us a high opinion of its regular nature, though in these three cases the crisis did not happen exactly on the same day. The first patient was cured by the continuation of the purging; the second, by sweat and thick urine; the third had no evident critical evacuation.

9. In the cure, I got only a few hints from Hippocrates and Hoffman, not, indeed, sufficient to be of great use; so I followed my own ideas. As it is a hemorrhagic case, bleeding is necessary, if the pulse will admit of it. Hippocrates recommends it, but only when the pulse can bear it, else it must hasten death. In the first case, there was head-ach, and a strong pulse;

pulse ; so he was bled. He was better, as his pulse was stronger after it. In the second, though bleeding was contra-indicated by the weakness and fainting, yet her pulse was of natural strength ; so seven ounces were taken from her on the 9th day. Her pulse was less quick next morning, though she was under physic. In the last, as the pulse was strong, he was bled thrice ; and the pulse became stronger after each bleeding. From these facts, bleeding seems useful in the idiopathic melaene ; nor ought the weakness of the pulse to deter us from bleeding in this disease more than it does in the Enteritis.

10. I think emetics are hurtful. It was reasonable to try, in the first case, an emetic, more on account of the head-ach, bad taste in his mouth, and black matter that might be lodged in the stomach, than on account of the vomiting. Besides, emetics are recommended by some in hemorrhagy, though I have found them hurtful. His stomach was foul ; but, as the black stools increased, and the pulse became quicker after the vomit, it seems rather to have done hurt. The case was then new to

me; but it is our duty to rejudge our own proceedings, and profit by them. In the second case, we find an emetic had been given before she came in, on the 8th day; but it produced violent vomiting, which was stopped only by an anodyne. In the third case, one-third of a grain of emetic tartar was ordered every fourth hour, before the melaene appeared, and was taken after it began. The disease was not owing to it, as the attack commenced before the first exhibition; but, as it had been previously ordered, he took three doses before our next visit; and perhaps the vomiting was increased by it; so that I would advise all emetics to be shunned in this disease.

11. It seems reasonable to clear the intestinal canal. Hippocrates recommends purgatives; and those of his time were certainly not gentle. Clysters are recommended by Hoffman. By cleaning the intestines, all foetid matter, and the pressure of foeces, which may prolong the hemorrhagy, will be removed. With this view, I gave the infusum tamarindorum in Case I. as a gentle and antiseptic laxative. A vomiting came on, whether naturally,

rally, or from it, I cannot say; but the stools were soon of a natural colour; and the laxative seemed to do good. In Case II. I think the rhubarb and the calomel were of some use. In Case III. the oleum ricini and clysters were useful. Hence I conclude, that gentle laxatives are beneficial.

12. Antihemorrhagic medicines are indicated. Hoffman recommends emulsions and nitre, which are used in other hemorrhagies, and are antiphlogistic. The vitriolic acid appeared to me to be the best, as it is antiseptic, is a powerful sedative, and is also a strong astringent. These effects entitled it to a trial. In Case I. the stools, soon after it was begun, became yellow. In the others, it was of use. I was afraid that it would have excited gripes; but it did not. To prevent these, and that it might be given in greater quantity, it was mixed with the mucilage of gum Arabic; for I find I can give double the quantity of it this way. So much does the gum cover the taste of the acid, and diminish its immediate effects on the primae viae.

13. When

13. When the effusion of blood is very great, Hoffman advises ligatures to be applied to the legs. But in Case III. where they were applied, the patient became uneasy from the pain which they occasioned; so they were removed. They did not appear to be of much use.

14. Hoffman advises the application of cold water to the feet. It must produce general constriction, by which the small vessels of the intestines may be contracted. It was used in the last case; and the quantity of black matter diminished after the application. But, whether we are to attribute any powerful effect to it, or not, I cannot determine from one trial.

15. I ordered exercise after the disease was over, as it promotes the circulation in the vena portarum. Bark seemed useful to brace the intestines. I shunned opiates, as they would have shut up the matter that Nature was carrying off by diarrhoea, and would, in this way, have increased the putrescency.

In the pathology, therefore, of this rare disease, we much excel the antients. In the cure, too, the advantage is greatly on our

our side, as we have more gentle cathartics, and the vitriolic acid, a valuable remedy, with which they were unacquainted.

S E C T. VIII.

Experiments upon the Rhododendron Chrysanthemum Lin.

This medicine, the Rhododendron Chrysanthemum, much used for the cure of the rheumatism in Siberia, has been warmly recommended to us from Russia, and a parcel of it sent was to this place for trial. It seems to be astringent to the taste; and the infusion of it becomes black with chalybeates. It gave rise to the following experiments.

EXPER. I. Dec. 16, 1778. Margaret Philip, 21, was seized, four months ago, with the symptoms of fever, attended by pains in her arms, shoulders, and wrists. The feverish symptoms abated after some time; but the pains continued severe. She was bled, and the blood had the fizy crust. On the 18th, her pulse was 106, and rather strong; so that the bleeding was repeated. 19th, pulse 106, and softer.

K

Blood

Blood still fizy. Pain and swelling of her shoulder. *R* Rhodod. chrysanth. drach. ss. aq. bullient. unc. viii. fiat infus. per tres horas, cola. Cap. cras mane. 20th, pulse 82, about half an hour after the medicine was taken, she became giddy, and continued so for an hour, after which she had a gentle sweat. Her urine was increased. Rep. infus. rhodod. add. gr. x. cap. u. a. 21st, pulse 82, she was giddy and sick after the medicine, and has continued sweating till twelve o'clock, the hour of visiting. Pains severe. *R* Rhodod. drach. i. &c. cap. u. a. 22d, The medicine made her drowsy, but affected her head less than it did before. She sweated, and purged once to-day. *R* Rhodod. scrup. iv. &c. 28th, Her pulse was 82 when she took the infusion; half an hour after, it was 68. She was sick, sleepy, and sweated much after taking it. *R* Rhodod. drach. ii. &c. Her pulse was 68 when she took the medicine. An hour after she took it, her pulse measured only 44; but the pains were not diminished; so it was given up. One dose of
Dover's

Dover's powder, given the next night, cured her.

EXPER. II. Jan. 16, 1779. Grisel Simpson, 20, was seized on the 11th with a rheumatic fever. She was bled four times, and put under the antiphlogistic regimen. 23d, Pulse 104, and soft. She took an infusion of a drachm of this medicine in five ounces of water. 24th, Pulse 100 before she took it. Three quarters of an hour after it was taken, her pulse was 118; at 12 o'clock, pulse 100. She felt no sensible effects from it. Two drachms of it infused in nine ounces of water, were ordered. 25th, Her pulse continued the same for an hour after it was taken. She felt a head-ach. Rep: infus: 26th, Pulse before it was taken, was 112; an hour after, it was 82. Its exhibition still was attended only by a pain of the head. As the rheumatic symptoms were no easier, the medicine was given up. Many bleedings were afterwards necessary, to reduce the inflammatory state, and carry off the fever.

EXPER. III. Jan. 21. John Gibbons, 22, was attacked, on the 17th, with a rheu-

matic fever, attended with violent pains in several of his joints. He was twice bled, and put under the antiphlogistic regimen. 23d, \mathcal{R} Rhodod. drach. i. aq. unc. v. &c. 24th, Pulse before taking the infusion, 96. Three quarters of an hour after, pulse 86. Head giddy, belly bound, and he sweated none. \mathcal{R} Rhodod. drach. ii. aq. unc. ix. &c. 25th, Before the medicine was taken, pulse 82; an hour after, 72, and the same three hours after. It produced no sensible effects. \mathcal{R} Rhodod. drach. iii. &c. 26th, Pulse before the dose 74; an hour after, 66. It produced no other effect but giddiness. He was thrice bled afterwards, to reduce the inflammatory state.

The following observations on the effects of this medicine may be drawn from the preceding experiments.

1. The dose in Siberia, we are told, is the infusion of two drachms. I began with the fourth of this dose, and arose by degrees to the above quantity; and once gave three drachms, as the preceding doses had produced no sensible effects. I imagine, from the conduct with regard to the
other

other narcotics, that we ought to increase it till we find that it produces some sensible effects. The proper and general dose, therefore, appears to be two drachms, if we are to follow this rule.

2. It affects the head with pain and giddiness; and produces an inclination to sleep. It produces nausea, and sometimes opens the belly. It sometimes increases the urine. It sweats plentifully, when the body is not very inflammatory. But, when it is, this medicine does not sweat, but increases all the phlogistic symptoms, as it seemed to make more bleedings necessary than otherwise might have been required.

3. It appears to be one of the most powerful sedatives which we have, as in most of the trials it made the pulse so remarkably slow, and in one reduced it 38 beats. By sedatives, I mean such medicines as make the pulse slower, though not weaker. Such have not been much attended to by physicians; and, in most experiments, if the pulse was not quickened, the experimenter declared they had no effect on the pulse, never suspecting that there was a numerous class of bodies,

which rendered it slower, and had as powerful effects on the system as the former. This has been the cause of many false conclusions. I have attended much to this class of sedatives, have found it very extensive, and possessing, in common, many effects on the healthful and morbid body. Such medicines appear to be useful in a number of diseases, as they diminish the sensibility of the nervous system. From all the effects of this medicine, it appears to belong to the class of narcotic poisons.

4. In none of these cases do the symptoms of the acute rheumatism appear to have been mitigated by this medicine, though used in greater doses than in Siberia. In one of the cases, the disease was next day cured by Dover's powder. The trials were fair. So that I may venture to pronounce, that, in the cure of the acute rheumatism, it is a medicine much inferior, in its effects, to several others,

S E C T. IX.

Cephalalgia.

The head-ach has been distinguished into two genera, cephalalgia and cephalea. A-raeteus first made this distinction, the Stahlianians adopted it, and Sauvages has continued it. But neither the length of the disease, nor the difference of the patient's sensation, seem to be good grounds of distinction. The presence or absence of fever, which they have not mentioned, was a much better foundation of distinction; but, even in the habitual head-ach, there generally is a degree of fever. This distinction terminates, at last, in the symptomatic and idiopathic head-ach.

Head-ach is a symptom of most diseases. Many of these are general, as fevers, &c. Many topical, as irritation of the primæ viæ from acrimony, worms, &c. of the uterus, from plethora, &c. It is but rarely an original disease, as four cases only of it are to be found in my report-books. Three of these are of the female sex; so that women appear more subject to head-ach. It

is, indeed, a common symptom with them, at the approach, or after the suppression of the menses. As the remaining case of the man was mortal, I shall describe it.

January 12, 1775. William Gordon, 40, attributed his disease to cold; but it was more probably owing to drinking strong liquors, as he had been employed for some time in the recruiting service. About the 1st of January, he was attacked with violent pain of his whole head, attended by dullness of hearing, which continued till he came into the hospital. His pulse was 82, and rather weak. Body natural. Tongue white. He had a bad taste in his mouth, and had frequent nausea, which made me suspect some affection of his brain. He was twice bled; was ordered the infus. amar. cum duplic. senna; had blisters applied behind his ears, and to his temples; used pediluvia often; tried an infusion of the carduus benedictus as a stomachic bitter; and took aether, and camphire; but all without effect, as the symptoms were sometimes better, sometimes worse. He always appeared to labour under some oppression. On the 34th
day

day of the disease, he was seized with a deliquium, fell down, had frequent startings, but no convulsions. His extremities became paralytic, especially the right arm. He became unable to swallow solids, but could swallow fluids, though with difficulty. His pupil was not dilated, his eyes were open, and he appeared to see. Pulse 64, and rather weak. He answered no questions. His head was blistered. He took ten grains of the powder of scammony in the mucilage of gum Arabic; and it was repeated next day, but without any effect. He was tried with a mixture of assa foetida. He had oleum succini applied to his spine. Clysters were injected, which came off as soon as they were given. His pulse quickened to 112; and he died the 4th day after he was seized in this way.

This is a frequent termination of headaches, arising from compression. The pulse pointed out this as the cause; on the supposition of which, strong purgatives were ordered.

The whole vessels on the surface of his brain were uncommonly turgid; and there was an effusion of blood, about half an ounce,

ounce, between the pia matter and the tunica arachnoides, near the falx, in the left hemisphere of the brain. The pia mater, and substance of the brain, above and below the place of effusion, were considerably inflamed. The substance of the brain, tunica arachnoides, and pia mater, firmly adhered to each other, for a considerable space, around the place of effusion. In the ventricles, about an ounce of water was collected; and a numerous cluster of hydatides adhered to each plexus choroides. Beneath the cerebellum, and around the medulla oblongata, there was a collection of near six ounces of water.

Effusions of blood and serum, as in this case, are frequent causes of cephalalgia, as appears by Morgagni's and Lieutaud's dissections. These are certainly, in general, the cause; and not the effect of head-ach, as has been thought by some. The length of time the disease continued could be no objection, as blood, and other fluids are longer contained in other cavities. Nor, to this opinion, can the natural appearance of the fluids be objected, as their qualities are long of being altered, when preserved

from the air. But they are often spoiled, as Morgagni mentions their sharp taste. Hence most of Lieutaud's cases end in palsy, lethargy, apoplexy, epilepsy, or vesania.

Besides this, there are other causes of this disease. Ulcers, and abscesses of the brain, dura and pia mater, are frequently to be found in Lieutaud's and Morgagni's dissections. Accretions and ossifications of the different parts of the dura mater, falx, and brain, are often discovered. An ossification of the falx does not, however, always produce head-ach, as I had a case of part of the falx ossified without head-ach; but the person had been observed, when drunk, to be very furious. Congestions of blood in the vessels of the brain, as often discovered, must be a frequent cause, as well as effect of head-ach. Nervous irritation and affection will, alone, produce it, as we see from the clavus hystericus, and the head-ach in the beginning of fevers.

In the cure of this disease, we have little or no power over ossifications, effusions, or ulcerations, three of the causes given. In the other two, congestions, or nervous affection, we may be of some assistance.

assistance. Hence we so often fail in its cure.

In congestion, we can relieve by, 1. an evacuation of blood, either general from any vein; or topical by the lancet from the temporal artery, by leeches or cupping from the temples, and by instruments, as mentioned by Aretaeus, applied to the nose. 2. Errhines, which I have tried without much success. 3. Topical evacuation, from or near the head, by a blister, issue, or seton. 4. Purgatives. 5. Determining the fluids to other parts, by rubefacients applied to the temples, pediluvia, &c.

Nervous irritation may be diminished by, 1. a great quantity of cold water drunk every morning, as recommended by Hoffman, which will wash off all acrid particles from the stomach, while the cold strengthens, and diminishes the sensibility of the part. This remedy was tried for a considerable time, in one of the patients, but without any effect. 2. Nervous and tonic medicines, as the bark, valerian, &c. These were tried in two of my patients without success. In a third the valerian succeeded.

succeeded. 3. Cold water applied to the head, by immersion, or the shower-bath. 4. Cacuphae of cephalics, as lavender, rosemary, &c.

S E C T. X.

Experiments upon Sir Hans Sloane's ointment in the Albugo or Leucoma.

When the cornea has lost its pellucidity, so that vision is hurt, the disease is called by most of the moderns, Albugo, and by Sauvages, Leucoma. Both names are taken from its whiteness, though it is often of a very dusky colour. It appears sometimes as a single speck, while the rest of the cornea is pellucid; sometimes as a dusky cloud, covering all the cornea. This affection always arises from a previous long inflammation of the cornea, especially where astringents have been too early, or of too great strength, applied. It must be generally in the external coats, otherwise, neither the knife, nor external applications, could have any effect in curing it. As the cornea is of a lamellated structure, the fluids are, perhaps, extravasated between

tween the lamellae, and coagulate into a coat, as on the surface of different viscera after inflammation. Perhaps, too, the fluids, in some of the smaller vessels, may remain, and be concreted.

It is very difficult to remove; and the more so the whiter it is, as that colour is the effect of a thicker and firmer coat. I have tried, internally, a variety of aperients and deobstruents; have given soap in great doses, and for a long time; have used calomel and a solution of the corrosive sublimate; have prescribed the decoction of mezerion, a more powerful deobstruent than mercury; but all without advantage. I have met with no better success from external applications, fomentations of the emollient sort; the vapour of such bodies as emit volatile stimulating particles, as valerian, rosemary, &c. which are recommended by authors; saline eye-waters, as the solution of crude sal ammoniac; and the bile of animals, which is mentioned by Hippocrates. I never had the courage to try the impalpable powder of glass, recommended by Dr. Mead. The manual operation is not in practice here; and cannot
be

be performed, where there is a cloud instead of a speck. I had recourse, therefore, to Sir Hans Sloane's ointment.

EXPER. I. Dec. 2. 1776. Mary Smith, 19, has been subject to ophthalmia since she was seven years old. The cornea of the right eye is very opaque, so that she can see little with it; and that eye is much pained and inflamed. This affection seems to have subsisted since she was first attacked with ophthalmia, as she never saw well with that eye. Head-ach. Pulse 96. My first endeavour was to reduce the inflammation by bleeding, laxatives, blisters, &c. 18th, Inflammation gone. R Tutt. ppt. unc. fs. lap. haemat. ppt. scrup. i. aloes succotr. levig. gr. vi. Margarit. ppt. gr. ii. leviga optime simul & misce cum axung. viper. q. s. ut fiat liniment. ophthalmicum. This is the receipt of Sir Hans Sloane's ointment. He thought that the vipers grease was a material article, as, when used alone, it appeared to him to be more successful than oil of olives. To ascertain whether this be so or not, would require more experiments than have yet been made. As there is no vipers grease kept

kept in this country, we were obliged to make use of hogs lard. When the ointment was first applied, it gave pain, and raised a degree of inflammation; and no wonder, when the inflammation was gone two days only. But, after applying leeches to the temple, she was no more affected with any inflammation, though the eye always smarted when the ointment was applied. On the 5th day, the cornea appeared clearer. On the 22d, scarcely could the opacity be distinguished.

EXPER. II. Feb. 11, 1778. Katherine M'Kenzie, 22, has been affected with inflammation of her eyes, and dimness of sight, for six weeks. The cornea of each eye, at present, is opaque, especially that of the left eye, with which she scarcely sees any. There appears to be a white speck upon the cornea of the left eye, opposite to the pupil, and a slighter one on the right eye. Both eyes are inflamed and pained from light. After the inflammation of her eyes seemed to be reduced, she began to apply the limiment on the 24th. But she was attacked, at different times, with insensibility, difficulty of speech,

swelling of her whole head, redness of her face, and great inflammation of her eyes, to all which she had been subject before the ointment was applied. This determination to the head, which obliged me to suspend the ointment, recurred often, notwithstanding bleeding, physic, blisters, and other remedies were used; nor did it disappear till a seton was put into her neck. After this, the ointment was continued; the dimness gradually disappeared; and, in two months and a half, when the clinical ward was shut up, she was dismissed, with both the corneae in a natural state, excepting a small speck, less than the head of the smallest pin, on the left eye.

This ointment, therefore, appears to have cured these two patients. In another, it made some progress during the few days she staid with us. I cured a patient, in private practice, with it. We may, therefore, venture to affirm, that it is a medicine of much efficacy, in a disease otherwise incurable by medicine. The patients generally applied it only twice a day, if there was any tendency to inflammation; if not, as often as they pleased. It is or-

dered to be applied with a pencil ; but our ointment was too hard for that ; the patients, therefore, applied it with the point of their finger. It is improper to use it during inflammation, as it tends to inflame. But that effect may depend much on the degree of levigation, as the finer it is, the less apt it will be to stimulate. It cannot act by absorption, as the tutty, pearl, and haematites, are not soluble in the lachrymal fluid ; and there is too little of the aloes to have any effect that way. It must act mechanically by friction and detrition ; and in this way abrading the external coats, where the coagulated lymph is situated. The os sepiae and levigated glass are said to cure it ; and they can act in this way only.

S E C T. XI.

Experiments upon Antispasmodics.

There is a very numerous class of diseases which arise from the involuntary contraction of the muscular fibres, in whatever part of the body they are placed.

These

These involuntary contractions are either continued, or they alternate quickly with relaxation. Hence, with regard to the symptoms of such diseases, a very material distinction is made; and the former are called Tonic, and the latter Clonic. But the remedies appropriated to the cure of these two different orders, and their genera, are, by authors, classed together; and Antispasmodic is the name they receive, whether we consider irritation or too great irritability alone, as the cause of these diseases; or continued or alternate contractions, as the effects produced.

These antispasmodics have, indeed, been subdivided, from the nature of the diseases which they cure, into Antiepileptica, Anticonvulsiva, Antihysterica, Antiemetica, &c. But still they are all treated of as fit to cure that whole class of diseases. A discrimination, therefore, of them; settling their proper effects; ascertaining their relative powers; fixing the particular diseases in which they are beneficial, would be an useful, but an arduous task; too much, indeed, for one man, or perhaps for one age, so many having already elapsed,

and so little done to purpose. Each, however, may contribute his share, by recording the trials he has made ; for it is only from a number of experiments that any certain general rules can arise. I shall, therefore, select a few of the trials which I have made. It is better to arrange these from the remedies used than from the diseases in which they were prescribed. The former is the most proper method of considering them ; though the latter has been generally used.

F E A R.

Fear has often been employed by physicians as an antispasmodic, in the cure of hiccup, hysteria, convulsions, and of the ague before the bark was discovered.

EXPER. I. June 3, 1769. Elspeth M'Leod, 22, has been, for some time, affected frequently each day with the globus hystericus, convulsions of her arms, and singultus. Her menses are regular ; and her pulse is 72, and rather weak. She had been bled at the first attack, had taken a vomit, the tincture of rhubarb, musk, æther, and laudanum, without success. She got a
 3 fright,

fright, and all the symptoms disappeared for five days; but they returned.

I have tried it in the hysteria, and in the singultus; but it either did not succeed, or the disease soon returned. This antispasmodic is liable to many objections. In slighter cases, it may do service; but in fever, it either does not succeed, or keeps off the spasmodic affection but for a short time. Its effects are various in different persons, sometimes severe, and not to be regulated by us. It is also observed to produce amenorrhoea.

BALNEUM FRIGIDUM.

The cold-bath has been used in several chronic spasmodic cases. Hence I tried it.

EXPER. II. George Drummond, Exp. CXXII. had a Hemitotonos Sauv. or convulsion of the whole left side. On his going into the cold water, which was contained in a bathing-tub, he was immediately seized with a severe fit. Two days after, he made use of the shower bath. But, immediately on receiving the shock, a most severe fit came on, in which the

right side was, for the first time, convulsed, the left much more than usual, and a greater coldness seized his legs and feet.

V E N A E S E C T I O.

Bleeding is justly classed amongst the antispasmodics.

EXPER. III. June 8, 1770. Anne Stalk, 19, has had her menstrual discharge diminished for a year, during which time she has been subject to hysteric fits, preceded by drowfiness, nausea, tremblings, and chillness; and attended by crying, laughing, convulsive motions, and insensibility. The epigastric region is sore when pressed. Her pulse is regular. She was bled; and her blood was in a natural state. She was ordered a vomit, rhubarb, the flowers of the cardamine pratensis, and valerian, with no advantage; but she took aether with some relief. On the 28th, instead of being convulsed, she became rigid. *Fiat venae-sect. ad unc. ix.* Crassamentum in small proportion, and not adhesive. 30th, She has been easier since the bleeding. July 1st, She had a severe fit yesterday. *R Pulv. Cort. Peruv.*

Peruv. unc. i. valerian. filv. drach. iii. fyr.
zinzib. q. f. fiat elect. cap. quod aequat
magnit. nuc. mosch. quater in die. 13th,
She had a severe fit, after which she lost
some blood from her nose. I ordered her
to be bled again ; but, as the menses ap-
peared, it was not done. 19th, She had
yesterday many severe fits, since which she
has complained of a stitch in her left side.
Intermitt. elect. & rep. venaesect. ad unc.
x. The blood did not separate into crassa-
mentum and serum, but seemed to be of a
loose consistence. After this, the fits gra-
dually disappeared, returned again a little
about the menstrual period, and afterwards
they were seen no more. This case of
hysteria, though not attended with a state
of inflammation, but with one directly op-
posite, was cured by bleeding, which was
indicated chiefly by the epistaxis.

EXPER. IV. May 19. Barbara West-
on, 20, on the 7th of May, had the men-
strual flux suddenly stopped on the 2d day.
Next day she was seized with cough, pain
of her breast, and haemoptoe which lasted
two days, during each of which she spat
about a pound of blood. The next two

days it was mixed with what she expectorated, after which time it disappeared. Since that she complains of giddiness, head-ach, dyspnoea, palpitations, and the globus hystericus. Pulse 112. Fiat venæsect. ad unc. x. Blood in a natural state. In a few days she recovered.

It therefore appears, that bleeding, to which practitioners are generally averse, is often necessary towards the cure of the hysteria. It is advantageous, chiefly where this disease arises from amenorrhoea.

The idiopathic asthma is certainly a spasmodic disease. In the cure of the asthma siccum, bleeding is known to be useful; but, in the asthma humidum, it is esteemed of doubtful effect, as the spitting, which is thought to be so essential, may be diminished by it.

EXPER. V. December 7, 1776. Thomas Jones, 24, was, after slight hæmoptoe from a strain, seized, in the beginning of October, with great dyspnoea, which increased much during the night, and was attended with plentiful expectoration. Pulse 72. Fiat venæsect. ad unc. viii. Breathing not relieved by it. He took
squills,

squills, calomel, and the Peruvian bark in vain. January 13th, He complained, for two days, of a pain amongst the short ribs of the left side, and had spitten a little blood. Pulse 75, and rather strong. *Fiat venæsect. ad unc. ix.* Blood has some inflammatory crust. He was not much relieved by the bleeding.

EXPER. VI. December 13. Margaret Elder, 34, had the menstrual discharge stopt for a year. For six weeks she has had dyspnoea, hoarseness, pain of the left side, violent cough, with much expectoration, which had a little abated. She complains of a severe pain in her breast, on the left side, which next day shifted to the right. Pulse 144. She had been bled on the 11th. *Fiat venæsect. ad unc. x.* Blood has much inflammatory crust. After this the expectoration seemed to increase. But, notwithstanding emetics, squills, laudanum, blisters often repeated, and other medicines, she died. On opening the body, the passage of the trachea was found to be much diminished, by the swelling of the cartilages about the glottis. A polypus of a large size, and firm consistence, was

was fixed to the anterior part of the right auricle, passed into the right ventricle, to which it adhered, entered the pulmonary artery, and even an inch into its two branches. There appeared to have been an inflammation and suppuration in the right auricle, at the base of the polypus.

EXPER. VII. November 28, 1778. David Bell, in a severe asthma, with plentiful expectoration, was bled four times, and relieved after each bleeding.

EXPER. VIII. November 24. John Murray, 60, was seized with asthma and plentiful expectoration, eight weeks ago. He was bled twice; and his breathing became much easier after it.

In these four asthmatic cases, bleeding was of no use in the two former; but alleviated the symptoms in the two latter.

It is not yet settled what effect bleeding has in the epilepsy.

EXPER. IX. May 29, 1770. Millar Logan, 11, subject to epileptic fits since the first of January. Pulse 100, and weak. While he was attacked with one or two fits each day, June 30th, was bled to the quantity of six ounces. Blood in a natural state.

state. He had a continual succession of fits after it. August 2d, He was bled again. Blood a little inflammatory. The fits after bleeding were more frequent. He was evidently worse after bleeding. Probably it must always be so when the pulse is weak, which was the case in this boy. But it must be otherwise when the pulse is strong.

In the idiopathic singultus or hiccup, which is a convulsive motion of the diaphragm, bleeding I have found to be the remedy upon which we can best rely,

EXPER. X. February 29, 1776. Margaret Haig, 23, unmarried, of a sanguine habit, was in the Infirmary three years ago, for an haemoptoe, and recovered in six weeks. She afterwards returned with haemoptoe, palpitations, and stomachic complaints; and was dismissed in a month. She returned a third time, about a year ago, with haemoptoe and fever. She returned a fourth time, in May last, with hysteric symptoms, as startings, tinnitus aurium, palpitations, globus hystericus, and severe convulsive fits. At present she is affected with constant pain in the left side,

side, attended with some convulsive contraction of the muscles there, tickling dry cough, difficult respiration, head-ach, vertigo, thirst, sickness, eructations and cold sweats. But her greatest complaints are frequent fits of hiccup. She feels a coldness before the paroxysm comes on. During it she has a great pain across the thorax and abdomen, and the head-ach is increased. She has a nausea after it is over. Her body and urine are natural. The menses are in small quantity. Her pulse is between 90 and 100, and rather strong. Fiat venæsect. ad unc. x. Blood natural. March 2d, She has been much relieved by the bleeding. Rep. venæsect. ad unc. x. Blood fizy. Pain easier. 4th, Pulse 106, and strong, still complains of pains. Rep. venæsect. ad unc. viii. Blood natural. 6th, The Menses appeared, and disappeared on the 7th. On the 9th they returned, and remained to the 11th; and on this day, after a quarrel with a companion, the hiccup returned, and continued for some hours. 12th, She had an hysteric fit without hiccup. 16th, All complaints were

were gone, and she was dismissed cured. Even then I thought her pulse too strong.

EXPER. XI. February 14. Peggy M^rIntosh, 24, unmarried, fair, and of a full habit, was formerly healthy; but received a stroke on the left side, about four years ago, since which she has been affected with pain there, and oppression about the praecordia, anxiety, flatulency, globus hystericus; but no hysteric fits. For three months she has been affected with cough, pain about the stomach, and with a great degree of flatulency. Her menses are irregular as to time, quantity, and duration. About a week ago, she was seized with severe hiccup, during which she complained of acute pain about her heart, stomach, across her sides, and in the small of her back. Even in the intervals, she has those pains. She is affected with head-ach, and great flatulency. Her pulse, though at first somewhat quicker, was, during the course of her disease, rather slower than natural. For the hiccup she took musk, assafoetida, aether, laudanum, electricity, valerian, camphire; and Ward's volatile essence, theriac, and the antihysteric plaister

were

were applied to the part, for six weeks, in vain. March 31st, She was seized with a severe cough, which increased the pain of her side. Fiat venaesect. ad unc. ix. Blood natural. The hiccup after this went off; and she was dismissed cured, on the 5th of April.

EXPER XII. April 2, 1778. Janet Kennedy, 42, married, and never troubled with any hysteric complaint, about four years ago, was affected with amenorrhoea; and since that time she has menstruated thrice only. Half a year after, she was often troubled with hiccup. About three years ago, she was seized with difficult breathing, and a pain in the region of the stomach, and in the left side, immediately under the short ribs. These complaints continued for three months. About six months after this, she was seized again with difficulty of breathing, which gradually came on, attended by oppression about the praecordia. About two months ago, violent eructations of wind from the stomach began to affect her, which at present make the most apparent symptom of her disease, along with a loud noise in respiration, which seems to
arise

arise from convulsive motions of its organs. The wind appears to her to arise from the bottom of the abdomen, to the stomach and throat; and when it gets away, to rush out with great force, which relieves her for a short time. If it stops before it gets out, as it sometimes seems to do, for a short time, she feels as if about to be suffocated. After any passion or surprise, the eructations came on, and she feels a constriction in her throat, and she cannot speak for some time. The abdomen is considerably tumified; but no fluctuation can be felt. She has pains in the right and left side, and in the back; which are, seemingly, in the course of the diaphragm. She has constant palpitations of heart; but her pulse is neither irregular nor intermittent. It was 120 the day she came in; but is, generally, about 96; it was always rather strong, especially for one of her habit and emaciation. Her menses never appeared but once, since her last illness supervened. Her tongue is clean, and she has but little thirst; and no appetite. Body always costive. She got a laxative, and the vitriolic aether. 5th,

Cheeks red, and palms of her hands hot. Fiat venæsect. ad unc. viii. six ounces only of blood were taken, which was fizy. 6th, Breathing easier, and pulse rather stronger. Rep. venæsect. ad unc. viii. Blood in a natural state, but the crassamentum adheres firmly. 7th, The flatulency, dyspnoea, pain in her side, even when it is pressed, constriction of throat, and swelling of abdomen diminished. 8th, Her pulse is 110, and rather strong. Rep. venæsect. ad unc. viii. The serum appears to be turbid, but the blood otherwise is in a natural state. 11th, The pains in the course of the diaphragm, and the swelling of the belly are gone. She feels only a constriction of the throat, and a straitness of her breast when she stoops. After this, we saw nothing but the common appearance of flatulency, from debility of her stomach, which continued, though she got the bark. 27th, Dismissed cured.

This patient, about three weeks after dismissal, had a relapse. She then complained of severe dyspnoea, and was sensible of a resistance to the entrance of the air into her throat; and her respiration was attended

attended by a harsh croaking sound. Though the abdomen seemed to be rather tumified, she did not feel as formerly the wind rising from the inferior part of it; but was sensible of the stomach swelling on inspiration. She was plentifully bled; but it afforded no relief. She took laudanum and spirit of hartshorn without advantage. She complained of a pain at the pit of her stomach, to which a blister was applied, without giving her ease. She died in two weeks.

When opened, the passage through the larynx, below the ventricles, was much diminished, and only an oblong slit left, through which a six-pence passed with difficulty. This was owing to a thickening of the internal membrane of the larynx; and the edges of the ventricles were much thickened. Their muscles could not be distinctly observed. The thyroid gland was much enlarged, and was divided into two distinct lobes, lying on each side of the trachea. The lungs contained some frothy fluid. The superior surface of the diaphragm was slightly inflamed, particularly at its union with the mediastinum.

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There was no adhesion of the lungs to the pleura.

This was a curious species of singultus, under which, though it had some peculiar appearances, I arrange it; as she had a distinct hiccup before the first attacks of her present complaints; as her pains were in the course of the diaphragm; as she had a convulsive respiration; as she could not speak during the severity of the fit, the diaphragm being so necessary to the voice; as passions and surprise induced the paroxysm; and as it was attended with palpitations of the heart.

To cure this case of seeming flatulency by bleeding, appeared at first somewhat uncommon; and had I viewed that symptom as the principal complaint, I would not have bled her, as it generally arises from debility. But, on the 3d day, I saw the disease was of the inflammatory kind, for it proceeded from amenorrhoea; it began and was attended with violent pains in the breast, sides, and back; her pulse was strong; the palms of her hands were hot; her cheeks were red that day; and her breathing was difficult. I attribute
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the whole of the cure not to the aether, but to the bleedings, as she was manifestly easier after each.

From these three cases, the following observations arise.

1. That the hiccup must be distinguished, 1. Into symptomatic, in which form it generally is seen in fevers, gout, hysteria, worms; and into idiopathic, in which pure state it seldom occurs; on which account I have described these cases fully. 2. Into acute, when there is a fever; and into chronic, where there is none. Hoffman properly made this distinction.

2. That women are most subject to this disease, as all the three patients are of that sex. They are more irritable than men are, and very subject to deficiencies in the menstrual discharge; to which cause, it is remarkable, the three foregoing cases may be traced. On this account, the unmarried will generally be most liable to it, as being most subject to irregularities in that evacuation.

3. That head-ach, cough, flatulence, and pains in the course of the diaphragm, are the constant attendants of hiccup;

all which symptoms seem to arise from the seat of this disease, and from the nervous consent of other parts with those affected.

4. That bleeding was used with success in all these cases, and which, therefore, may probably be considered as a general remedy in the cure of idiopathic hiccup.

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EXPER. XIII. Peggy M'Intosh, Exper. XI. in singultus, received electrical shocks for four days. The first day, the hiccup immediately attacked her when she came from the wheel. The third day, it returned while she was electrified, from the fright, as she imagined.

EXPER. XIV. James Finlayson, Exp. XXVI. used, in the tremor palpitans Sauv. electricity for five days, without benefit.

In both these convulsive cases, therefore, electricity failed.

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That blisters are antispasmodic, in many cases, as in spasms of the intestines, epilepsy,

lepsy, &c. is unquestionable. That they are so in all, is not yet proved.

EXPER. XV. July 10, 1770. Hanaw Douglas, 18, regular in her menstrual discharge, has been affected, for three weeks, with an almost continued hiccup, which is much increased, during the night, while she is in bed. For a quarter of an hour before the fit comes on, she is sensible of a swelling of her stomach, by which she knows its approach. She feels much pain during the fit about the heart, and across the short ribs; and vomits frequently. The pyrosis very often attends its retreat. Body bound. Pulse 72, and weak. She had already been ordered a vomit, and a blister to her stomach. She had another vomit, the infusum amarum cum fenna, musk, aether, twenty-five drops of laudanum thrice a day, Peruvian bark, half a drachm of theriac, eight grains of camphire, which sweated her, the hot bath, and the cataplasma aromatica applied to the part; but all of these remedies had little effect, except the hot bath, which mitigated the disease. August 1st, applicet. empl. episp. per longum costis spuriis, secundum nexum diaphragmatis.

The hiccup appeared no more, except slightly on the 4th. On the 6th, she was dismissed cured.

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Blisters, then, as a complete cure of hiccup, have succeeded in one case only out of four. Was their success, in that single case, owing to the disease not being inflammatory? This is not probable, as in Exper. XVI. and XVIII. the inflammatory state was removed by bleeding, before the blisters were applied. It is more probable,

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EXPER. XXI. Feb. 19, 1776. Elizabeth Muire, 47, subject for two years to asthmatic complaints, was seized last November with a fit, attended with gross expectoration, which she got up difficultly, cough, pain of her sides, and orthopnoea. Pulse 78, and of natural strength. After taking a vomit, a laxative, and the mixture of squill vinegar, she was blistered on the 26th, but felt no relief from it.

EXPER. XXII. Feb. 10, 1778. John Johnstone, 60, corpulent, was seized, two

years ago, with cough and white viscid expectoration, which has continued ever since. About seven weeks ago, he felt pains darting across his breast. At present, he complains of cough; of severe pains in his breast, which are worse in bed, and attended by plentiful expectoration of mucous matter; and of dyspnoea and orthopnoea, which are increased in moist and calm weather. He cannot lie on his back or on his left side; but easily on his right side or belly. Urine pale. Pulse from 84 to 90, and of natural strength. Fiat venaes. ad unc. viii. Blood in natural state. Was ordered a mixture made of the vinegar of squills. 15th, Pain of the breast still continues. Rep. venaes. ad unc. ix. Blood in natural state. Applic. empl. epispast. inter scapulas. 17th, Pulse 96, and of natural strength in the right arm; but it is weaker in the left. He lies always on his back. His belly is swelled. Expectoration brought up with more difficulty. The pain of the breast and dyspnoea still continue. Wine ordered. 18th, Pulse 124, and weak. Great dyspnoea. Hands tremble. Abdomen much tumi-

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fied;

fied; but no fluctuation can be felt. He passes his urine involuntarily, insensibly, and in great quantity. *Aplicet. empl. epispast. pect.* 19th, Died this morning. When opened, the intestines were much distended with air. The liver was small; and the lungs adhered to the pleura all around, and to the diaphragm, pericardium, and mediastinum. Every other part was found in a natural condition. As we find no other cause of asthma but the extensive adhesion, and as the symptoms differ in appearance from the common asthma, I am inclined to think that the adhesions were the cause, and not the effect, of his disease. This is probably a new species, not mentioned by Sauvages. In none of Morgagni's dissections, where such adhesions are found, do I remember any difficulty of breathing. But there are many in Lieutaud; and one positive overbalances many negative proofs.

In these four asthmatic cases, blisters did no real service. But we must allow, that the last case of asthma is to be attributed less to spasm than to adhesion, in which blisters could be of no advantage.

EXPER.

Cheeks red, and palms of her hands hot. Fiat venæsect. ad unc. viii. six ounces only of blood were taken, which was fizy. 6th, Breathing easier, and pulse rather stronger. Rep. venæsect. ad unc. viii. Blood in a natural state, but the crassamentum adheres firmly. 7th, The flatulency, dyspnoea, pain in her side, even when it is pressed, constriction of throat, and swelling of abdomen diminished. 8th, Her pulse is 110, and rather strong. Rep. venæsect. ad unc. viii. The serum appears to be turbid, but the blood otherwise is in a natural state. 11th, The pains in the course of the diaphragm, and the swelling of the belly are gone. She feels only a constriction of the throat, and a straitness of her breast when she stoops. After this, we saw nothing but the common appearance of flatulency, from debility of her stomach, which continued, though she got the bark. 27th, Dismissed cured.

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EXPER. XXI. Feb. 19, 1776. Elizabeth Muire, 47, subject for two years to asthmatic complaints, was seized last November with a fit, attended with gross expectoration, which she got up difficultly, cough, pain of her sides, and orthopnoea. Pulse 78, and of natural strength. After taking a vomit, a laxative, and the mixture of squill vinegar, she was blistered on the 26th, but felt no relief from it.

EXPER. XXII. Feb. 10, 1778. John Johnstone, 60, corpulent, was seized, two

years ago, with cough and white viscid expectoration, which has continued ever since. About seven weeks ago, he felt pains darting across his breast. At present, he complains of cough; of severe pains in his breast, which are worse in bed, and attended by plentiful expectoration of mucous matter; and of dyspnoea and orthopnoea, which are increased in moist and calm weather. He cannot lie on his back or on his left side; but easily on his right side or belly. Urine pale. Pulse from 84 to 90, and of natural strength. Fiat venæsec. ad unc. viii. Blood in natural state. Was ordered a mixture made of the vinegar of squills. 15th, Pain of the breast still continues. Rep. venæsec. ad unc. ix. Blood in natural state. Applic. empl. epispast. inter scapulas. 17th, Pulse 96, and of natural strength in the right arm; but it is weaker in the left. He lies always on his back. His belly is swelled. Expectoration brought up with more difficulty. The pain of the breast and dyspnoea still continue. Wine ordered. 18th, Pulse 124, and weak. Great dyspnoea. Hands tremble. Abdomen much tumified;

fied; but no fluctuation can be felt. He passes his urine involuntarily, insensibly, and in great quantity. *Aplicet. empl. epispast. pect.* 19th, Died this morning. When opened, the intestines were much distended with air. The liver was small; and the lungs adhered to the pleura all around, and to the diaphragm, pericardium, and mediastinum. Every other part was found in a natural condition. As we find no other cause of asthma but the extensive adhesion, and as the symptoms differ in appearance from the common asthma, I am inclined to think that the adhesions were the cause, and not the effect, of his disease. This is probably a new species, not mentioned by Sauvages. In none of Morgagni's dissections, where such adhesions are found, do I remember any difficulty of breathing. But there are many in Lieutaud; and one positive overbalances many negative proofs.

In these four asthmatic cases, blisters did no real service. But we must allow, that the last case of asthma is to be attributed less to spasm than to adhesion, in which blisters could be of no advantage.

EXPER.

EXPER. XXIII. Eliz. Donaldson, Exp. CXVII. affected for eleven days with dysphagia, or spasm of the oesophagus, had a blister applied to her back, directly opposite to the place where she felt the pain. The difficulty of swallowing seemed to be rather increased the next day. Another antispasmodic cured it, as we shall afterwards see.

On the whole, blisters do not appear to be powerful antispasmodics, in the above lists of spasmodic diseases.

V A L E R I A N.

We now proceed to internal medicines. Since Fabius Columna's time, who cured himself of an epilepsy by valerian, it has been in great request. But, as generally happens, authors have related their successful, not their unsuccessful attempts with it; so that, without having fixed its value, we proceed blindly, prescribing what will very often not answer.

EXPER. XXIV. May 14, 1769. Margaret Smart, 22, regular in the appearance of the menstrual flux, has been subject,
for

for six years, to epileptic fits, which she thinks were first owing to a fright. The fits last about a quarter of an hour, of which she had six to day. She has sometimes a severe stitch in her right side. Pulse 76, and rather weak. R Pulv. valer. silvest. drach. fs. pro dof. cap. quater in die. 18th, Fits less frequent. Repet. pulv. val. silv. quinq. in die. 22d, Cap. pulv. val. silv. scrup. ii. quinq. in die. 24th, Had nine fits this day; so the medicine was given up.

EXPER. XXV. Dec. 3, 1774. Janet Lyon, 24, has her menses regular, though in small quantity, and is subject to globus hystericus, slight convulsive fits, swelling of stomach, frequent vomiting of food in an acid state. Pulse 70, and weak. She had the tinctura sacra often, castor, bark, tinctura cuscuthae, laudanum, theriac plasters to her stomach, and aether, in vain. Jan. 6th, Cap. pulv. valer. silv. drach. fs. quater in die. 8th, Cap. pulv. valer. silv. scrup. ii. quater in die. 9th, The dose was augmented to a drachm. 11th, Complaints no better; so the valerian was omitted.

EXPER.

EXPER. XXVI. Feb. 10, 1776. James Finlayson, 22, subject to palpitations of his heart for two years, has been, for six weeks, affected with convulsive motions, or palpitations of the different muscles over all his body, seizing different parts at different times. Pulse 100, and weak. He began with half a drachm of valerian, and came to take a drachm, four times a day. But, on the 25th, it was given up, as he was no better.

EXPER. XXVII. Peggy M'Intosh, Exp. XI. in hiccup, began with a drachm of valerian, four times a day, while her pulse was 64, and soft; and on the 3d day she took two drachms, four times a day. She used it ten days without success.

EXPER. XXVIII. January 30, 1776. Thomas Paterson, 41, subject to rheumatism, has been affected for three months with a violent head-ach, which is severest after mid-day. Having taken a dose of physic, he began to take a drachm of valerian, four times a day, for six days, without success.

EXPER. XXIX. March 27, 1778. Isabel Buchannan, 53, was affected for two months

months with vertigo and palpitations of her heart. Pulse 72, and rather strong. She had been bled, and it was now repeated. She took valerian to the quantity of a drachm and a half, four times a day. In eleven days she was dismissed cured. The bleeding may claim the merit of this cure, as well as the valerian.

EXPER. XXX. December 21, 1778. Thomas M'Claren, 18, has been affected with chorea Sancti Viti for three weeks. He had half a drachm of valerian four times a day; and by degrees it was augmented to a drachm. On the 4th day after he began to take it, all his complaints were better, the convulsions diminished, his walking became more steady, his speech plainer, and his deglutition natural; but his startings during sleep still continued. On the 11th, the convulsions were almost gone, and he had no startings or palpitations. But his recovery did not advance after this, and he was cured by the bark.

EXPER. XXXI. January 15, 1779. Janet Wilson, 15, was seized with a chorea Sancti Viti a fortnight ago, after exposure to cold and a fright. She got a drachm
of

of valerian four times a day, for four days, but without any effect.

EXPER. XXXII. November 26, 1778. Joseph Harley, 14, had laboured for several weeks under a Catalepsis. He took two scruples of this medicine, four times a day, for six days, at the end of which time he was seized with a fit much more approaching to the epilepsy, than any of the preceding. The medicine was then given up.

In the preceding cases, the valerian has been remarkably unsuccessful. The situations appeared such, as I should have imagined would have been favourable to its operation, as they were of the debile kind. For, probably, when it does service, it acts as a bitter tonic, as it is of the nature of serpentary. It stimulates; and therefore must hurt in inflammatory cases. Though much used at present, it has always appeared to me a weak, often a hurtful medicine.

M U S K.

Musk was used by the antients and Arabians; and, since our intercourse with China,

China, has been much prescribed by the moderns, especially in convulsive diseases. But we have, perhaps, over-rated its value.

EXPER. XXXIII. Margaret Smart, Exp. XXIV. June 14, began, for epileptic fits, the musk, of which she took fifteen grains, dissolved, by the mucilage of gum Arabic, in a mixture, morning and evening. 31st, Had ten fits, so it was given up.

EXPER. XXXIV. Elspeth M'Leod, Exp. I. in hysteria and singultus, had fifteen grains of musk, thrice a day, for five days; at the end of which time her hysteric symptoms were worse, and her hiccup as severe.

EXPER. XXXV. May 22, 1770. Christian Young, 24, regular as to the appearance of her menses, being suddenly cooled when overheated, five months ago, has, since that time, had a pain in the hypochondria. She is now seized with frequent fits, which begin with convulsive motions of the abdominal muscles, and are soon followed by hiccup, and a convulsive motion of the under jaw. The paroxysm lasts about five minutes, during which the
pulse

pulse is very quick, and not easily numbered. Any surprise brings it on; and, when in the paroxysm, a surprise carries it off. She is seldom attacked while in bed. She began with ten grains of musk, in mixture, thrice a day; which were soon increased to fifteen grains. Neither the pulse, nor heat of the body, were altered by the musk, as appeared by two experiments which were made on her. It was continued to the 28th; but without any success.

EXPER. XXXVI. Hanaw Douglas, Exp. XV. in the hiccup, took the above doses of musk, for three days, without any effect.

EXPER. XXXVII. Peggy M'Intosh, Exp. XI. for the hiccup, was ordered musk in a mixture; but, though it gave some temporary relief, the disease always returned.

EXPER. XXXVIII. March 14, 1776. Anne Cameron, 30, who has her menses regular but in small quantity, has been affected, for fourteen months, with the sensation of a ball in her throat, convulsive startings over her whole body, and pain in
her

her right side, back and head. These complaints come in paroxysms, in which she knows what is doing around her. During these, her pulse is much quickened. After trying assafoetida, laudanum, and calomel, till her mouth was affected, and she spat a little, she began the musk; but to no purpose.

These six cases, purely spasmodic, in which musk was exhibited, without one of them being cured, cannot afford us a very favourable opinion of its antispasmodic powers. We own, that this medicine is often adulterated. But, then, the doses given were very considerable, and able to make up for any deficiency from adulteration. We see, from Exper. XXXV. that it neither quickens the pulse, nor increases the heat of the body; so that, in feverish cases, we need not be afraid of such effects.

C A M P H I R E.

This medicine is not so often used as the former in spasmodic cases; but, whether on just grounds, is still left to be decided by experiment.

N

EXPER.

EXPER. XXXIX. July 23, 1769. Katherine Innes, 22, obstructed for seven weeks, was seized lately with head-ach, globus hystericus, dyspnoea, fits of crying and laughing, nausea, acidity of stomach, pain in her left side, and at times a little haemoptoe. Pulse 100, and rather strong. She was bled, and had phyfic. Afterwards, she began to take seven grains of camphire dissolved in the mucilage of gum Arabic, thrice a day. Her pulse became slower after each dose; but the heat of her body was not altered. The dose was afterwards increased to ten grains. 29th, Pain of her side and head-ach easier, and she sleeps better. August 2d, dismissed cured.

EXPER. XL. Barbara Weston, Exper. IV. who owed her cure in hysteria chiefly to bleeding, had, after venaesection, ten grains of camphire, dissolved, thrice a day. Perhaps a part of the cure may be imputed to it.

EXPER. XLI. Jan. 6, 1775. Jean M'Lauchlan, 20, menses regular, but in small quantity, had been in the Infirmary before for tremors and hysteric fits, and

was

was cured chiefly by camphire. She now took laudanum, assafoetida, aether, bark, &c. without effect. She was ordered camphire, and took it for five days, but without advantage.

EXPER. XLII. James Finlayson, Exp. XXVI. in Tremor Palpitans Sauv. took camphire in a julap, for three days; but without success.

EXPER. XLIII. Peggy M'Intosh, Exp. XI. for the hiccup, was prescribed camphire in a julap for nine days. She was much relieved at first by it; but the disease returned again.

EXPER. XLIV. Janet Kennedy, Exp. XII. towards the latter end of her hiccup took the camphire julap with some advantage. But it was given up, as it seemed to increase her flatulence.

From these six cases, we may conclude;

1. That camphire has some merit as an antispasmodic in the hysteria and hiccup, and that it is more powerful than musk.

2. That it is chiefly useful in the inflammatory spasmodic cases; as it makes the pulse slower, and rather cools; and, as the success of it in the XXXIX, XL,

XLIII. and XLIV. experiments, which were all of that kind, shew; while the XLI. and XLII. experiments, where it was unsuccessful, were of the contrary kind.

3. That its antispasmodic effects are not of long duration; and the disease is apt to recur, as appears by the XLI. and XLIII. experiments.

C A S T O R.

Castor is much used as an antispasmodic. But, on what foundation such practice is built, is still to be enquired into.

EXPER. XLV. May 14, 1769. Elison Graham, 15, and who has not yet menstruated, has been, for two months, attacked with hysteric paroxysms, twice or thrice a day, along with acidity and flatulence of stomach. Pulse 86. Cap. pulv. cast. Ruff. scrup. i. fyr. q. f. ut fiat bol. mane & vesper sumend. In two different trials, her pulse became considerably slower after the bolus; but her heat remained the same. She continued to take this medicine for three days without any effect.

EXPER.

EXPER. XLVI. August 4, 1770. Anne M'Donald, 20, after exposure to cold, was seized with an eruption like that produced by nettles, which alternately appeared and disappeared. In eight days, it went away, and she was attacked with pain, acidity of stomach, palpitations of her heart, especially on walking, head-ach, and globus hystericus. Pulse 56. She had a vomit, and then a scruple of castor thrice a day. Her pulse became slower after the medicine, but the heat of her body continued the same. 6th, Much better. Pain of right side. Applic. emp. calid. Ph. Paup. 9th, Former complaints gone. After this, she was seized with gentle hemoptoe.

EXPER. XLVII. Janet Lyon, Exper. XXV. with hysteric complaints, took a scruple of castor, first twice, then thrice a day for five days; but without effect.

From the above experiments, this medicine appears not to be worthy of the confidence we put in it, nor one upon which we can have much reliance. At the same time, it seems to be not only safe in spasmodic feverish cases, but useful, as it makes the pulse slower, and acts as a

sedative. Hence its powers of giving sleep.

A S S A F O E T I D A.

This medicine has been one of the most frequently employed antispasmodics for many years. Let us view its powers.

EXPER. XLVIII. August 6, 1770. Margaret Emery, 18, menstruates copiously every 8 or 14 days. She was attacked, on the 2d, with hysteric fits, which are frequent, but of short duration. Pulse 76, and of natural strength. After a vomit, she was ordered the foetid pills, which were changed on the 13th for a mixture of assafoetida of which she took a drachm a day. 16th, No fits for three days. 20th, Dismissed cured.

EXPER. XLIX. Feb. 14, 1773. Margaret Pettie, for globus hystericus, dyspnoea, and retraction of the abdomen, took a scruple of assafoetida, thrice a day. It always excited violent vomiting, even although forty drops of laudanum were added to each dose.

EXPER. L. March 10. Anne Gordon, 33, has been affected, for six years, with hysteric

hysterical paroxysms. They attack her once a day since the 5th. Pulse 86. Menfes regular. A mixture of assafoetida was prescribed, and she gradually recovered; so that in a few days she was dismissed cured.

EXPER. LI. Dec. 11, 1774. Margaret Sommerville, 36, obstructed for four months, was, six weeks ago, seized with hysterical fits, swelling of her stomach, vomiting, and costiveness. Pulse 100. Took a scruple of assafoetida dissolved, four times a day. 12th, Complains that she is seized with pains in her stomach after each dose. 15th, Body more open. All complaints gone, excepting the swelling of her stomach, and pain of the back.

EXPER. LII. Janet Lyon, Exp. XXV. was ordered an ounce of the julapium foetidum of the Pharm. Paup. with ten drops of laudanum in each dose. She took it for three days, but thought herself worse during the use of it.

EXPER. LIII. Dec, 25, 1778. Janet M'Donald, 12 years old, was seized, after a fright, about three weeks ago, with hysteria. She took the powder of orange leaves, camphire, and bark, but without effect.

effect. At last, assafoetida given to the quantity of a scruple a day, stopped her fits, and cured her disease.

EXPER. LIV. Elizabeth Donaldson, Exper. CXVI. in dysphagia, took a scruple of assafoetida, thrice a day, with laudanum and had clysters of it often; but without much effect. I thought it was of use before to a Lady, in the same disease.

Though not always successful, this medicine seems to enjoy considerable antispasmodic powers. As it heats and quickens the pulse, it must always be improper in inflammatory cases. With some, from peculiarity of constitution, it seems to disagree, and to excite pain in the stomach and vomiting. The former situation may be known before, the latter can be known only after the exhibition of this medicine.

SPIRITUS AETHEREUS VITRIOLICUS.

Aether is at present, much used as an antispasmodic. Let us, therefore, consult our cases, to see what judgment is to be formed of its powers.

EXPER.

EXPER. LV. Elison Graham, Exper. XLV. in hysteria, May 23d, began the use of aether, in the quantity of a tea-spoonful in a gill of water, twice a day. When just given before the fit, which came on twice a day, at stated times, it put it off for an hour. After the fit had actually begun, the aether suspended it for 20 minutes. 27th, Fits less frequent. Takes aether thrice a day. 28th, Takes it four times a day. June 2d, She has but one slight fit a day. 6th, Is ordered six doses a day. 8th, Fits almost gone. Took some tonics.

EXPER. LVI. Elspeth M'Leod, Exp. I. with hysteria and hiccup, was ordered a tea-spoonful of aether every fifth hour. She took but two doses, as each was attended with convulsions; so she got no more.

EXPER. LVII. April 13, 1774. Janet Robert, 30, obstructed for a year, was seized, about two years ago, with globus hystericus, dyspnoea, and vomiting. She was prescribed an emetic, a purgative, and the foetid pills. 18th, She began to take a tea-spoonful of aether, four times a day,
in

in water. She thinks that it excites a warmth in her stomach, and eases the pain there. On the 21st, hystheric complaints no better; so the aether was given up.

EXPER. LVIII. Feb. 28, 1776. Helen Colvill, 19, subject to hystheric fits for four years, took aether for four days; but was no better.

EXPER. LIX. Anne Cameron, Exper. XXXVIII. in hystheria, took aether four times a day, for seven days. It often removed the paroxysm after it had begun; but the disease was not cured.

EXPER. LX. March 2, 1778. Betty Edmonstone, 18, obstructed for six months, was seized, five months ago, with globus hysthericus, shivering, convulsions of the whole body, and starting during sleep. Pulse 80, and of natural strength. She began with one tea-spoonful of aether, which was gradually increased to four, four times a day. It sometimes raised a pain in her stomach. After the 8th, no hystheric fits appeared.

EXPER. LXI. November 24. Grace Williamfon, 25, in hystheria, took three tea-

tea-spoonfuls of aether, four times a day. It cured her.

EXPER. LXII. Janet M'Donald, Exp. LIII. was ordered two tea-spoonfuls of aether for a dose, four times a day. It often stopped her fits, but did not cure her.

EXPER. LXIII. December 12, 1776. Jean Sutor, 12, has been subject to epileptic fits for four years. They come on with vertigo and remarkable coldness of hands and feet. In the fit she is insensible, and has great variety of convulsive motions. It lasts about a quarter of an hour, and returns frequently each day. Head-ach. She has passed worms, and has some worm symptoms at present. I therefore began her with vermifuge medicines, such as the spigelia Marylandica, powder of tin, &c. But these not succeeding, I ordered aether on the 21st, for her convulsive symptoms. About three minutes after each dose, her belly swelled, and became harder. In five minutes it returned to its natural state. 27th, She passed a lumbricus worm; and next day another. After this she had no more fits, and was soon dismissed cured. A few days afterwards

wards she was seized with a pain in her belly, and convulsive motions of her arms. She came in again; took aether; the startings went off; and she passed another worm in two days. I then looked on the convulsive symptoms as proceeding from worms, which were killed by the aether. But having afterwards tried the aether, in three cases, where the symptoms appeared to proceed from worms, and the aether not succeeding, I have since suspected that the case was epileptic, and that the worms came away when the disease retired, as they often do in other cases.

EXPER. LXIV. Margaret Smart, Exp. XXIV. in epilepsy, took aether for seven days, but without any effect.

EXPER. LXV. G Drummond, Exp. CXXII. in a hemitononas Sauv. took aether to the length of four tea-spoonfuls, four times a day. The left side of his head, where he complained of a pain before the fit came on, was rubbed with it thrice a day. He drew it in likewise by inspiration. But, after a fair trial, he seemed to become rather worse.

EXPER. LXVI. Peggy M'Intosh, Exp. XI. was prescribed it for her hiccup; but it did her no service.

EXPER. LXVII. Janet Wilson, Exp. XXXI. took it in chorea St. Viti, but without success.

EXPER. LXVIII. Janet Kennedy, Exp. XII. in the inflammatory species of hiccup was ordered aether from the beginning. I am not sure that it did her any service, so the bleeding got all the merit of the cure. But I am sure the aether did no harm, which it must have done, had it been of a stimulating nature. Hence we learn, that it will not increase the febrile inflammatory state.

EXPER. LXIX. November 28, 1778. David Bell, 24, in an inflammatory asthma, took a tea-spoonful of it four times a day, which dose was by degrees increased to three tea-spoonfuls. It was continued for twelve days and got a fair trial. During the use of it his complaints were not alleviated; but on the contrary, they seemed to become rather worse, as his expectoration was in much greater quantity, and as he had regular cold fits.

This

This medicine, therefore shows some powers in curing the hysteria. Of eight, it cured three, and relieved two. It is commonly observed that its effects are quick; and that if it does not cure in two or three days, it will not after that time. I think likewise, that the effects soon disappear, and we can scarcely trust a cure performed by it. We find that its good effects are not increased by increasing the dose, as the above cures were performed with small doses, while the largest did not succeed. I have not yet seen it succeed in any other spasmodic disease, Exp. LXIII. excepted, if in that the disease was idiopathic, which was probable. It appears to be a medicine of the sedative kind; and from Exp. LXVIII. not to be hurtful in inflammatory cases, which, if true, is a useful discovery. In some constitutions, however, it excites pains in the stomach, and convulsions.

CORTEX PERUVIANUS.

This medicine is used in a great variety of spasmodic and convulsive diseases. Let us endeavour to ascertain its value.

EXPER.

EXPER. LXX. June 9, 1770. Edward Oliver, 18, after a fright, has been for eight years subject to epileptic fits, which generally attack him when asleep, and he has been fatuous for near two years. His fits are often stopped by raising his head from the pillow, and it does not awake him. He took the bark for almost a month, and his fits became very slight, and returned but seldom.

EXPER. LXXI. February 6, 1778. Isabel Buchannan, 18, while convalescent after a fever, was seized with hysteria. She took the bark and recovered.

EXPER. LXXII. Christian Young, Exp. XXXV. in hysteria, was ordered to take the bark, with a little pulv. cardam. min. and sal martis, which she continued for three weeks, and recovered.

EXPER. LXXIII. April 14, 1774. Robert Bain, 21, has been affected with epileptic fits for these two years. Took bark, with valerian, for ten days, and was much relieved by it.

EXPER. LXXIV. Peggy M'Intosh, Exper. XI. affected with hiccup, had the bark for five days, but she was no better.

EXPER. LXXV. Thomas M'Claren, Exp. XXX. in chorea St. Viti, was cured by the bark.

EXPER. LXXVI. Janet Wilson, Exp. XXXI. in chorea St. Viti, had her convulsive motions very much relieved by it.

EXPER. LXXVII. Joseph Harley, Exp. XXXII. in the catalepsis, was much relieved by it.

Thus the bark appears to be an excellent remedy in pure spasmodic diseases. But, as it is hurtful in all inflammatory situations, we must take care that such a state of the body does not accompany the disease, when that medicine is ordered. All the seven, in which it was successful, were of the anti-inflammatory kind.

A R T E M I S I A.

Mugwort

EXPER. LXXVIII. January 21, 1777. Margaret Gray, 36, hath been for many years affected with hysteric fits. After aether and assafoetida had been tried in vain, I ordered a drachm of the powder

powdered leaves of the artemesia, four times a day. In a few days the fits disappeared.

P E O N I A.

The root of this plant was much used by the antients as an antiepileptic; and Galen says that it cures the disease, though hung only round the neck. Such praises deserved attention.

EXPER. LXXIX. Millar Logan, Exp. IX. had half a drachm of it, four times a day. His fits became much less frequent, for some days. But, on the 8th day, he had many fits, so it was given up.

EXPER. LXXX. Margaret Smart, Exp. XXIV. in epilepsy, took it in same way, for eleven days. But without effect.

VISCUS QUERCINUS.

The mistletoe was long in estimation for curing the epilepsy.

EXPER. LXXXI. Margaret Smart, Exp. XXIV. had two scruples of the powder of this medicine, at first thrice, and at

last five times a day, for eight days, but without success.

EXTRACTUM HYOCYAMI.

EXPER. LXXXII. The preceding patient was ordered at first a grain of the extract, twice a day; and then two grains, for fourteen days. It sometimes raised a nausea, but had no sensible effect in increasing the number of her stools. On the last day she had six fits, which made me give it up.

EXPER. LXXXIII. George Drummond, Exper CXXII. in hemitotonos, took a grain of the extract of the seeds of the hyocyamus, thrice a day, and then two grains for six days; but the fits never abated. It produced thirst, with dryness and heat in the throat.

EXPER. LXXXIV. March 16, 1778. Janet Burn, 21, has been subject, for two months, to globus hystericus, fainting fits, and frequent vomitings, attended often by hæmatemesis. After bleeding, cold water used externally and internally, the tincture of roses, laxatives, &c. were employed in vain,

vain, I ordered this medicine. She began with a grain four times a day, and came at last to take eight grains each time. The smallest doses were attended with nausea; the greater doses produced vertigo, and dimness of sight. She continued this medicine for twenty days, but without success in the cure of the hematemesis, or even of the simple vomiting.

Hence, notwithstanding Stork's trials, it neither appeared to me antispasmodic, nor antihaemorrhagic.

FOLIA AURANTIORUM.

De Haën and Hannes have recommended this in the epilepsy.

EXPER. LXXXV. Miller Logan, Exper. IX. in epilepsy, took at first a scruple and then half a drachm of this medicine, four times a day, without any success. It produced no sensible effects.

EXPER. LXXXVI. Dec. 4, 1778. William Falconer, 50, affected with epilepsy for six years, was ordered to take from half a drachm to a drachm of it, four times a day; but without any success. Nay, he took by mistake, at once, five doses of

a drachm each, without producing any sensible effects.

EXPER. LXXXVII. Janet M'Donald, Exper. LIII. in hysteria, took it from a scruple to a drachm for a dose, four times a day, and for ten days, but without success.

These experiments incline me to call in question the antispasmodic power of this medicine.

CARDAMINE PRATENSIS LIN.

This plant, especially its flower, has been mentioned by Dale, and in the Medical Transactions, as good in convulsive and spasmodic cases.

EXPER. LXXXVIII. July 5, 1769. Daniel Donaldson, 65, has been attacked, for fifteen months, with convulsive motions in his legs, arms, and abdominal muscles, which deprive him of his speech; but during the fits he retains his judgment. Cold, quick motion, and surprise, increase his disease. On pressing the parts below the cartilago ensiformis, convulsive motions of the abdominal muscles are excited. Pulse 84, and weak. After a vomit, he

was ordered pulv. flor. cardamin. scrup. ii. mane & vespere. After he had continued to take this for five days, his fits were as frequent as usual.

EXPER. LXXXIX. Edward Oliver, Exper. LXX. took, during four days, half a drachm of it, twice a day, for the epilepsy; but without success.

EXPER. XC. Anne Stalk, Exper. III. had a scruple of this medicine twice a day for six days. The hysteric fits were less frequent at first; but, on the last day, they recurred as often as when she first began to take it.

As this medicine is not kept in the shops, I was obliged to send some people to gather it. I was therefore, supplied with a small quantity only, so could not afford greater doses, or try it in more cases. It has not, in the above experiment, succeeded with me; and I should not, from its genus, be much inclined to expect great success from it.

O P I U M.

Opium is reckoned one of the most powerful antispasmodics.

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EXPER.

EXPER. XCI. Margaret Smart, Exper. XXIV. epileptic, and often seized with the fits during her sleep, took eight grains of the Pill. Matth. in the afternoon, and again at bed-time. Next morning, she had a severe fit.

EXPER. XCII. Miller Logan, Exp. IX. who had many fits during the night, was prescribed at first, fifty, and then eighty drops of the paregorick elixir, four times a day. He took it for five days, and the last day had nine fits.

EXPER. XCIII. George Drummond, Exper. CXII. was affected with convulsio, for which he was ordered calomel. In each bolus, which he took always once, and sometimes twice a day, he got two grains of opium, for ten days. But it had no effect, except diminishing the purgative powers of the calamel.

EXPER. XCIV. Christian Young, Exp. XXXV. in convulsive fits, took sixty drops of laudanum, at first thrice a day, then four times a day, for eight days. At first, the fit was suspended by it; but, at last, they recurred with their usual vigour. The hiccup, with which she had been before

before affected, returned on the second day after she had begun to take this medicine.

EXPER. XCV. Margaret Pettie, Exp. XLIX. in hysteria, took sixty drops of laudanum along with a scruple of asiafoetida, morning and evening; but she threw it up twice. She then was ordered fifty drops of laudanum alone. Next morning, the head-ach, globus hystericus, and constriction of the abdomen, were better; and, by continuing the opiate, she recovered.

EXPER. XCVI. Elspeth M'Leod, Exp. I. affected with hysteria, and frequent hiccup, took twenty drops of laudanum, every second hour. Next day, I found that she had taken a hundred drops. After the 4th dose, she turned easier; and, though she got a fright during the night, she complained only of head-ach and a pain of her stomach. On the 3d day, she continued well. On the 4th, the hiccup returned once or twice, but she had no hysteric fit. On the 5th, the hiccup returned a little, and she continued for some days in this way.

EXPER. XCVII. Hannaw Douglas, Exper. XV. in hiccup, took twenty-five drops of laudanum, thrice a day. Each dose relieved the hiccup, and generally carried it off in half an hour after the medicine was taken; but then the disease returned again. She was constantly drowsy or sleeping; and the hiccup, on the 5th day, came on even when she was asleep. The opiate was then given up.

EXPER. XCVIII. Peggy M'Intosh, Exp. XI. for her hiccup took forty drops of laudanum, with one grain of the emetic tartar. It made her sick, and produced, next morning, a plentiful sweat, during which the hiccup kept off for the whole day. On the 3d, the hiccup was moderate; and she was ordered twenty-five drops of laudanum at bed-time. On the 4th, she had no hiccup; and the opiate was repeated. On the 5th, the hiccup returned as severe as before; so the medicine was given up.

EXPER. XCIX. Nov. 24, 1778. John Murray, 60, was seized with asthma about two months before. The paroxysm comes on about four o'clock in the afternoon.
After

After the inflammatory state was reduced by several bleedings, he took, at four o'clock in the afternoon ten grains of the thebaic pill, divided into two pills. He took the pills before the fit came on; the fit was much diminished; he slept well, and could lie easily on his back. He afterwards was ordered a tea-spoonful of the paregorick elixir, to be taken at three in the afternoon; and he was not sensible of any paroxysm. When taken after the fit came on, the drops made it gentler.

EXPER. C. John Thomson, 18, in an asthma, for three months, took two tea-spoonfuls of the paregorick elixir at bedtime. He passed much easier nights after it; and his expectoration, instead of being diminished, was promoted by it.

EXPER. CI. Janet Monro, affected with asthma for two months, was easier after an opiate.

From the above cases, opium seems to be a powerful medicine in the hysteria, as it cured both patients. It abated the hiccup in both cases, though the disease again returned. In the epilepsy and convulsio, it seems to have done no good. It
gave

gave much relief in the asthma. In inflammatory cases, I would not chuse to exhibit this medicine till that state was corrected by sufficient venesection. I found this rule necessary to be observed, particularly in the asthma. But opium has often failed me in such cases as were of the anti-inflammatory sort.

CUPRUM AMMONIACALE.

This medicine has been much used of late in epileptic cases.

EXPER. CII. Margaret Smart, Exper. XXIV. in an epilepsy, took from half a grain to a grain and a half of the cuprum ammoniacale, each night, at bed-time, for twenty-five nights. It generally excited nausea; but the disease was not alleviated.

EXPER. CIII. Edward Oliver, Exper. LXX. was ordered from a grain to three grains and a half of this medicine, twice a day. It generally excited nausea; but his fits of epilepsy did not abate.

EXPER. CIV. Jan. 18, 1779. Alexander Leitch, 18, subject to epileptic fits,
began

began to take a grain of it, twice a day. At the end of some days, during which he had continued it, he came to take seven grains of it for a dose. But his fits were not diminished in violence or number.

EXPER. CV. Joseph Harley, Exper. XXXII. took half a grain of it twice a day. As this quantity produced no sensible effect, it was increased to a grain; but it occasioned a smart vomiting; so that we reduced the dose to half a grain. This he continued for ten days, and had no fit; so he was dismissed cured. But I was told, that the disease returned afterwards.

This medicine has, therefore, in none of these four cases succeeded. But, in the last, the fits were suspended by it for several days.

F L O R E S Z I N C I.

Since Gaubius's detection of the quack remedy used by Ludemanus, this medicine has been much employed. Let us view our trials.

EXPER. CVI. March 18, 1774. Robert Bain, 21, was affected with epileptic
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fits

fits for seven years, which did not often return. He had a tremor of his legs and arms. He began to take a grain of the flores zinci, morning and evening; and took at last, after the period of near a month, twenty-two grains for a dose. These great doses had but little sensible operation. No fits came on during that time; but the tremor and vertigo remained; so that he fell to the ground, but he had no convulsions.

EXPER. CVII. Dec. 3, 1774. James Ewart, 52, has laboured under epileptic fits for eight or nine years; and, of late, has had a paroxysm every ten days. The faculties of his mind are impaired. Pulse 80, and of natural strength. He had taken vomits, emetic tartar, and camphire, before I saw him. His vision became bad three years ago; and he has had a vertigo for two years. He was put, at first, on a course of this medicine, beginning with a grain, and increasing the dose to eighteen grains, twice a day. He was generally sick after it, and sometimes sweated. 23d, He has had no fits till this evening, when he had a slight one, in which he
was

was insensible, and foamed a little at the mouth; but he had no convulsions along with it. He had no more fits, though he remained twenty days taking some mercurial medicines for his sight, which he recovered.

EXPER. CVIII. William Falconer, Exp. LXXXVI. in epilepsy, took it, from the smallest doses to half a drachm, twice a day. This quantity produced nausea, and purged him gently. It gave him at first some relief from the fits, but it lost its power at last.

EXPER. CIX. Alexander Leitch, Exp. CIV. subject to epilepsy since he was ten years of age, had this medicine from a grain, to sixty grains for a dose, twice a day. But without success. With the largest doses he sometimes vomited.

EXPER. CX. John Murray, Exp. XCIX. in asthma, was ordered a grain of it at bed-time. The dyspnoea and cough were worse. He took two grains of it next night, and was no better.

EXPER. CXI. David Bell, Exp. LXIX. in asthma, took from one, to twelve grains of it, twice a day. He seemed easier at first,

first, but its good effects did not continue.

EXPER. CXII. George Drummond, Exp. CXXI. in hemitotonos, took at length this medicine to the quantity of a scruple, twice a day, for twelve days. It sickened him, but did no service in the cure of his disease.

EXPER. CXIII. Anne Cameron, Exp. XXXVIII. in hysteria, had eight grains of it, twice a day, for seven days, without effect.

EXPER. CXIV. Helen Colvill, Exp. LVIII. in hysteria, took it for five days without effect.

EXPER. CXV. Peggy M'Intosh, Exp. XI. in hiccup, was ordered after the last bleeding, some doses of this medicine. But, as these went no higher than five grains, and were continued but for three days, I attributed the cure more to the bleeding.

This medicine appears, therefore, from these trials, to be a good antiepileptic; but not to be so powerful an antihysteria. The above doses may appear very great; but were found to be very innocent. I have,

have, however, had frequent opportunities of remarking, that the cure has been performed with small doses of two or three grains; and that when such quantities failed, larger doses of forty grains never succeeded. It generally produces a nausea, rarely purges, sometimes sweats, and often has no sensible effects.

M E R C U R Y.

Mercury has, of late, been considered as an antispasmodic. The first hint, so far as I know, which we got of this quality, was in the *Essays and Observations Physical and Literary*, where we were told, that a surgeon of Jamaica had used it with success in the tetanus and locked jaw, having before that time lost many patients, to whom he had given opium and musk. His method of giving it was, by rubbing in mercurial ointment; and the symptoms went off, when the mouth was affected. Dr. Lyson has related three cases of epilepsy cured by calomel. It may be supposed to act as a vermifuge in the latter cases. It could not do so in the former,
as

as it was not given by the mouth. Such facts demanded our utmost attention.

EXPER. CXVI. March 1, 1774. Katharine Grant, 16, who never menstruated, had been, during the preceding winter, in the clinical ward, ill of a fever, of which she had been dismissed cured. In this fever she had complained of a pain in the left side, for which she was then bled and cupped, and it was relieved. About the 18th of February, she was again seized with the pain, which was situated between the short ribs and the os ilium, and rather forwards; and it became worse on pressure, and on a full inspiration. Two days afterwards, she was seized with convulsive motions of the lower jaw, which continued, and were very frequent at the time of her admission. These were increased upon the least motion of her body; and especially when she attempted to speak. This was so evident, that, after they had ceased for several days, they were brought on again by speaking. They were always attended with a convulsive motion of the sternum, and of the organs of respiration; which different convulsive motions seemed to depend

pend on one another. These convulsive motions, and the pain of the side, appeared to be intimately connected with each other, as the pain was easier when the convulsive motions were gentle, and was worse when they were severe. When the pain of the side was acute, the breathing was always affected. She slept little; and, when she did, she started much; her body was regular, and her appetite good. Her pulse was at first from 120 to 130, and weak; but in a few days it was only 100.

I thought this trismus clonicus a good case for the exhibition of mercury, especially as I had failed just before, when I trusted to musk and opium, in the trismus tonicus of a young gentleman, who was seized with it, from a fracture of the small bones of the nose. She began, March 1st, the night she came in, with a bolus consisting of six grains of calomel, which was repeated each night, at bed-time. It generally opened her body once or twice. On the 5th, her pulse was 116, and weak. She sleeps ill, but has no convulsions during sleep. 7th, pulse 100, she had three loose stools which were not slimy. The

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pain

pain of her side and the convulsive motions are much easier; and she sleeps much better. Complains of a pain in her throat, and of her neck on both sides. Her teeth are loose. 8th, pulse 100. She had a fit of her convulsive motions last night, during which the pain of her side, and difficulty of breathing, were worse. Applic. ung. mercur. musculis temporalibus. 10th, pulse 100, the convulsive motions are much better, but they are still brought on when she speaks. She began to salivate last night. 12th, All the convulsive motions have gone off since yesterday morning. She spits much. She complains much of the pain in her side; for which the part was blistered. 15th, pulse 120. She had a short fit of the convulsive motions, without loss of speech, yesterday, which was the last fit. The pain of her side is gone. She has purged often, and her faeces are black; and they continued of that colour for three days. She was ordered the powder of tin. 18th, pulse 138, her bolus was now given up, and she spat little. She complained of weakness, and pains over all her abdomen, breast, and legs. She took a dose

of

of rhubarb, and after it the bark, as a tonic and antispasmodic. But the fever increased; and notwithstanding blisters, emetic tartar, James's powder, wine, &c. she died on the 29th.

This case affords a strong proof of the antispasmodic powers of mercury, after it begins to affect the mouth, as it carried off all the convulsive symptoms for the remaining fortnight of her life, even though the cause remained, which occasioned them, and afterwards her death. What that cause was, could hardly be determined during her life. It could alone be ascertained by the following inspection of her body. The *emanſio menſium* might be accused as the cause of her death; but I never knew the *amenorrhoea* produce the *trismus*; much less can the *emanſio*, whose symptoms are always more mild, produce it. Besides, the *trismus* never appears, as I am told, in the East or West Indies, without an evident cause, or external lesion. It comes on here after operations. I saw it after a mortification of the points of the toes, and after a fracture of the bones of

the nose. I knew it occasioned by a fracture of the first bone of the thumb.

One of the most frequent seats of local convulsions is the intestinal canal, as appears from worms, poisons, the colica pictonum, &c. Grinding of the teeth, which is a particular species of trismus clonicus, arises from an irritation of the intestines. Besides, we find, in this case, an actual pain there. This pain seemed to be the cause of the convulsions, from the following arguments: 1. The pain preceded the convulsions, which appeared two days afterwards. 2. The convulsions were always proportioned to the pain, and vice versa. Thus on the 8th, when the pain of the side returned with severity, she had a fit of more general convulsions. 3. The pain of the side was evidently connected with the difficulty of breathing, and the convulsive motions of the respiratory organs; for on the 11th, the pain of her side was very severe, and a difficulty of breathing followed. 4. The convulsive motions were worse when she walked, which always increased the pain of her side. 5. The convulsive motions went off before

before the pain. I, therefore, thought it probable, during the progress of the case, that the pain was the original cause of this disease, and that the seat of this pain ought to be considered as the seat of the convulsions. But what occasioned the pain? That was more difficult to determine. As worms are attended with pains of the abdomen and convulsions, our first business was to enquire if any of the symptoms indicated these. But I could find no other symptoms, except these two, to confirm that opinion; and yet I have seen worms produce very few.

Nothing but ocular demonstration could clear this doubt. On inspecting the body, the small intestines on the left side were much inflamed; and, where they touched the peritoneum, before the left kidney, they had a mortified appearance. On laying open the whole intestinal cavity, nothing preternatural was seen in it. The left orifice of the stomach was much inflamed. The lungs also were found inflamed, and adhering to the pleura and diaphragm. The vessels of the brain were much distended. The gangrenous state of

the small intestines, the part where she complained of the pain, appears to have been the cause of her disease. In Lieutaud*, we meet with convulsions from the colica pictonum. And in another place † we find two cases of convulsions from sphacelated intestines.

EXPER. CXVII. January 13, 1775. Elizabeth Donaldson, 19, regular in the appearance of her menses, had received a violent compression around the ribs, about three weeks before this, which gave her pain for some time. About eight days before she came in, she began to feel a pain under the middle of the sternum, during inspiration, and when she attempted to swallow. This pain increased; and for the last two days before she came in, it was much worse. It was now attended by a pain between the scapulae, but rather towards the left side, nearly opposite to the pain in her breast. As she described it, the pain was in the course of the oesophagus. It was easier after warm, and worse after cold drink. At first, solid food got only a certain length down the

oeso-

* Lib. I. Sect. 346, 450. † Sect. 426, 427.

oesophagus, from some obstruction raised a pain there, and in three minutes, it came up without vomiting. At length liquids could not pass easily. About three days before she came in, a violent head-ach came on, along with frequent convulsive startings of the whole body, of whose attack she had no previous notice. Her body is bound; but her abdomen is not retracted. Her tongue is white and moist. Her urine is diminished. Her feet are always cold. After she came in, she was often affected with globus hystericus, and a sense of suffocation. Her pulse was remarkably slow, from 45 to 64, and weak. There often came up, without vomiting, some mucous matter, which she thought was collected about the affected part. She had been bled and vomitted before I saw her.

She was ordered ten grains of assafœtida with ten drops of laudanum, every hour; a clyster composed of two drachms of assafœtida and sixty drops of laudanum, twice a day; and two drachms of laudanum were rubbed on the parts pained before and behind. 15th, The laudanum in the solution of assafœtida was increased; and a

blister was applied to the back, upon the part pained. 16th, Pulse 60, the difficulty of swallowing is increased. She feels an oppression about the heart. She was so irritable, that she always fell into violent startings at our visit. She began the aether, and took a tea-spoonful every fourth hour. 17th, The symptoms were still becoming worse, and she could not swallow even drink without great pain. I now had recourse to calomel, giving seven grains of it at bed-time, omitting all the other medicines. 19th, Pulse 60, she swallows liquids, but not solids, easier. She has no startings. The pain between the scapulae is gone, and that under the sternum is diminished. She purged once every day. 20th, She has purged five times. Deglutition and the pain of her breast better. 22d, Her mouth and gums are sore, her teeth are loose, and she spits. All her complaints are gone, except a small degree of pain when she swallows. 23d, Complaints entirely gone; and the spitting continued for some days.

Hoffman has given us the only description, which I have seen, of this disease,
under

under the name of *Spasmus Gulae*. It is also described under the genus *Dysphagia*, in Hoffman's words, by Sauvages, as he seems never to have seen it. The symptomatic kind happens often in the hysteria; but such an original and primary disease, as above described, occurs but seldom. I had seen it once before, but it was then seated in the upper part of the oesophagus or pharynx; and the food went no further. The diagnostic signs of spasm in the lower part of the oesophagus are, "whatever is swallowed, especially solid food, gets no further than the constricted part, lies there for a little, and is again thrown up; and a pain under the sternum, and between scapulae, towards the left side, which is eased by warm, and increased by cold drink." Other spasmodic symptoms also attend it.

It is owing to a spasmodic contraction of the muscular fibres of the oesophagus. Hence the pain appeared in the situation of that part, and was increased by deglutition, and by respiration, as the inflated lungs and the diaphragm must both press against the part. Hence she threw up the food
and

and mucus, without vomiting, by rumination, that is, an inverted motion of the muscular coat of the oesophagus, without the assistance of the stomach. Hence hot liquor eased her, while cold acted as a stimulus. The globus hystericus was owing to air arising to the constricted part of the oesophagus, and explains the nature of that symptom in the hysteria. The startings and more general convulsions, which only differed in degree, and arose from the slightest cause; the bound body, and diminished urine, showed a great irritation or irritability in the whole nervous system. The pulse was remarkably slow, which is common in spasmodic cases. This happens in the tetanus, while the contrary takes place in convulsive diseases. The slowest pulses, with which I have met, have been attended with violent pain. A greater irritation, perhaps, takes off the attention of the mind from the smaller and more constant, arising from the blood in the vascular system.

This disease is easily distinguished from other affections of these parts. From the
inflamm-

inflammatory angina, by its fever, thirst, and from inspection. From a palsy of the oesophagus, as the latter has no pain, or any other spasmodic symptoms attending it, and impedes all deglutition, as whatever is swallowed returns by the nose. From a tumour obstructing the oesophagus, by a comparison of the symptoms, as in the following case. A girl, 21, threw up her food unaltered immediately after taking it; and, if it did not come up, an uneasy sensation was produced. She had a gnawing pain at all times in the oesophagus, which was not increased on swallowing, but after the food had remained in it about a minute. She gradually wasted, and died in five months. When her body was opened, a large hard tumour, two inches along the course of the oesophagus, and of considerable thickness, was discovered, which shut up the passage, and had a carcinomatous appearance. Here the symptoms were different. The spasm of the pharynx, or upper part, is distinguished from dysphagia by an entire want of deglutition, and violent pain when attempted.

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This patient had been bled, and had taken a vomit, before she came in, without relief. Evacuations, in general, are seldom proper in spasmodic cases, as they increase debility and irritability. Her pulse was always weak after she came in; so there was no indication for bleeding. I should scarcely deem vomits useful in the spasmodic state of the oesophagus. I proceeded directly to assafoetida and laudanum, two approved antispasmodics, which I had found useful in a similar case. But these medicines, applied in every different shape, a blister, and aether, failed. The calomel, however, carried off the symptoms in six days, and appears, in this disease, to be more powerful than the other medicines. It is to be observed, that, though the slighter symptoms abated from the 3d day of giving mercury; yet the feverer did not retire till the mouth began to be affected, and a salivation was produced.

EXPER. CXVII. James Finlison, Exp. XXVI. in tremor palpitans, took calomel for ten days, till he spat two pints a day. But he was no better.

EXPER.

EXPER. CXIX. Elizabeth Muir, Exp. XXI. in asthma, had five grains of calomel, for seven nights, without affecting her mouth. But she was not better for it.

EXPER. CXX. Thomas Jones, Exp. V. in asthma, took the same medicine in the same quantity, for ten nights, without affecting his mouth. But he was no better.

Dr. Cheyne recommends, in the asthma, crude quick-silver; but, if it ever does any service, it must be from some particles of it being absorbed, which often happens. But in the two foregoing cases calomel was found to be unsuccessful.

EXPER. CXXI. Anne Cameron, Exp. XXXVIII. in hysteria, was ordered seven grains of calomel, for eight nights, till her mouth was sore, and she spat a little. The last day the fits were severer than usual; so it was given up.

EXPER. CXXII. March 14, 1778. George Drummond, 65, a weaver, subject to intermittents, felt a weakness in all the left side, and a pain in the left leg, for some time before the attack of his present disease. Last summer, without any known cause,

cause, he was suddenly seized, when he was in bed, with convulsive motions in all the muscles of the left side, which lasted a short time only, and left the parts cold. These convulsions gradually increased in frequency and severity to the present time. He had, likewise, much flatulence, sighing, depression of spirits, sweating in the affected side, and pains in the breast, shoulders, haunches, and legs. The fits returned, then, mostly every other day. I shall describe them as they were seen by us.

He feels their approach, and knows it, by a pain in all the left side of his head, a coldness and *creeping*, as he calls it, down the spine to the ancles. At the same time, he feels in his bowels a rumbling noise of wind, which rises to his throat, affects his respiration, and is similar to the globus hystericus. After this, the muscles of the whole left side, and of that side alone, are affected with violent, irregular, involuntary, convulsive agitations. The head is turned to the left side. The left eye discharges tears, and is pained. The under jaw is convulsively moved. The
left

left side of the mouth and tongue are dry. Respiration is quick during the fit, and the muscles of the left side of the abdomen are much agitated, and their motions keep pace with respiration. The left arm and leg undergo all different possible convulsive motions, and are cold during the fit. He is sensible of what passes during these fits; but he cannot speak, nor command the motions during them. The fit continues, in general, for two hours, sometimes for a shorter time. He passes wind, and has a sobbing when it goes off, as in the hysteria. The side is weak, pained, and apt to sweat, for some time afterwards. He has, sometimes, slight convulsions of his legs, without a fit. After he had been in the clinical ward for some weeks, the fits returned generally twice in twenty-four hours, most commonly in the night-time, and generally when asleep; sometimes in the morning and evening; but rarely between ten o'clock in the forenoon, and four o'clock in the afternoon. In the interval his pulse is about 60; in the fit it is 96; and soon after it is over, 79. His urine is of a
straw-

straw-colour; and in great quantity, as we found it for two different days, to be four pints. He never passed worms, nor has he, at present, any symptoms of them. He has no acidity of the primae viae, no palpitations of his head, nor is he more apt to startle than when he is in health. His fits were never observed to follow any passion, or quick motion. He never received any wound or stroke; nor has he any cutaneous affection, or haemorrhoids repelled. These are all the circumstances of moment which were observed.

We cannot accuse worms here, as there are no symptoms of them; and, had there been any worms, the frequent purging with calomel, which was afterwards given, must have brought some off. We cannot accuse irritation from acidity in the intestinal canal, as there was none. It seems to resemble much that species of hysteria, which is said to attack men, in the convulsions of the muscles, in the globus hystericus, in the flatulence and sobbing when the fit is going off, in the increased quantity and paleness of urine, in the hot and cold fits, in the coldness of the extremities,

tremities, and in the paroxysm being brought on by the external application of cold water. It is from such cases, I imagine, that men are thought to be affected with the hysteria. If we consult Hoffman's second history of the young man, who was affected with hysteria, we will find fewer hysterical symptoms in that, than in the present case. I suspect that the other cases of male hystericks had no better foundation; nor is it possible that men ever should labour under this disease, if, as to me seems probable, the uterus be the seat of hysteria. Yet even here I can see many symptoms different. The globus hystericus did not rise from the bottom of the belly; the urine, though increased, was not so pale as in hysteria; surprise and passions did not bring it on; and there was no irritability of mind, and no vomiting of acid matter attending this case. It answers exactly to the character of the convulsio of Sauvages, and to the fifteenth species, the hemitonos, or convulsion of one half of the body.

Where is the seat, and what is the cause of this disease? Hoffman places all con-

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vulsions

vulsions in the spinal marrow. He thought, perhaps, that irritation of the brain must produce epilepsy. But we are sure, that, as the muscles of the eyes and face are often affected, the cause of topical palsies must be often in the brain. Why may not, therefore, the seat of topical convulsions be there? The seat of the risus sardonius, and of the trismus clonicus, must be in the brain. As in our patient, the muscles of the face are affected, so far must the cause of his disease be situated in the brain. Besides, the first approach of the fit is felt in the brain, before it is felt in the spinal marrow.

I consider the disease of this patient as a slighter case of epilepsy, where the cause is weaker. Epilepsy proceeds, I imagine, either from an irritating cause, or great irritability of the nerves. So must this disease. There are no marks, in the case, of increased irritability. There must, then, be some irritating cause. I knew an epilepsy which seemed to arise from a pain in the left side of the head, and another from a similar pain in the haunches, in both of which the affected
part

part appeared to be very small. But, what that irritating cause is, will be very difficult to fix. We find no appearance of either fulness or inanition of the brain. From the dissections of Lieutaud and Morgagni, serum is, generally, found on the surface of the brain, so acrid, sometimes, that the dura mater is eroded by it. It is found, too, in the ventricles. That probably was the cause in our patient.

I had no hope from the first of curing this disease, on account of his advanced age, the duration of his disease for nine months, and the increasing frequency and severity of the paroxysms, notwithstanding a great variety of medicines which he had taken. Before he came in the clinical ward, he had taken two scruples of bark, and two grains of the flowers of zinc every second hour; the volatile elixir of guajac; two vomits; assafoetida; the pulvis cretaceus, with the flowers of zinc; twenty drops of laudanum, with thirty drops of the spirit of sal ammoniac, which were taken before the fit, without preventing it; two scruples of the powder of valerian, every fourth hour; five grains of

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camphire,

camphire every fourth hour; fifty drops of aether for a dose; six grains of musk at a time; and three of the pillulae ceruleae, which are composed of the cuprum ammoniacale.

My only trust was in mercury. I began with five grains of calomel, and increased it to eight grains, morning and evening. It purged him much, and weakened him, so that first one grain, and then two grains of opium were necessarily added to it. But no salivation or affection of the mouth could be induced with these great doses, even though a drachm of the mercurial ointment, for many nights was rubbed upon his skin. This plan was continued for fifteen days, without any advantage; and I was sorry to desist, as I knew none so effectual. Opium, given to the extent of four grains daily, a much greater dose than he had taken before, failed too. After this, two grains of the extract of the hyoscamus, taken twice a day, were tried for six days. Its natural poisonous effects were visible; but it made no change. He was ordered a scruple of the flowers of zinc, twice a day, with-

without success, for eleven days. He took æther to the quantity of four tea-spoonfuls, four times a day, drew it in by inspiration, and had it rubbed on his head and spine; but the fits seemed to become worse. He kept a seton in his neck for twenty-two days, which drain I thought might be of use, in case any matter was collected within the cranium. But I saw no advantage from it. The cold bath was ordered. But, whenever he put his feet into the tub, he was seized with a fit, without the previous symptoms, which showed that it was owing to the immediate action of the cold. I tried again the shower-bath. But, immediately after the shock, he fell into a feverer fit than usual, in which the right side was as much affected as the left. A strong proof of the irritating nature of cold water. At this time the clinical ward was given up, and he was, at his own desire dismissed.

Thus we have seen two remarkable cases cured by mercury, a trismus clonicus, and spasmus gulæ, the latter of which seemed to yield to no other antispasmodic. But it has likewise failed in a tremor pal-

pitans, two asthmas, an hysteria, and an he-
totonos. Do its effects depend on its ge-
neral evacuative powers? I cannot think
they do, as in the unsuccessful cases it
purged much. Do they depend on its sa-
livating powers? There is more reason
to say so, as, in these trials, and in those
of others, its effects do not take place till
the mouth is affected, and the spitting be-
gins. The same appears to happen, when
mercury is exhibited, in the rabies canina.
Is this owing to the topical evacuation; or
to the irritation and inflammation of the
mouth and fauces; or a certain quantity
of the mercury required in the vascular
system, which must generally be followed
with salivation? The two first supposi-
tions are not destitute of probability; be-
cause, in most of the present cases, and
in those of others, the affection has been
in the vicinity of the mouth and fauces,
as in the trismus tonicus and clonicus,
dysphagia, emprosthotonos, and epistho-
tonos; though we must allow, from the
relations which we have from Jamaica, that
it has cured the tetanus, which attacks the
whole body. Besides the general antispas-
modic

modic power of mercury, it may act more forcibly in the affections of the neighbouring parts, by a counter-stimulus and evacuation made in their vicinity. If there is any truth in this observation, it points out the diseases in which mercury will succeed most frequently, namely, those near the head; and it will more confirm us in making further trials with it in the rabies canina.

C O N C L U S I O N.

It is but a melancholy retrospect to view so many trials made with the most approved antispasmodics, and to see so few cures performed by any one particular remedy. We see that there is none in which we can always trust, but must vary our medicines, as a new one will often succeed, when others have before failed. This uncertainty of antispasmodics depends not, perhaps, so much on the stubborn nature of such diseases, or on the weakness of the remedies, as on the want of accurate experiments, with all their circumstances. This has been a great de-

fect in the materia medica, has stopped the progress of medicine, and kept it in a state of uncertainty; whereas, if the circumstances of the disease, and of the exhibition of the remedy, had been handed down, certain and fixed general principles and rules must, ere this time, have taken place. To supply this defect, and point out the proper line for the improvement of medicine, I have collected the preceding experiments.

Antispasmodics are not all entitled to equal confidence. I know no author, however, who has settled their comparative merit: Each physician is left to judge from his own experience. But, in private practice, he may grow old without facts sufficient. Were I, from the preceding experiments, which are not few, to make a computation of their relative value, I would arrange them into four classes, according to their powers. In the 1st, I would place the weakest, as the *folia aurantiorum*, the *flores cardaminis*, the *artemisia*, the *peonia*, the *viscus quercinus*, the extract of the *hyocyamus*, castor, musk, the *cuprum ammoniacale*, and electricity,

tricity. In the 2d; Fear, camphire, the flowers of zinc, and blisters. In the 3d; Assafoetida, aether, and mercury. In the 4th; Bark, opium, and bleeding. Every one in this distribution, will judge as he has experienced. I may alter my opinion on further trials, as it is from these I have formed the present. It is good, however, to have something fixed; and it is easier, afterwards, to correct, than to settle, at first, such a comparative view.

One of the chief designs of these experiments was to discover the cases and situations in which such medicines might be most successfully used. In this we have not been altogether unsuccessful. We may observe, that most of these, besides their primary antispasmodic quality, possess secondary qualities, which have much influence on their effects and exhibition. Besides some of them possessing laxative or sudorific powers, which others do not, they may be distinguished into the stimulant or inflammatory, and the sedative or anti-inflammatory. Of the former sort, are electricity, mercury, valerian, assafoetida, Peru-

Peruvian bark, opium, &c. Of the latter, are bleeding, epispastics, musk, camphire, castor, aether, the flores cardaminis, the folia aurantiorum, the cuprum ammoniacale, the flowers of zinc, &c. The former must be chiefly useful in the debile anti-inflammatory states; the latter, in the febrile and inflammatory. The preceding experiments have confirmed this; and bleeding has been found one of the most powerful anti-hysterics, when the habit of body was inflammatory.

But particular antispasmodics are suited to cure particular spasmodic diseases, from some other circumstances, independent of these just now mentioned. These experiments have shown me the fact; but they have not discovered the cause or principles on which it depends. Aether will relieve one spasmodic disease and not another, though both inflammatory, or both anti-inflammatory. The flowers of zinc will cure an epilepsy, though not a convulsio. Opium will ease an asthma, though not a convulsio. Mercury will cure a trismus,
or

or spasmus gulæ, though not an hysteria, convulsio, or asthma. As there are topical spasmotic stimuli, it is probable, that there are topical antispasmodics which relieve the irritation, or irritability of certain parts only. But how they act is difficult to say. We have hinted at the principle in mercury, though we own it is but an opinion. In the other antispasmodics, I can form no idea that satisfies me. As the operation of such bodies is exerted on the nervous system, of which we know so little, we may never, perhaps, be able to fix their mode of operation. We may, however, by a multiplicity of experiments, be able to fix the fact, and the diseases and circumstances to which particular antispasmodics are best adapted, which would be of essential service to the practice of medicine.

S E C T. XII.

Experiments upon some Antiparalytic Remedies.

The palsy appears, at present, very frequently in the clinical ward, and for the same

same reason, perhaps, that the typhus does. Like it, the palsy seems to affect mostly those in the vigour of life, as there is not one of all the patients, whom I have had there, who has exceeded the age of 50. That it is, sometimes, a mere nervous affection, cannot be doubted, since it is observed to be produced and cured by passions; since it arises from the external and internal use of lead, and other narcotic poisons; since the optic nerve is found often free from compression in the amaurosis; and since, frequently, no evident cause of the disease can be discovered by dissection, as appears from authors, and in one of the following cases. But that it often does arise likewise from actual compression, and, as Morgagni has discovered, in the side opposite to that in which the affection is placed, we had a proof.

May 8, 1769, Elizabeth Frazer, 36, had been, during a month, affected with vomiting, and on the 3d of May, she was seized with loss of motion, and imperfect sensation in all the right side. The right hand and leg were swelled. Her speech was very indistinct. She had a pain in the
right

right side of her head. Her body was bound. Her pulse was weak, irregular, and intermittent. She complained of pains in her belly, picked her nose, and grinded her teeth. In the last days, the left angle of her mouth was convulsed, and the palpebrae of the left eye was more shut, which were the only affections of the left side which we observed. Notwithstanding repeated blisters and physic, mustard and mustard-whey, cupping, errhines, stimulants, &c. she died on the 19th. When opened, no fluid was found on the surface of the brain; but the vessels seemed to be turgid. The liquor in the ventricles did not much exceed the natural quantity. Above two ounces of bloody purulent liquor were found on the surface of the medulla oblongata, on the left side; and more of it was seen on the surface of the medulla spinalis. The right cavity of the thorax was full of a bloody liquor, about four pints in quantity; and the lungs, on that side, were livid and scirrhous in one part. The pleura was red, and covered in many parts with mucus. About a pint of fluid was found in the abdomen. The stomach

stomach had a livid spot upon it, about the size of a shilling.

As the palsy frequently arises from some such fixed compressing cause, which is discovered in most of Morgagni's dissections, no wonder that we so often fail in its cure. Whatever, therefore, is found to cure this disease, in certain particular circumstances, deserves our attention.

V E N A E S E C T I O.

Bleeding, though recommended by practical authors, is seldom, in the cases I have seen, admissible. But, in certain circumstances, which, indeed, occur but rarely, it makes the principal part of the cure.

EXPER. I. July 4, 1770. John Anderson, 47, was seized, about six weeks before this, with shivering, followed by heat, thirst, sweating, and pain of his back. The pain, after eight days, remained fixed, in all the joints of his inferior extremities, which, in 12 hours, swelled, became red, and immoveable. In 14 days, the pain and swelling left the inferior extremities; and, at the same time, he was seized with pain,
4 cold-

coldness, and loss of feeling in the whole left side, vertigo, and difficult deglutition; so that, when he attempted to swallow, the food returned by his nose. His pulse is 116, strong, and irregular. He complains of thirst, and his tongue is white. The upper palpebra of the left eye falls down; and he does not see well with that eye. He has lost the feeling, in a great degree, and the motion considerably, of the whole left side, except in the neck, which he says is much pained. The right side is in a natural state, except a slight degree of insensibility in the leg, and a pain in the shoulder. He had a cough, with expectoration. Body bound. Appetite good.

This curious case appeared to have been, at first, a rheumatic fever, from the pains, swelling, and redness of the joints. In some days, these swellings suddenly disappeared, and he was attacked with a hemiplegia of the whole left side of the head, trunk, and extremities. The pharynx, and the oesophagus, perhaps, from its lying mostly on that side, were also affected. This was plainly a translation of the cause, or at least a change of the seat of the disease,

disease, from the joints to the nervous system. But, as the alteration was so sudden; as the pulse had still the rheumatic strength, I considered the nature of the disease as unchanged, and that the cure was to be conducted in the hemiplegia, as in the acute rheumatism, by bleeding. So strong was this impressed on me, from a consideration of the whole symptoms, that my plan was not altered by his telling me that he had been bled twice in the beginning of his rheumatism, and that he thought himself worse after it. I was resolved to try bleeding alone. He was bled, in seven days, four times; after each of which the symptoms gradually diminished. His blood was always fizy. Nothing else, during this time, was done, except giving him a little nitre, and keeping his body open by clysters. At the end of this time, all his symptoms, except a head-ach, disappeared.

This case is equally decisive with regard to the utility of bleeding in certain circumstances of palsy; as it is singular in its connection with the acute rheumatism and in the inflammatory nature of its symp-

symptoms. There is no reason to think there was any external compression here. If any, it must have been from a plethoric state of the vessels within the cranium. It appears more probable that the cause was situated altogether in the nervous system, perhaps within the brain and medulla oblongata.

DORONICUM GERMANICUM OFF.

This plant is the Arnica Montana Lin. or Leopard's bane. It seems to be much used in paralytic cases, at present, in Vienna, as appears from the writings of Eisenbach, of Reichter, and especially of Collins, who published an account of some cases, where it was successfully given in the year 1773. They used a handful of the leaves, or from a drachm to an ounce of the flowers, infused in water, each day. This medicine appeared, from their experiments, to be possessed of strong powers, especially in curing the hemiplegia. As it was not to be got here in the shops, I found it difficult to pro-

R

cure

cure a sufficient quantity for the following experiments.

EXPER. II. November 30, 1776. Elizabeth Liddle, 37, for many years subject to vertigo, was seized, about a month ago, with a deep seated pain above the right eye, which lasted eight days, and was succeeded by dimness of sight. About the 16th of October, she was affected with a hemiplegia of the whole right side. The left thigh and leg are a little attacked. The pulse is scarcely to be felt in the affected side, and is from 84 to 90, soft and weak. Her tongue is rather less paralytick than formerly. The secretion in the nostrils is much diminished. She complains of faintness and vertigo, especially on stooping. This patient was ordered assafoetida, errhines, a seton in her neck, electricity, mercury, so as to produce slight salivation, and the decoction of guajac; and she was relieved, though far from being cured, by the use of these medicines. January 29th. R Fol. doron. Germ. drach. i. aq. bullient. lib. i. fiat inf. per tres horas, & cola. Cap. unc. iv. quater in die. It always produced a giddiness, for

for half an hour, after she took it, and two loose stools a day. The muscles of her extremities started often, which they had not done before. Half a drachm was added to the former quantity, without any alteration in its effects; but, on using two drachms, it produced more sickness and purging. February 6th, the muscles of her legs are much affected with slight convulsive motions, and with violent starting. 10th, Dismissed cured.

EXPER. III. February 6, 1778. Katharine Aiken, 42, was seized, about two months ago, with a hemiplegia of the left side, which is deprived of all motion, except a little in the leg. All that side is attacked with an oedematous swelling. What is more uncommon, the affected parts still retain their feeling, and the joints are even seized with violent pains, especially in the night-time, and while she is in bed. Her pulse is 74, and weak. These pains seemed to have some connection with the rheumatism; but, in the progress of the disease, they disappeared, and it turned out to be a case of pure hemiplegia. 9th, She took this medicine as

prescribed above. It produced nausea, two or three loose stools a day, and much starting of the muscles of the affected parts. 12th, Half a drachm more of the leaves was added. Her head sweated much; she felt more sickness; and she thought that there was some more motion in her leg. 15th, We could not continue the experiment, as the medicine was exhausted. Three weeks after, she began to complain of great weakness and dyspnoea, her pulse quickened, a broad flat livid eruption appeared on her legs, and some parts of her body, and she died on the 20th of March.

On inspecting the cranium, nothing preternatural could be observed, except a plethoric state of the vessels of the brain, and a more than ordinary quantity of water in the ventricles. The consistence of the cortical and medullary part was similar and natural in both hemispheres, as likewise in the medulla oblongata. Nothing remarkable was observed in the thorax or abdomen. Here no lobes could be discovered, to which the palsy might be attributed;

buted ; so that we must ascribe it to an affection of the nervous system.

EXPER. IV. February 10. Elizabeth Ramsay, 33, was affected, for six months, with palsy of her lower extremities, which had been preceded, about three years ago, by rheumatic complaints in them. As the parts were diminished in size, and as she had a protrusion in some of the dorsal vertebrae, success was not to be expected from any medicine. Though she had a gentle purging, I gave her the infusion of this plant. It produced no sensible effects, and the purging was rather less. The medicine was stopped, after six days use, from a deficiency of it.

EXPER. V. December 11, 1778. John Calder, 50, has a defect of sensation and motion in both hands. He took at first a drachm, and at last three drachms of this plant, infused in a pint of water. It excited pains in his belly, and some loose stools. But, after fourteen days, he was no better.

EXPER. VI. December 23d. John Walker, 31, was seized with a hemiplegia of his left side, after a fever, about

R 3

a month

a month ago. He began with two drachms of it in infusion. It produced no sensible effects, except more heat in the affected side. The infusion was at last made with three drachms of this medicine, and it was continued for ten days. But it seemed not to do much service.

EXPER. VII. December 26. Nelly Cochran, 15, has had a paralysis of both arms for three years. The infusion was made with first a drachm, and then with two drachms of this plant. It produced nausea, and her arms felt warmer. She used it for several days without advantage.

We cannot, from these experiments, judge very favourably of the success of this medicine. We must leave it to future trials, before we can subscribe to the effects, as related to us from Vienna. We can only say, that, from the stimulus in the primæ viæ, and on the affected muscles, it seems to give hopes that it will be of some service; which however our trials have not yet ascertained.

URTICATIO,

UR T I C A T I O.

It was common among the antients to beat the paralytic part with nettles, in order to restore its sensibility and motion.

EXPER. VIII. June 22, 1770. Thomas Main, 30, has been affected, for three years, with a palsy of the lower extremities. Nettles were applied to the whole leg, and above the knee, and they produced a burning heat, and severe pain. Two days after, they were applied a second time, for five minutes. But this remedy was attended with no advantage. It, however, seems to be well adapted, to produce a topical fever.

BALNEUM CALIDUM.

The hot bath is thought to be useful in the palsy, as many natural hot baths are found to be powerful remedies in this disease. But these may operate from the mephitic air, and other impregnations, which common water has not. Hot baths are, certainly, stimulating, if they much exceed the heat of the human body; but

R 4

then

then the stimulus is not long applied. They increase, indeed, the sensibility and irritability of the nervous solids, but they, at the same time, increase the debility and laxity of all the muscular fibres.

EXPER. IX. Katharine Aikin, Exper. III. used the hot bath for more than three weeks, heated to as great a degree as she could bear, without the least success.

EXPER. X. Elizabeth Ramfay, Exper. IV. used it for several days, without any advantage.

EXPER. XI. April 11, 1778. Sarah Wood, 32, has been affected, for some time, with a hemiplegia of the left side, and severe pains in the right side; head-ach, depression of spirits, little sleep, and thirst at times. Pulse 72. She used the bath very hot for eight days, and thought she had more feeling, though not more motion, in the affected side. She was afterwards seized with a fever, and cured by it.

These trials with the hot bath, in paralytic cases, have been very unsuccessful.

S E C T.

S E C T. XII.

*Experiments upon the effects of the Oleum
Terebinthinae in the Sciatica.*

The Sciatica frequently appears in the clinical ward. It is classed, by practical authors and nosologists, as a species of rheumatism, but perhaps upon too slight grounds. There has been little written by the moderns on the nature and cure of this disease that can satisfy an inquirer. De Haën has a chapter upon it; but he has done no more than collect the scattered methods of cure to be found in Hippocrates, without adding any thing new, which can never improve medicine. Dominici Cottunni has written a small treatise on it; but his opinion is little better than an hypothesis. There are few dissections in this disease to assist us.

Having, many years ago, met, in one of Dr. Cheyne's Philosophico-Medical Works, with a receipt, composed of the oleum terebinthinae and honey, as a cure for this disease, I tried it, and found it succeed. I have since used it for many years,

years, as an efficacious and valuable medicine. Many were cured with it before I entered into the clinical ward; so that it has not the merit of fixing the value, but of confirming yet more the good effects of this remedy. As they are not generally known to others, except from the experiments which have been made here, I shall relate the facts.

EXPER. I. June 8, 1769. Agnes M'Kay, 39, was seized, three weeks ago, with a violent pain in the articulation of the thigh bone, which neither stretches upwards nor downwards. R. Ol. tereb. drach. ii. mell. opt. unc. i. M. fiat linct. cap. coch. parv. mane & vesp. superbibendo haustum potus communis tepidi. 10th, She sweats after taking the medicine. The pain is easier, and it seems to stretch down the thigh. 11th, The pain has left the articulation of the thigh altogether; but has fixed in the posterior parts of the thigh. 13th, Though the pain was much easier, yet a blister was applied. The pain went off and she was dismissed cured.

EXPER.

EXPER. II. May 19, 1770. George Temple, 62, has, for three years complained of a pain, which stretches down from the articulation of the thigh bone, along the outside of the thigh to the feet; and has increased much during these three months. It affects sometimes one leg, and sometimes both, and is worst when he is in bed. He has had a similar pain in both arms, for three months, from the shoulder downwards; but mostly in the right shoulder. He has thirst; and his tongue is foul, and white. He feels, at times, a pain across his back and loins. Pulse 72. R. Ol. tereb. &c. 23d, He walks better. The pains of his thighs are easier, but those of his arms are the same. He feels a peculiar sensation of heat after every dose of his medicine, along the right thigh and leg, which he never felt before. 28th, He sweated much last night. The pain of his thigh is much easier. 30th, The pain of the thigh is gone; but that of his shoulder is no better. A blister was applied to the shoulder, and the pain was removed. So that the
oleum

oleum terebinthiae, cured the pain of the thigh, but not that of the shoulder.

EXPER. III. Feb. 13, 1774. Margaret Tyrie, 56, has complained for fifteen weeks of great pain in the right haunch, thigh-joint, thigh, leg, and ancle. This pain was at first constant; but it has for these three last weeks abated, and has only attacked her irregularly. Of late, that leg has been affected with coldness, frequent tremor, loss of motion and sensation; and is now wasted, and semiparalytic. But the disease differs from the true palsy, as the part is often affected with severe pain. Some of the flexors are contracted, so that she cannot extend that leg. Her pulse is about 90, and rather weak. This case was incurable. She had had two blisters applied, at different times, to the thigh; had taken some purgatives and sudorifics, and had been electrified, but without any success. To try, however, the utmost power of this medicine, it was ordered. By mistake, she took the whole quantity in three doses. It produced a violent strangury, from its stimulus on the neck of the bladder. 17th, Pulse 78. The pains

pains of her thigh are almost gone; and she can stretch out her legs. 22d, She has much more motion than when she came in. No more success could be expected from any medicine.

EXPER. IV. Dec. 23, 1774. Christian Stewart, 60, about six weeks ago, was seized with frequent severe cough, and much expectoration of a yellowish matter. About eight days ago, she was attacked with violent pain in the left thigh joint and hip, which is increased on motion, and by the heat of the bed. The pain extends down the thigh and leg to the foot. As the cough continued very severe, and remained after these pains were eased, they did not appear to arise from any critical deposition. She was ordered this medicine in the usual manner. It proved diuretic. Next day, she was easier. 3d, The pains of her thigh are much easier, and she walks better. 4th, A pain and swelling seized the left thumb last night. Whether this had any connection with the sciatica, may be doubted, as the pain of the thigh was no easier than might be expected from the
natural

natural progress of the cure. 6th, The sciatic pains are gone, except a little in the ankle.

EXPER. V. Feb. 17, 1776. Donald M'Donald, 44, complains of a pain in the left haunch, which shoots down the back part of the thigh to his knee and foot, and renders him unable to walk. The pain is worse before rain or snow. It is sometimes severest in the day-time, and at other times during the night. The pain is not very great, except during motion. None of the affected parts are discoloured or swelled. The affected leg is cold and seems to be wasted; which was not known till after he came in; for, if it had, I should have despaired of any success. Pulse 80, He had been blistered, had used the hot bath, had taken the decoction of seneka, the gum guaiaic, and opium, in vain. He was ordered this medicine, which took away his appetite; but it did not prove diuretic. 18th, The pain is easier, and he is able to walk. 23d, The sciatic pain is gone. The other pains in the knee and ankle were still uneasy; to remove

remove which we were obliged to apply external remedies.

EXPER. VI. March 30, 1778. David Reid, 61, a porter, had been admitted for a lientery, of which he was cured. He afterwards complained of a sciatic pain, which was of seven years standing, and gave him much uneasiness when he mounted a stair. On the 11th of April, he took the linctus. 14th, The pain of his thigh and legs is gone, and he can now walk up stairs without uneasiness.

EXPER. VII. April 2. John Chalmers, 71, a butcher, complains of severe pains affecting him from the hip to the knee, on the right side. The pain is always easiest in bed, is much relieved by warmth, and is increased by damp weather. The affected leg is very weak, and he cannot support himself upon it in walking. Pulse 90, and of natural strength. He began to take this medicine. 5th, It produces a heat in the stomach, moisture over all the body, and in the affected leg, and increased his urine. His pains are easier. 9th, The pain in the thigh is much diminished, but that of his knee is still
2 severe.

severe. A blister was applied to the knee, 16th, All the pains are gone.

These are all the cases of pure sciatica to be found in my report-books, for seven years, in which this medicine was given. There are some others, complicated with the lumbago, which will afterwards appear under that disease. But I have cured a great number of patients, in private practice, during the many years I have used it. The following conclusions naturally arise from the preceding experiments.

1. Of the seven patients, five of them are men, and only two are women. Hence men appear to be more subject to this disease than women are. I have always found this to be the case. Men are more subject to the external causes which bring it on, as cold, sleeping on the wet or cold ground, external force, and injuries, much venery, &c. Hippocrates mentions it as arising from a suppression of the menses in the wife of Palimarchus; but I do not remember to have met with this cause. The following observation will contribute to prevent this from often being a cause of this disease.

2. Our

2. Our patients were mostly far advanced in life; four of them were past 60; one was near that age; one was 44; and the youngest was 39. All my other patients were of advanced years, and I do not recollect ever to have seen one in this disease in the vigour of life.

3. This disease is generally classed along with the rheumatism, from a similitude of pain, which in both is increased by the heat of the bed, and in the night-time; though that does not always happen, as in Exp. V. and VII. How far this opinion, of its being rheumatic, is true, may admit of much doubt, from the following reasons: 1. Men seem to be more subject to sciatic; women, to the rheumatism. Of 18 patients, which I have had in the acute rheumatism, in the clinical ward, 14 were women; so that women are attacked with the rheumatism oftener than men, in the proportion of three and a half to one. 2. This disease general seizes those of advanced years. But, in the acute rheumatism, it is the reverse. Of 15 cases of acute rheumatism in which the age is marked, 12 happened in patients under 30
8 years

years of age; and the remaining others between that age and 36. This is a material distinction, arising from our cases; nor does this disease seem to attack those most subject to rheumatism. 3. The symptoms of the two diseases differ in many points. In the sciatic, the pains are more fixed, and do not flit, as in the rheumatism; as in Exper. VI. the pain remained in the part for seven years. In the former, the whole extremity is affected from the haunch, or thigh-joint, to the toes; in the latter, it is not so. The latter has an inflammatory fever, and fizy blood; the former, has not. The latter has generally a crisis by urine, though the disease is tedious; the former has none. 4. They differ in the cure. The sudorific method has not such effect in the sciatic, as in the rheumatism. The oleum terebinthinæ, has not the same success in the rheumatism, as in the sciatic. In Exper. II. it removed the pain of the thigh, but had no effect on that of the shoulder. In Exper. IV. V. VII. after the sciatic was cured, we still find the rheumatic pains in the knees and aneles remaining, to which we
were

were obliged to apply other medicines. These considerations show a sufficient distinction betwixt the two diseases.

4. From the preceding cases, I am inclinable to place the seat of this disease in the sciatic nerve. The thigh joint is certainly attacked with rheumatic pains, as other articulations are; although, perhaps, not so often; as the ligaments which surround it are less subject to the pressure of the whole body, and of the neighbouring parts, than those of the other joints. The ligamentum orbiculare, within it, must be likewise attacked with rheumatism. Morgagni has two cases where this joint was much affected, the ligamentum orbiculare flaccid, the mucous glands swelled, and the cartilages red or eroded. Perhaps the muscles may be affected too, as there is a case in Bonetus, from a suppuration of the rotator muscle. But I would consider these as pure rheumatisms. The sciatic nerve was, amongst the ancients, looked on as the seat of this disease; hence it was called morbus ischiaticus. The following considerations support this opinion: 1. It is generally complicated,

more or less, with lumbago pains, as the present cases show, and the following under lumbago prove yet more; or, at least, it begins in the loins. It is from the lumbar nerves, &c. that the sciatic is composed. Hence pain is often felt there.

2. The pain follows the course of the sciatic nerve. The pain is felt about the thigh joint, as the nerve passes behind the great trochanter. It is felt, generally, in the back part of the thigh, ham, calf of the leg, to the foot, which is precisely the course of the nerve. 3. The patient loses the sensation of that extremity, feels an inability to move its muscles, and labours under a claudication and paralytic state, as in many of the cases; all which symptoms show it to be a nervous affection. 4. The member, at length, is wasted, as in the palsy, which happened in Exper. III. and V.

But the precise cause of this sciatic affection is dubious. Cottunni thinks that it is owing to an hydropic effusion betwixt the nerve and its coat. He even builds, upon this idea, his method of cure, which is to perforate, by means of thek nife or caustic,

caustic, into the hydropic coat, and lay it open. But we must consider this opinion as ideal; for he supports it with no decisive arguments, and with one dissection only, which is even allowed by himself to be inconclusive. It is even contrary to appearances, as this disease would more frequently attend dropfies, as our cases were not complicated with dropfy; as, in one case, the pain shifted alternately from one leg to the other; and as the disease was so soon cured. Is it owing to a determination of fluids, perhaps of an acrid nature, to the vessels of that great nerve? This is probable, from the degree of fever and feverish symptoms which attend it; from its being often owing to critical depositions; and from evacuants and discutients removing it.

5. The cure of this disease has been attempted by external and internal remedies. The antients used hot and acrid cataplasms of wine, salt, &c. and friction with hot oils. Hippocrates recommends the cucurbitulae cum ferro, and the actual cautery to produce ulcers, which were to be kept open for a length of time. Though these remedies

may prove successful, yet blisters have superseded their employment. But even blisters are often of no use, as in Exp. III. and V. The hot bath is frequently applied. I often use friction with the flesh-brush successfully; although Cottunni is afraid that it will bring a determination to the part. But friction always determines to the skin, increases the perspiration, and frees the more internal parts.

The internal remedies are venesection, purging, and sweating. Hippocrates recommended all these. If the pulse is strong, bleeding is necessary. But, as this disease generally attacks the old and debile, venesection has but seldom been ordered. March 11, 1778. Helen Wilson, 40, convalescent, on exposure to cold, was seized with the sciatic, two or three weeks before she came in. She was bled, and she recovered without any other medicine. Hippocrates used purging and acrid clysters much. I have tried purgatives in vain. His success might have been owing to the more acrid purgatives then in use. These will not only evacuate, but irritate the rectum; and so relieve the
affections

affections of the neighbouring parts. De Haën has endeavoured to trace a communication betwixt the vessels and nerves of the rectum and sciatic nerve. But whether this has any effect is difficult to say. Sudorifics have been used. But some of our patients had tried them without success. Some more effectual remedy, therefore, was necessary.

The oleum terebinthinæ given in the method prescribed by Dr. Cheyne, with a draught of sack whey, or warm drink after it, appears to be a most powerful medicine. Of the seven cases, it cured five, and relieved two; and these latter could not admit of a cure, as the parts were emaciated. Of these cured; the disease was of three years standing in Exper. II. and of seven years in Exp. VI. It is not to be expected, that any medicine will operate more powerfully than this does.

6. Its sensible operation is various. It often produces a heat in the stomach, and diminishes the appetite. It heats the part, and raises a peculiar sensation of pain there. It proved diuretic in Exp. IV. and VII. and, when used in too great

quantity, it brought on a strangury, as in Exp. III. It was followed by moisture in Exp. I. II. VII. It sometimes performed the cure in four days, as in Exp. VI. where the patient had been under the disease for seven years; but the preceding diarrhoea had, perhaps, made it more easily curable. It sometimes requires fourteen days.

7. It is difficult to explain its mode of operation. Does it act by stimulating and heating? Other stimulants have not the same effects. Does it operate by its diuretic powers? Other diuretics do not cure this disease, and it often cures without an increased discharge of urine. Does it operate by sweating? Other sudorifics do not cure; and it often has no such effect. It is, perhaps, impossible to explain its operation, as we do not know how the nerve is affected; nay, we are not sure, though it appears probable, that the nerve is the seat of the disease. I am inclined to think that its operation is topical, from the peculiar sensation of heat, and pain felt in the part, after each dose, as in some of the above cases.

S E C T. XIV.

*Experiments upon the effects of a liniment
in the Lumbago.*

We are yet more at a loss in the pathology and cure of the Lumbago, than of the sciatic, as the former rarely occurs, as no dissection of it has been recorded with which I am acquainted, and as no author, Sydenham excepted, has treated of it. It is a disease, however, of the most painful kind, and of difficult cure in the common methods employed. It is described in the Medical Facts, as I had once an opportunity of seeing it epidemic amongst the British troops in Ghent. An external application is there mentioned, which succeeded, in that epidemic constitution; and several physicians have since that time used that remedy with advantage. I shall describe the cases in which I have lately applied it in the clinical ward.

EXPER. I. Feb. 21, 1774. Donald M'Donald, 29, after sleeping in a damp cellar, was affected with pains in his loins, which

which stretched down both the thighs and legs to the toes. He is obliged to retain his body in a curved posture, as he has much pain in endeavouring to raise and keep it erect. After these symptoms had continued for some time, his urine and faeces were passed involuntarily, and his legs became paralytic. R Camph. scrup. i. dissolut. in ol. tereb. drach. ii. S. C. C. gr. xv. Pulv. sem. cymin. drach. ii. dein add. ung. nervin. unc. fs. sapon. nigr. com. unc. i. M. fiat linim. extende super alutam & applic. lumbis. 25th, The pains of his loins are easier; but those of his limbs are the same. Rep. linim. March 3d, he can raise his body to an erect posture, and keep it in that situation without pain. He was afterwards seized with a mortification of the nates, either from lying on them, or from a paralytic disposition.

EXPER. II. March 6. George Brown, 32, after exposure to cold, complained of pains which strike across his loins, but mostly to the left side, and are worst in the morning, and while he is warm in bed. He walks with difficulty, and he cannot lie on either side. His urine is
high

high coloured. He sleeps little. Pulse 70. The liniment was applied. 7th, The pains of his back are easier. 9th, The pains of his back and thigh are gone.

EXPER. III. Dec. 20, 1776. John Boys, 37, sailor, after exposure to cold, has been for some months affected with pain in his loins, which affects the thigh-joint, and goes down the legs to the feet. He had the liniment applied, and was relieved by it; but he was not quite cured. His loins were blistered; but the pain was not removed by it. The part was afterwards burnt, according to Peautau's method, in two places, an inch on each side of the spine, and the ulcer was kept running for some time; but it did not cure him. He afterwards got mercury, but with no better success.

EXPER. IV. April 16, 1778. Donald M'Arter, 50, about a month ago, without any visible cause, was seized with severe pains in his loins and haunches, stretching down his thighs, especially on the right side. He could not raise his body erect, unless with much pain. He had heat and thirst. His pains were easier with the

warmth of the bed. When he came in, the symptoms were not so severe as they had been. Pulse 80. He had taken salts, and applied oil of turpentine to the part, without relief. The liniment was ordered to the loins; but by mistake it was applied to the thigh. 19th, The pain of the thigh is easier, but that of his back is the same. It was then applied to the loins. 23d, The pain of his back is much easier; that of the thigh gone. 26th, Dismissed cured,

From the above experiments, the following conclusions arise:

1. That the lumbago is very much allied to the sciatic. In all the four cases, the pains stretched down the thigh, as in the sciatic. In three of the four, they reached to the toes. Hence arises a conclusion, that both diseases are affections of similar parts; and that the seat of the lumbago is in the numerous nerves, which go to constitute the great sciatic nerve. The distinction between the two is merely local. I endeavoured, many years ago, to show, that the lumbago is not situated in the kidneys and ureters, as Sydenham thought;

thought; and the preceding cases still confirm me the more in this opinion. The pain does not follow the course of the ureters; it is not increased by external pressure; it is but little felt, except in an erect posture; there is no vomiting; and the urine is not changed in quantity or quality. I then thought that this disease was a species of the rheumatism, affecting the psoas and musculus transversalis, and the ligaments of the lumbar vertebrae, as the pains excited on extending the vertebrae and those of the knees and ancles seemed to show its analogy to other rheumatisms. But it appears now more probable, that the seat of the lumbago is in the lumbar nerves, as it is so often complicated with the sciatic; as the pain goes down the thigh to the toes; and, as it affects the bladder, rectum, and legs, with palsy, which parts are supplied by these nerves.

2. This disease seems not to attack persons so far advanced in life, as the sciatic does. But still it does not seize the young and vigorous; as, of the preceding patients, two are about 30, one 37, and one past 50. The others which I have seen were all older; so that there seems

seems to be no great difference betwixt these two diseases in this circumstance. In this it differs, too, from the rheumatism.

3. These patients are all men. In this, likewise, it agrees with the sciatic. In this, too, it differs from the rheumatism. That part in men, betwixt the vest and breeches, especially when the latter descend, is very accessible to cold.

4. When the result of my former practice, in this disease, was published, it was observed, that repeated bleedings, as directed by Sydenham, were not found to be so very useful as he had experienced them to be. This disease is sometimes inflammatory, in which case bleeding must be performed. But it has oftener been found not requisite, as in all the preceding cases. With regard to purgatives, the salts were of no use in Exper. IV. I have often seen purgatives bring back the pains, when they seemed to be going off. Blisters did not cure it when epidemic. In Exper. IV. they were applied in vain. From the bad success of Sydenham's method, I was led to try the above topical application, which succeeded. We find, that,

that, in the four preceding cases, in which it was applied, it cured two ; and relieved the other two, one of which could admit of no more than a relief from the pain, as the parts had become paralytic, and a mortification had come on.

5. It produced its salutary effects in a short time, from four to eight days. The liniment was always renewed, every three days, as when allowed to stay on longer than this it turns hard and crumbles.

6. It appears to act topically, as asserted formerly in the Medical Facts ; because, when it was at that time applied to the knees, the lumbago was no better. The same trial was again repeated in Exper. IV. by accident, when it was applied to the pain in the thigh, without any success. It probably acts by stimulating the nerves of the part, by which a topical fever is induced. The salutary effects of this cause on the system appear every day. In this way, the cure of the sciatic was performed by nature, in the following case.

Feb. 18, 1776. John Donaldson, 43, was affected with the sciatic 16 years ago, and

and with an ague last autumn, in Lincolnshire. He had lately a return of the ague, at which time he was seized with pains in his loins, haunches, and thigh-joint, which still continue. His skin is moist, and his belly bound. His tongue is white and dry, and his urine is in small quantity. Pulse 86. He had a purgative; and after its operation, he was again seized with the ague. The paroxysm was long, and the sweating profuse, after which his lumbago pains became easier. He had a second fit, and the pains were still diminished. He had a third fit, after which he felt no more pain. This lumbago probably arose from a critical deposition in the former fever, and a new fever cured it. By the quickened action of the heart and arteries, especially those of the part, the cause was removed. As this effect was expected, the fits were not stopped.

S E C T. XV.

Ischuria.

ISCHURIA RENALIS.

Morgagni appears to be the first who properly distinguished the ischuria into its
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four different species, Renalis, Ureterica, Vesicalis, and Urethralis; since the seat of the disease may be in each of these different parts. Cases where the kidneys or ureters alone are affected, are rare; for, when one kidney or ureter is diseased, the other will supply its function. These two parts are double, whereas the parts which give names to the two last species of this disease are single. Morgagni says, that neither he nor Valsalva had ever inspected the body of any who had died of the ischuria renalis. A mortal case of this disease, with the dissection, which is so rare, must therefore merit our attention.

HISTORY I. January 16, 1775. Robert Muir, 35, a coachman, of a full habit, was seized with shivering, coldness, and severe cough, about three weeks before this time. In three days his urine appeared to be high coloured, was passed with pain, and in less quantity than usual. About the 8th day, he was attacked with violent pains in the small of his back, over the whole abdomen, and in the ancles. He felt, too, a pain in the region of the liver, especially when it was pressed. He ob-

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served

served, afterwards, a general swelling over the whole body; but mostly in the ancles and abdomen, which last was tense and hard. These were attended with vomiting, impaired appetite, and considerable thirst.

When he entered into the clinical ward, the cough, sickness, and vomiting had gone off; but the dysuria remained. As his urine was always passed at the same time with his stools, I saw it but once, and then it was pale, and had a white powder at the bottom. The pains and swellings, which retained the impresson of the finger, continued; and the scrotum and penis now swelled. He complained of head-ach. His tongue was white, and it was generally dry. His body was natural. He had no sweat. His pulse was 48.

The next day, which was the 22d of his disease, before he took any medicine, he was seized with a natural purging, which continued through the whole disease, along with the suppression of urine, of which he never passed above a gill, and often only half that quantity, through the day. 25th, He complained of severe pain about

about the kidneys. 26th, A drowsiness and coma began to appear. 27th, Pulse 72, the vomiting returned. 28th, Pulse 66, and for the first time strong. He vomits frequently. Coma increased. His body is open. The pain about the kidneys is easier. He had frequent startings, which continued through the disease. 29th, Pulse 80, and, although he had been bled, it was still strong. He vomited often, and started much. The swellings of his legs, scrotum, penis, and abdomen, are much fallen. 30th, These are still more diminished. He has greater insensibility and a hiccup. He has no vomiting; but he has a looseness and drought. 31st, Pulse 82, and still strong. He sweated much this morning. He cannot swallow. He died in the evening.

The kidneys were found of an irregular form, some watery vesicles appeared on their surface, containing black gritty particles like fine sand, and the lower part of the right kidney was considerably inflamed. The pylorus, part of the duodenum, and a considerable part of the small intestines, were much inflamed. In the abdomen

were found about five pounds of fluid, and in the cavities of the thorax about half a pound. The lungs were a little inflamed, and full of small tubercles on their surface, and in their substance. The heart was large, and there was a polypus in each ventricle. About six ounces of fluid were found in the pericardium. Nothing appeared preternatural in the brain, except about an ounce of water in each ventricle.

This ischuria had its seat in the kidney, as there was no swelling in the inferior part of the abdomen; as he had no solicitation to pass urine; as the catheter, when introduced, discovered none in the bladder; and as the inspection of the body showed that none had been secreted.

What was the immediate cause of this renal affection? The calculus is a general cause; but none was discovered. Are we to accuse inflammation, as a little appeared in one kidney? I hardly deem that the cause, as then it would have been attended with violent pain, fever, and other symptoms of nephritis. Besides, the other kidney, where none was found, would have
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supplied its defect. Hence, the cause scarcely appears to be topical, as the probability, in that case, would have been, that one only should have been affected.

Was it owing to any acrid matter? This seems sometimes to occasion it, as the urine is often diminished in the crisis of fevers, when its acrimony appears from the heat and pain it excites; and as Morgagni* mentions a repelled cutaneous eruption as the cause. It does not seem to be owing to any quantity of mucus blocking up the tubuli uriniferi, which sometimes may happen, for none was seen.

It was probably owing to an arthritic cause, as, 1. We were informed, after his death, that he had laboured, for many years, under the gout; that he had five fits during these two last years; that he had it last May; and that his present complaints came on like a fit of the gout. 2. As the gout alternates with nephritic complaints. This is Hoffman's opinion; and Sydenham says, that it produces calculi in the kidneys. 3. As gouty com-

* Vid. Cap. XLI. De Urinæ Suppressione.

plaints alternate with oedematous swellings such as he had. John Young, March 31, 1774, a patient in the clinical ward, was seized with severe pains in his feet and legs, and oedematous swellings appeared afterwards. In another case, after pains of the stomach, oedematous swellings succeeded. 4. His urine, which was of a pale colour, showed that there was a spasmodic stricture of the secreting organs.

Here the ischuria was the cause of the oedema and dropfy, and not these the cause of it; as the ischuria appeared for some days before them; and as these were much diminished before he died, but the ischuria still continued.

The retention of the urine, and the increase of ammoniacal salts and acrid oils in the body, must have given rise to a number of those symptoms, as thirst, head-ach, pain in the breast, nausea, vomiting, startings, hiccup, fever, &c. The superabundant fluids were secreted in greater quantity, by the exhaling vessels of the cavities, and produced hydropic swellings; by those of the intestines, and produced purging; by those of the skin, and produced

duced sweat. In some cases it seems to have been secreted by the salivary glands, and then to have retained the natural taste of urine. The very slow pulse, which we discovered at first, may be attributed to the water found in the ventricles, which, perhaps, had been diminished along with the other hydropic swellings by the consequent evacuations. Perhaps, there might have been, at first, some collected on the surface of the brain. To the same cause the comatose state is to be attributed.

He had taken many diuretic medicines before he came in; but in vain, as we had not heard of his arthritic habit, which would have altered the treatment, and pointed out some applications to the feet. The only disease that appeared was the ischuria, and consequent dropfical and oedematous swellings. From the dulness of the pain, and from the slow pulse, no inflammatory symptoms appeared, at first, sufficient to require bleeding, or any other evacuation. It was probable, that an increase of urine would abate all his complaints. Diuretics seemed, therefore, to be first and principally, indicated. Cream of tar-

tar, as diuretic, laxative, and antihydrotic, appeared to be the most proper medicine. The natural looseness did not contraindicate it, but rather encouraged us to proceed, as it seemed to be an effort of nature to cure the disease; besides, I had given it before in a natural purging, without increasing that evacuation. He took half an ounce of it, each morning; and it produced two or three stools, which he would otherwise have had from his looseness. To relieve any spasms in the secreting organs, he had each night, at bedtime, twenty drops of laudanum with a scruple of nitre. He continued for eight days this course, without any increase of his urine. We then tried stronger diuretics, as the infusion of the juniper berries and pills made of garlic. But they were attended with no sensible advantage.

Whenever the pulse became so strong as to bear bleeding, he lost eight ounces of blood, which was fizy. As he seemed to be eased by it, and as the pulse continued strong, it was repeated thrice. He
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appeared easier after each bleeding, his pulse bore it well, and the swellings and other symptoms abated. The heating diuretics, in this state, were given up, and a mixture of vinegar and nitre was substituted in their place, in each dose of which, taken every two hours, there was a scruple of nitre. Fomentations were applied to the region of the kidneys, and camphorated oil was afterwards rubbed on the part. He was ordered the semicupium, which, from a deficiency of water at that time in the town, he got only once; and which then seemed to have a good effect, as he passed a gill of urine when he was in the bath. As the coma and insensibility seemed to indicate some compression of the brain, an acrid clyster was ordered, to evacuate, and relieve the head. But it did no service, as water in the ventricles is not easily absorbed.

ISCHURIA VESICALIS.

An ischuria, without any diminution of urine, may seem to be a contradiction; of which, however, cases occur. The natural

tural quantity of urine, or more, perhaps, may be passed, and yet the patient die, from a distension of the bladder. No definition of the ischuria comprehends this case; so there is no wonder that physicians mistake it for some other complaint. A disease, which so far deviates from its constant and fixed character, must be curious and instructive.

HIST. II. March 3, 1778. Archibald Ferguson, 58, of a strong spare habit, and never subject to the gravel, had, during all last winter, a cough, with expectoration, which retired on the approach of his present complaints. About the 17th of February, he felt some difficulty of passing his urine, and much pain about the region of the bladder, which was eased on voiding urine. He continued in this state until the 27th, at which time he turned easy upon the application of some medicines. After this, the abdomen swelled, and he had pains in his loins and thighs. When he came into the clinical ward, March 3d, his abdomen was swelled and tense, and an evident fluctuation was felt, while some who touched him thought that
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the swelling was sonorous, and produced by wind. The former had felt the abdomen below the umbilicus, so they must have felt a fluctuation; while the latter probably had touched the upper parts, where they could find none. A tumor was discovered betwixt the umbilicus and spine of the os ilium, on the left side, which gave him much pain, especially when pressed. This tumor became more easily felt after the swelling of the abdomen decreased; it seemed to be round; and it was very near as large as the head of a child. It appeared very much on the left side; and I often felt it in that situation, even when he lay on his right side, and the tumor then became dependent. He passed urine frequently, and rather more than in health, as we computed it to be about four pints a day. It was always clear, and of a light colour. His body had a disagreeable smell; his skin was dry; his body was bound; and his appetite was entirely gone, so that he had hardly taken food for twelve days. His legs swelled slightly, for some days, in the evening. His pulse was generally regular;

gular; sometimes slower than natural, as I felt it once at 64; and sometimes quicker, as at 92. It is once marked rather strong. He was often seized, especially after eating or drinking, with hiccup, which increased and lasted till his death. He had slept little. His answers were very distinct; so that we never got his real, but often his false feelings, which contributed to deceive us. On the 20th day of his disease, after some doses of squills, the general swelling of the abdomen fell, became much softer, and discovered, more distinctly, the swelling of the left side. 21st, A vomiting appeared. 22d, He became more indistinct, and delirious. 23d, He died.

When opened, the tumor, which was so distinctly felt in the left side of the abdomen, between the umbilicus and os ilium, was owing to a distension of the bladder from urine. It was now in its proper situation, its fundus reached to about the division of the aorta into the iliacs; it entirely filled the pelvis, and contained between five and six pounds of urine, of a pale colour. On examining
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the external surface of the bladder, its neck, and the beginning of the urethra, were found to be surrounded by a schirrosity, which impeded the evacuation of the urine. The bladder itself was much thickened, but not more in one part than in another. The ureters entered naturally; but they were much thickened in their upper half, nearest the kidney. The kidneys were somewhat enlarged, particularly the left, which had several watery vesicles on its external surface. They were not in their usual situation, but lay close on each side of the spine, and very near the aorta; so that the renal vessels were very short. What was very singular, the lower end of each rose over the spine, and they were united together in their membranes and substance, the aorta passing beneath the union. The bladder had pressed considerably on this part; and the peritoneum covering them was considerably thicker than natural. In the thorax, the lungs were found adhering to the pleura every where, and in some parts very firmly. The lungs were of a loose texture, and of a black colour. There was about an ounce
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of water in the pericardium. The veins of the lower extremities seemed to be very turgid with blood.

Thus we are indebted, for a discovery of this curious disease, to dissection, without which we never could have known or believed what it really was. I could never consider it as an *ischuria vesicalis*, which, in fact, it was, as it wanted its characteristic marks. 1. There was no suppression of urine, which is the very definition given. 2. There was no swelling or weight of the hypogastric region, which is Sauvage's definition. There was, indeed, a large swelling on the left side; but that is not the situation of the bladder. 3. He had not the constant desire, nor made any vain attempts to void urine, which is another mark. So that his disease wanted the pathognomonic signs of the *ischuria*.

I had not the least doubt but that it was an *ascites*, as he had a previous stoppage, or defect of urine; a subsequent swelling of the abdomen; an evident fluctuation, as it appeared to me; preceding pains of the liver, a tumor felt on the left side, which I conjectured might be a swell-

ling of some of the mesenteric glands; thirst; his tongue and skin dry; and his body bound. I proceeded on this idea; but dissection discovered that I was mistaken. I need not blush, however, at the mistake, since Rhuyfch and Morgagni, two such eminent anatomists, were deceived in the same way. Rhuyfch*, gives a case of a great swelling of the abdomen, which was owing to a distension of the bladder; though not suspected to be so by him. Morgagni † gives a case exactly similar to that of our patient, where he had less reason to be mistaken, because in his case the tumor was in the middle of the body; but in the present disease, it was in the left; and because in his case the brain was not affected, while our patient was always very indistinct. He seems to have attended the woman before death, and mentions the quantity of urine, "*Affiduum urinae stillicidium.*" He mistook it for a swelling of the uterus, "*Nemine dubitante, quin ex cancro suo uteri tumore decessisset.*" On dissection, "*Apparuit vesicam urina*

* Vid. *Adversar. Anatom.* Dec. 2. cap. 9.

† Vid. *Epist.* xxxix. Sect. 33.

“ distentam, id quod nemo, jugiter lotio,
 “ ut dictum est, distillante, inducere in
 “ animum potuisset, magnam illam
 “ tumorem fuisse.” He describes the
 state of the bladder, “ Suos reliquos pa-
 “ rietes omnes ex dura albaque sustantia
 “ digiti crassitudine habebat.” The very
 state of urine was the same as that of our
 patient. “ Cujus magnam vim continebat;
 “ non lixiviosae, non crassae, non gra-
 “ veolentis, sed fere aquosae.” The case
 was similar, and as fallacious as that which
 we have related. There is another case
 in Lieutaud.

As this disease seems so very different
 from the common ischuria, Sauvages, in
 his *Nouvelles Classifications de Maladies*,
 the first attempt towards his *Nosologia*
Methodica, calls it *Hydrops Vesicae*. But
 it would be improperly classed amongst
 hydropical diseases, as in this there is an
 increase, rather than a defect of urine,
 as the fluid contained in the cavity is
 not coagulable; and as the distension
 of the gall-bladder from gall, or the in-
 testines from alimentary matter, might,
 with equal propriety, be termed a dropsy.

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This disease probably arose, at first, from a scirrhus about the neck of the bladder, which occasioned the pain and stoppage of urine, felt at the beginning of the disease. After this time, the bladder seems to have been constantly distending, which must have been attended with great pain, unless, at the same time, it became proportionably scirrhus. The pain afterwards disappeared, and the urine came off plentifully, which made him conclude that the symptoms had gone off on the application of some remedies. His belly then began to swell, as the bladder took up more room. I felt a fluctuation, as I had struck the bladder. Others, probably, had touched his abdomen higher, and had felt it sonorous, from the air being collected in the intestines by the pressure of the bladder on them. The tumor was very painful when pressed, as the distended bladder must be. But, how this tumor should always, during life, be felt so much on the left side, even when he was lying on his right, while after death the bladder was found in the middle, I can give no account.

The urine came off in considerable quantity, from the action of the abdominal muscles compressing the distended bladder; but, as the bladder, from its schirrous state, had lost its muscular action, little of the urine could be evacuated at once. His legs swelled, from a compression of the iliacs. The strong smell was owing to the cuticular discharge becoming more lixivial, as the urine was so clear. His pulse was seldom quicker, sometimes slower, than natural, perhaps from some fluid being extravasated within the cranium. The sudden decrease of the swelling of his body, arose from wind getting off during the operation of the squills, from the urine passing in greater quantity, and perhaps from some fluid being deposited in the abdomen, and being afterwards carried off. The hiccup, vomiting, and delirium, were owing to lixivial salts, and acrid oils retained, which always excite these symptoms.

He got a few doses of dried squills, which diminished the swelling of his belly, and brought off much wind. For the hic-

hiccup he got a mixture of musk, and afterwards opium; but without any good effect.

What would have been the consequence of drawing off the urine by the catheter? In Rhuyfch's case, it did good, and the internal coat of the bladder came off mortified. But it could not have cured either our present patient, or that mentioned by Morgagni, from the scirrhus state of the bladder, ureters, and urethra, although it would have given immediate ease by removing the distension.

I shall conclude the account of this case with Morgagni's observation, "*Multiplikes, ad cautos reddendos medicos, utilitates habet haec observatio.*"

HIST. III. January 5, 1779. John M'Arthur, 60, about three months before this time, was seized with difficulty of passing urine, and with constipation, which were relieved by some medicines. But these symptoms soon returned. About five weeks ago his belly was swelled, from a tumor in the hypogastric region. About a week after, a hiccup came on; and, in a few days, he was seized with vomiting,

both which symptoms have continued since that time. At the time he was admitted, he had the swelling of the hypogastric region; a dysuria, but without pain; a vomiting; and hiccup. He had lost all appetite, had thirst, and constipation, which always attended him. His pulse was 110, and weak. In the evening, about three pints of pale clear urine, without much smell, were drawn off. The next day, we found all the symptoms gone, except the pains, which were easier. After this, he continued to pass some urine, sometimes voluntarily, sometimes involuntarily and insensibly; but so much always remained behind, that his bladder was constantly full, unless when the urine was drawn off, which was done twice every day. The urine was sometimes pale, sometimes of a deep red colour, and once there was some coagulated blood mixed with it, which, perhaps, might have been occasioned by the catheter. About the sixth day, we found the urine very putrid, much purulent-like matter at the bottom of it, and passed then with more pain. About the 11th, the putrid smell disappeared. On the

12th,

12th, all his urine was passed insensibly, except what was drawn off, and his hiccup had returned, but was more gentle. In this way he continued without fever, but he was often much troubled with hiccup, especially during these nights, when the urine had not been drawn off the preceding evening. A month after admittance, his bladder, without the assistance from the catheter, was almost entirely, though insensibly, evacuated, and the hiccup had left him. When my attendance in the clinical ward was finished in the middle of February, he remained behind, without fever, hiccup, &c. and as much relieved as, perhaps, the case could admit of. He had no complaint, but that of voiding his urine insensibly, a natural effect of a scirrhus bladder, which appeared to me incurable.

I had heard but a few words only from this patient, in the waiting-room, and those badly interpreted, as he could only speak the Erse language; when, from the similitude of his case to that of the preceding patient, I suspected his disease to be an ischuria; and, I was convinced of this

before the case was taken, when laying my hand on the hypogastric region, I discovered a swelling there.

Almost all nosologists have defined this disease to be “a suppression of urine.” But both these cases show this definition not to be proper, nor sufficient to point out the disease; for, in both these patients, much urine was passed; nay, in the former case the quantity was rather above the natural evacuation. Others define it to be “a constant desire to pass urine, but with vain attempts.” But, in neither of these patients was there a great desire, and the attempts were not in vain. Sauvages’s definition is a good one; “*tumor hypogastrii ex urinae retentione*,” as both our patients had a considerable swelling there, and in the case related by Morgagni there was the same symptom. This tumor must necessarily be always present, and be felt. But, in the former patient, it was very much to the left side, even though he lay on his right, which deceived me. I would therefore define it, “*Dysuria, cum tumore hypogastrii, & in progressu morbi, vomitu & singultu*.” These two last symptoms seem

seem necessarily present in the progress of the disease.

There are many of the symptoms in this disease, as dysuria, &c. similar to those attending the stone in the bladder; but the latter disease has no swelling, no vomiting, nor singultus; and it has some symptoms which the ischuria has not, as a constant desire to pass urine, a pain in the end of the penis, a tenesmus, and often a diarrhoea. It has more similitude to the ascites, as both are attended with obstructed urine, a swelling of the belly, and a fluctuation. But the ischuria may be easily distinguished from the ascites, as, in the former, the swelling is of a round defined figure, and just above the os pubis, as the fluctuation is confined to that part; as the urine is often pale; and as there is pain in voiding it. So difficult has it hitherto been to distinguish this disease, that thus much, on the diagnostic marks, seemed necessary.

This disease, in the latter of the two patients whose cases are here related, appeared to arise from a scirrhus and swelled bladder. For, 1. When the catheter

was introduced, a considerable resistance was felt at the neck of the bladder, and it seemed to the introducer to pass around some tumor. 2. When the finger was introduced into the rectum, a hard tumor was discovered. 3. The dissections mentioned by other authors, and that of our former patient, show this to be the general cause. It may be thought that the whole bladder could not be scirrhus, else it would not have stretched so much. But it may be scirrhus and dilated also; though, I believe, a scirrhus oftener contracts hollow muscles, as in the scirrhous of the stomach and intestines.

Although the hiccup and vomiting abated much after the urine was drawn off, and prevailed most when that operation was not performed; yet these symptoms are, in part, to be attributed to the topical affection of the bladder; as they continued, in some degree, after the urine was drawn off; and during these nights, in which the bladder was fully evacuated, so they could not altogether arise from a defect of the secretion, or from an absorption of acrid urine. The paleness of the urine first
drawn

drawn off, which must have been in the bladder for some time, was remarkable. It was found equally pale in the former patient. Was this owing to a general spasm of the secretory organs of the kidneys? or did Nature attempt to secrete the salts and oils by other organs? I am apt to believe the latter cause, as both this and the former patient had constantly a strong lixivial smell.

The latter case, whether we considered the symptoms or cause of the disease promised no successful issue. As many of the complaints arose, immediately, from a stoppage of urine, its evacuation by art, and a repetition of the operation twice a day afterwards, became necessary. All his complaints, vomiting, hiccup, &c. almost went off, except the dysuria, which constitutes the disease.

The hot bath was ordered every day, to relax the scirrhus bladder, to open the skin, and to assist the following course. He got an opiate every night, as he slept ill; and it had the desired effect of procuring rest. No better remedy occurred, for the obstruction, than a mercurial course;
and

and no better preparation of mercury than Plenck's solution, as the gum Arabic would cover the urinary passages. He was ordered half an ounce of that preparation, which contains six grains of mercury, twice a day. I intended that it should have affected his mouth a little, which this preparation does, moderately, and which effect was produced. He took it for about twenty days. His body was, during that time bound, so that we were often obliged to give him the castor oil. Mercurial pills were afterwards tried; but they seemed to purge too much. Mercury was applied to the part affected, by seating him over the vapour of native cinnabar thrown on coals. But he found no advantage from these mercurials; so they were given up.

Lime-water, to the quantity of a bottle in the day, was next given. This, as an aperient, might open the obstruction, and, as a cicatrizer, might heal any ulcers there. A few days afterwards, he began to take the bark. This plan seemed to agree with him, as his fever disappeared, as his hiccup left him, and as he had no complaint but
that

that of voiding his urine insensibly, which always must attend a scirrhus state of the bladder.

ISCHURIA URETHRALIS.

This disease seldom occurs in the clinical ward.

HIST. IV. March 6, 1778. David Wardlaw, 60, had a gonorrhoea about six months ago, which was stopt by medicines, in two or or three days. He felt, soon afterwards, a difficulty in passing his urine, which has gradually increased since that time. About ten days ago, it was attended with pains in the glans and ardor urinae. He has passed little, for four days, and only two gills the last day, with very great difficulty. The hypogastric region is swelled and pained. On introducing the catheter, three pints of urine were brought off, by which the pain and swelling were removed. The catheter required force to make it pass the neck of the bladder, and blood followed the operation. When the finger was introduced into the rectum, there was found a hard tumor
about

about the neck and bladder. 9th, His urine was passed in small quantity. 10th, The right testicle began to swell, and continued so for some days. 13th, The catheter entered easier, and the tumor was found to be less by the finger. 16th, His urine passed easily. But the swelling of the testicle continued for three weeks,

We are sure that the cause was lodged in the urethra, and in the beginning of it next the bladder, as the finger found the tumor there, and as the catheter was obstructed in its passage at that place. But, whether it was a swelling of the verumontanum, prostate glands, vesiculae seminales, &c. was uncertain. The affection of the testicle seems to point out the last. These parts are often affected by tumor and scirrhous, after a gonorrhoea, especially if suddenly stopped. The swelling of the testicle is a common effect of such tumors, and of the gonorrhoea, and is not occasioned by the absorption of any venereal matter into the blood, and fixing on the testicle, nor to any passing down the vas deferens; but, 1. To a stoppage of the secreted semen, by the tumor pressing on the end of
the

the duct. 2. To an increase of the secretion, from an irritation on the extremity of the excretory canal. Hence the testicle swells, from a preternatural quantity of semen being collected in it; and, in venereal cases, that tumor is no proof of the blood being infected.

As he had been bled, as his pulse did not appear strong, and as he was old, bleeding was not ordered; but, as the original cause was venereal, he got the mercurial pills; and the mercurial ointment was rubbed on the part.

After the swelling of the testicle appeared, it became the principal object, as the easier passage of the urine showed that the urethral tumor was less; and I ordered fomentations, a poultice, and the repeated application of four leeches. Goulard's vegetable mineral water seemed not to do much good. As its operation appears to be merely topical, the testicle was probably out of its reach. I have often seen the good effects of vomits of turpeth mineral, in reducing swellings of the testicle. They are not used here, from a mistaken notion of their being severe; but they never appeared

peared to operate more severely than other vomits, or than could have been wished. He was, therefore, ordered four grains of the turpeth mineral which vomited gently; and the swelling was lessened. It was repeated, the second day after this; and it did not vomit, but it purged him thrice. I was surprised that no spitting followed, which generally succeeds the second exhibition of this medicine.

When an inflammation of his eyes appeared, bleeding seemed necessary, though his pulse, even then, did not indicate it. He was bled, and his blood appeared fizy. This state of the blood, and his being easier after the operation, encouraged us to repeat it twice; but in this last bleeding the blood had no fize. I am every day more and more convinced of the utility of bleeding, even though the pulse appears not strong, in all topical venereal inflammations, as phimosis, paraphimosis, &c. although they have an oedematous appearance, which is too apt to prevent our doing it.

He got a bottle a day of the decoction of mezerion, which produced a vertigo.

His testicle, next day, began to decrease, and was well on the fifth day. Whether this effect was owing to the previous bleedings, or in part to the decoction, can hardly be determined. I am apt to attribute a share of the cure to the mezerion, from its general deobstruent effects, and from its success in the case of a swelled testicle, as will be afterwards mentioned when we come to treat of the effects of this medicine.

S E C T XVI.

Diabetes

There is no disease that has been so little improved in its history, theory, or cure, as the diabetes. Aretaeus has given the best description of it. All attempts to explain its pathology have hitherto been fruitless; and it is yet, in its advanced state, incurable. This must, in some measure, be attributed to the rarity of the disease. Galen says, that he saw it only twice. Though at present uncommon, it however occurs perhaps oftener than among the antients.

This

This Mead attributes to the use of warm water among the antients, after drinking hard; whereas the moderns quench their thirst with cold water, which, in that state, becomes more diuretic. The immoderate use of spirits, which were partly unknown to the antients, may perhaps afford a better reason for the more frequent appearance of this disease in modern than in antient times. An accurate attention to two cases, which lately occurred to me, may throw some light on this singular disease, especially as one of these proved mortal, and was attended with a dissection, of which we have but few recorded.

Sauvages has properly placed this disease in the class of Fluxus; but improperly in the order of Serifluxus, as the urine has none of the marks of serum. Others have arranged it among the spasms. I do not think their definitions have sufficiently marked its distinguishing outlines. It may be defined, “*Urina aucta & subdulcis; sitis perpetua; cutis arida & pleurumque squamosa.*”

It has been distinguished by Etmuller into the Vera and Notha; Vera, where the
drink

drink passes unchanged, as when red wine comes off red; Notha, when it arises from a colliquation of the fluids. That red wine passes unchanged, appears improbable; and the urine not coagulating, is a sufficient proof that there is no colliquation of the fluids. It may be more properly distinguished into the *Aquosa*, when the urine is of a diaphanous watery colour, as in the two following patients; and into the *Lactea*, when it is of a milky whiteness. This latter species has occurred to me. It must proceed from the chyle's passing along with the urine; and seems only to be greater in degree, where the attenuated oils of the chyle are allowed to pass; while, in the former species, the salts alone are secreted with the urine.

Let us first take a view of the symptoms and circumstances of this disease, as these must serve for the basis of our after reasoning. The attention which we paid to both cases will enable us to give a more accurate account of this disease, than has, perhaps, yet been done. As in both patients, the symptoms were similar, we shall consider them together.

“ Alexander Arthur, admitted Feb. 13, 1775, had laboured under the disease for three years. James Murray, admitted March 10, 1778, had had it for four years.” Thus, contrary to Aretaeus’s opinion, it appears to be one of the most chronic distempers which we know, as it lasted so long in both patients. If many of the nutrimental particles pass off by urine, yet their great appetite helps to replace this waste.

“ Arthur was forty-two years of age; Murray was twenty.” It seems, therefore, not peculiar to any age.

“ It came on, in both, with increased thirst, and increased quantity of urine; both of which symptoms appeared together. Both of them felt great debility. Murray, at first, had some flatulency, which went off.”

“ Arthur’s thirst was immoderate, and unquenchable. He drank between ten and twelve English pints a day, without satisfying his thirst. The quantity which he drank was greater, during any two hours of the forenoon, after breakfast, than during the same time, equi-distant from dinner,

ner, in the afternoon. Murray drank about four pints a day, and more in the afternoon than the forenoon."

It is the great quantity of urine which has hitherto characterised this disease.

"Arthur passed from 12 to 15 pints of urine during 24 hours. When he drank 10 pints, he passed 12; when he drank 12 pints, he passed 14 or 15; so that his urine exceeded his drink generally by 2 pints. He passed more proportionally in the evening than in the forenoon.

March 10th, between 4 and 6 P. M. he passed 4 pints. 11th, Between 10 and 12, A. M. he passed 3 pints. Murray, on the

13th of March, drank, during 24 hours, 4 pints; but his urine measured 12 pints.

16th, He drank 4 pints, and passed between 11 and 12 pints of urine. 17th,

From 12 at noon to 12 at night, he drank 4 pints, and passed 8. From that time

to 12 o'clock next day, he drank none, and passed 4 pints. 20th, From 12 at noon

to 12 at night, he drank 2 pints, and passed 6; from that to 12 next day, he

drank 1 pint, and passed 4. So that, when he drank 4, he passed 12 pints a day;

when he drank 3, he passed 10 pints. Hence his urine always exceeded his drink, by 8, or at least 7 pints." These quantities of urine, though quadruple of the usual quantity in that season of the year, are small when compared with what some authors mention. Thus, in the case of the girl described by Cardanus, 36 pints were passed each day, when her body altogether weighed only 250 pounds, and her meat and drink only 7 pounds; and in that of the woman mentioned by Shenkius, where the urine passed, in a few days, was more than the weight of her own body. Besides drink taken occasionally, they get in the Infirmary much liquid food, as broth to dinner, and beer to breakfast and supper, which may amount to three pounds and a half in the day. The solid food, at an average, may be about three pounds and a quarter a day. This, if we allow the whole to pass by the kidneys, nearly amounts to the excess of Murray's urine above his drink, but will not account for the surprising quantities recorded by the above authors. From the preceing experiments, it appears, that
more

more was always passed from 12 at noon to 12 at night, than during the other 12 hours.

But the quality of the urine is yet more singular, and it has been hitherto less observed. “Arthur’s was of a pale whey colour, with little or no sediment. This colour was owing, perhaps, to the greater quantity of saccharine matter in it. Murray’s was of a pale straw colour, and had no urinous smell.” Authors mention oil on the surface of diabetic urine; but I could discover none on the urine of either of these two patients. The scum which is formed on the surface of urine, left in quiet to follow its spontaneous changes, has, perhaps, deceived them.

“The urine of both patients had an evident sweet taste.” This the ancients had observed, though some moderns have denied it. But none ever thought of discovering the cause of this taste, till Dr. Dobson analysed the urine by evaporation and crystallization, and got, from each pint of urine, an ounce of a saccharine saline substance, which, when tasted, he could not distinguish from brown sugar, except

by its leaving a sensation of coldness on the palate. "Arthur's urine, evaporated to an extract, by my friend Dr. Black, afforded one ounce and a half, from each pound, of a brown saccharine matter, which had a weak saltish taste. Murray's urine treated in the same way, gave but one ounce, from each pound, of a substance resembling coarse brown sugar, with a saccharine and urinous smell, and a sweet and salt taste." The quantity of saccharine matter in Arthur's urine is wonderful, as a pound of ass-milk affords only half an ounce; and the same quantity of cows-milk affords only half of that quantity of sugar. The salt taste shows that it has the due proportion of the ammoniac and marine salt; but they could scarcely have been separated from the saccharine by redissolving and crystallizing.

"The urine of neither was coagulable by fire, or by the vitriolic acid." I find, since, that Dr. Dobson had tried the same experiment with the same result. It, therefore, contains no coagulable lymph. In this it agrees with urine in a natural state. Cottuni and Sarcone mention co-

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gulable

gurable urine in the dropfy; but, though often tried, I never yet discovered hydro-pic urine to have that property.

“Half a pint of yeast was mixed with 24 pints of Arthur’s urine. It soon began to ferment, and emit a vapour, like fermenting liquors. Next day it fermented strongly. On the 3d, the fermentation seemed to be finished, and it had now lost all sweetness, and tasted like small beer. Murray’s, treated in the same way, fermented into tolerable small beer.” This shows the contents of the urine to be, mostly of a vegetable nature, as no animal fluids are capable of the vinous fermentation.

I next tried the spontaneous changes of their urine. “On the 24th of March, six pints of Arthur’s urine were put into a clean stone vessel, and placed in the same room with himself. At the same time, the same quantity of the urine of a convalescent was placed near it, as a standard. On the 6th of April the former was still sweet in taste and smell, while the latter smelled like stale urine, and had for several days a thick mucilaginous skum on its

surface. On the 17th, the former had got a mucous cover, and a slight putrid smell and taste; the latter was very putrid. So both were thrown out. On the 10th of April, about 20 pints of Murray's urine were put into a wooden vessel, placed in a warm room. On the 20th, its surface was found covered with much skum, and many air bubbles, which showed that it was in a state of fermentation. It tasted acidulous, and like weak hard small beer. So that it was under the vinous fermentation." Dr. Dobson, too, found that diabetic urine turned vinous and acid before it corrupted. The season, the state of the weather, the vessel, and the quantity, favoured the vinous fermentation of Murray's urine, more than of Arthur's, though there were more saccharine salts in the latter than in the former.

"The appetite in both was much greater than in good health. In Arthur it was voracious, and he felt a continual gnawing hunger. Murray's hunger was not so uneasy." This helps to support the body under its great waste.

"Ar-

“ Arthur’s skin was always dry, especially from the middle downwards. Murray’s was always dry and scaly, especially on the breast. None of these two patients ever sweated.”

It is not a matter of mere curiosity to fix the state of the cutaneous exhalation and inhalation. This was attempted by weighing our patients, forenoon and afternoon, at nearly equal distances of time from dinner, and from supper. “ March 7th, Murray, betwixt 4 and 6 P. M. lost in weight, that is, perspired three ounces and three drachms. On the 8th, between 10 and 12 A. M. he gained two ounces and a half; so that, instead of losing by perspiration, he absorbed that quantity more than he perspired. On the same day, between 3 and 6 P. M. he lost three ounces. On the 9th, between 11 A. M. and 1 P. M. absorption exceeded perspiration by two ounces and a half; and on the same day, between 4 and 5 P. M. his perspiration exceeded absorption by four ounces.” By these five experiments the perspiration exceeds nearly by two ounces, at a medium, in an hour, the absorption in the afternoon;

noon; but, in the forenoon, the contrary takes place, and the absorption exceeds perspiration by one ounce and a quarter in the hour.

We can now compare in Arthur the quantity of drink, urine, and perspiration. In the forenoon he drinks more, and absorbs more, but passes less urine. In the afternoon he drinks less; but perspires more, and passes more urine. Hence the following conclusions arise: 1. That the increase of urine is not owing to the immediate stoppage of the perspiration, as the quantity of urine is at that time least. 2. That this increase does not arise from an immediate quantity of drink, as the urine is least when the drink is most. 3. That the fluids are accumulated in the body in the forenoon; as then the drink and the absorption are in greater, and the urine in less quantity. But, in the afternoon, the kidneys and skin are more open, while less drink is taken in; so that the body seems, then, to be in a progressive state of depletion. This is contrary to the established theory which supposes these evacuations to alternate. 4. As the urine exceeds

exceeds the drink by 1, 2, or 3 pints a day, we may allow 2 at a medium. If we are to deduce this excess from absorption, which never exceeded an ounce and a quarter in an hour, the whole 24 hours of an absorption, equal to this, will not account for it; but we have discovered perspiration, in the afternoon, to be almost double of absorption.

The state of Murray's cuticular discharge was as follows: "April 7th, from 11 A.M. to 1 P.M. he gained three ounces. From 5 to 7 P.M. absorption was equal to perspiration. On the 8th, from 11 A.M. to 1 P.M. he gained three ounces; and from 5 to 7 P.M. he lost three ounces. 9th, Between 12 and 1 P.M. he lost nine ounces; and in the evening, for the space of an hour and a half, there was no gain or loss. 10th, From 2 to 5 P.M. he lost an ounce and a half. 13th, From 12 to 2 P.M. he gained three ounces and a half." From these experiments, there appears to be an ebb and a flow; but not at stated times, though, in general, absorption took place in the forenoon, and perspiration in the afternoon, as in the former patient. If,
to

to compensate the 12 pints of urine, we take 4 pints of drink, and near 7 pounds of fluid and solid food at meals, we shall still have above one pound remaining, for which, by the preceding experiments, we are not entitled to account from absorption. There is no remaining source, but from the consumption of the body.

Is the perspiration or the sweat, saccharine? I cannot answer that question, as I had not attended to it. If it is not, the fault or primary cause must be in the kidneys alone.

“Arthur’s blood was in a natural state, and the serum had no preternatural sweetness. Murray lost two ounces of blood; the first ounce was taken into one cup, and the last into another. The former was natural; but the latter had a very thick inflammatory crust.” I did not expect to find a fizy crust in the blood, where the pulse was rather weak, and almost natural as to strength. “He lost, again, on account of a stitch in his breast, five ounces of blood, with the same appearances, as before, in the first and last cup. The serum was saline and natural.” One would have

have thought, considering what a quantity of saccharine matter we found in the urine, that the serum should have contained as much of it, as to be discovered by the taste. Hence, this saccharine matter must either be fabricated by the kidneys; or, if made by the digestive organs in the primae viae, it must pass very quickly through the vascular system.

“Arthur’s pulse was sometimes at 75, and at other times at 90. Murray’s sometimes at 68, sometimes at 80. During a few of the last days of his life, it was 130.” In the case which I saw attended with milky urine, there was a constant hectic, which was not without danger. Thus, a hectic pulse often attends this disease.

“They were both much emaciated, and complained, from the beginning of their disease, of great debility. Both of them slept well. They never had any acid taste in their mouth, or swelled belly, as Dr. Dobson’s patient had. Arthur had complained, for a year, of coldness of his lower extremities. Murray complained much of a pain in his left foot; and his
legs,

legs and ancles were sometimes slightly swelled. He had besides lost sixteen of his teeth since his disease began ; and several of those remaining were loose, and the alveolar processes were wasted."

" Arthur was two months and an half in the clinical ward ; at the end of which he was dismissed in the same state he came in. Murray continued under my care from the 10th of March to the 20th of April, at which time his pulse became 130, his breathing difficult, his drought increased, and he had a stitch below the right mamma, which was aggravated on coughing. He lost five ounces of blood, had a blister applied, was ordered wine, &c. but he died on the night of the 22d. On examining the kidneys, the left was larger than natural, and its substance softer. There was no uncommon appearance in the right kidney, except a greater degree of softness. The substance of both kidneys had a sour odour. The ureters were of a natural size. The coats of the bladder were stronger than common ; and no lacteals could be observed about the neck of it, though some have suspected that
much

much of the fluid is deposited in the bladder, by a retrograde motion in the lymphatics. All the glands of the mesentery and mesocolon were enlarged, of a pale colour, and of a firm consistence. The vascular system of the mesentery was rather large. The liver was natural, and had some firm adhesions to the colon. The large intestines were much loaded with hard faeces. The rest of the abdominal and thoracic viscera were natural." If the urine in the kidneys had been tasted, it would have ascertained the course, about which there is some doubt, of the saccharine salt. But the peculiar sour odour shows, that the saccharine matter comes from the kidneys, and becomes sour, by fermentation, after death.

The kidneys were afterwards sent to Dr. Monro, for further examination; and I received the following letter from him: "The kidneys of your patient were unluckily cut open before I received them, which put it out of my power to examine them properly, by injecting their vessels. I regretted this the more, because I had, long ago, found it possible to make an injection,

jection, coloured with vermilion, pass from the renal artery into the uriniferous tubes, when there had been no previous disease of the kidney. Both kidneys seemed to be of a large size, were of a remarkably pale colour, and felt rather softer than common. No other difference in the texture of the vessels, or solid parts, could be distinguished by the naked eye or with glasses. The smell of both kidneys was certainly different from what I had ever observed, being in some degree sour, as well as putrid."

"Arthur, a mason, assigned no cause for his disease. But Murray, a weaver, imputed his to cold and dampness, to which, from his business, he was exposed." That employment affords the clinical ward a very great number of patients, in all the various diseases of debility. Authors have observed, 1. That the diabetes often follows acute diseases, which debilitate the whole body and kidneys. Aretaeus is of this opinion. Sydenham said, that it followed intermittents, especially if much venesection had been used. 2. That acrid purgatives induced it. Sydenham observed it

it to arise from severe purging in intermittents. I knew a diabetes of the chylous species brought on by too frequent doses of jalap and calomel. 3. That it arises from a too frequent use of diuretics. Many such are mentioned by authors, as sperma ranarum, muria foeniculi marini, succus betulae, cyder, and Rhenish wine. Willis mentions a diabetes, from the use of Rhenish wine for common drink, which ended fatally in twenty days. Yet I do not remember that any of the soldiers were seized with it, on the banks of the Rhine, in the march to Frankfort, in the year 1743, though they drank, as small beer, the most acid and weak sort of it. A gentleman, after drinking Dunse Spaw too plentifully, in cold weather, and in its vapid state, was soon seized with a diabetes. It was attended by a general laxity of all the urinary passages; as a gleet, which had been stopped for six years, appeared along with it. 4. That the bite of the serpent *Dipsos* occasions diabetes, and violent thirst. Aretaeus asserts this; yet it seems doubtful, as he adds, that some of those infected did not pass any

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urine,

urine, and as Lucan, who accurately mentions the other symptoms which attend its poison, says nothing of this.

As this disease appears so singular, it is not to be wondered, that there are a variety of opinions about its cause. Let us take a short view of these, to see if they agree with the phaenomena which we have discovered, or give rise to any method of cure.

The opinion of Galen, of Aretaeus, and of Willis, scarcely merits our serious consideration. Mead, in his treatise on Poisons, makes it an affection of the liver, and not of the kidneys. He says that, from too much watery drink, the salts of the bile are not able to keep the oils dissolved; so that the watery part runs off by the kidneys, and the more oily remains in the liver, and produces a steatomatous collection; that the sweetness of the urine arises from the bile, as the distilled water of the bile is sweet; and that the urine at last turns bitter. But, it is objected to this opinion, that, 1. The urine in Murray was not bitter towards the end of his disease. 2. There was no obstruction of the liver

liver observed after his death; nor is it found in other dissections. 3. No oil was seen on the surface of the urine of our patients.

Some attribute it to spasms of the secretory organs, and place it among spasmodic diseases. This opinion may be supported by the following arguments. 1. All stimuli on the secretory organs and ducts increase the secretion. 2. In hysteria, a pure spasmodic disease, an increased quantity of urine is a leading symptom. 3. Willis observed those patients subject to spasms and cramps. It may be objected, however, to this opinion, that, 1. Spasms and cramps are not observed by others, and none were discovered in our patients. 2. Antispasmodics, as opium, &c. do not alleviate the symptoms. 3. There is no drought in pure spasmodic diseases, but much in this. 4. This opinion does not account for the saccharine, acedcent, and fermentable urine. In the hysteria, the urine has not those qualities, which seem necessary to constitute a diabetes.

Others attribute it to the perspiration being diminished, or the inhalation in-

creased, as they cannot in any other way account for the quantity of urine so much surpassing the drink. But, 1. This does not account for the particular qualities of the urine. 2. Sudorifics and diaphoretics are not attended with any good effects in the cure. 3. In both of the present cases, especially in Arthur, perspiration and urine were increased at the same time. 4. We found, that the greatest absorption fell much short of the greatest perspiration, during the same time. So that we may safely assert, from experiment, that perspiration, at least, balanced absorption, during the whole day.

It has been generally thought to arise from laxity of the secretory organs of the kidneys; and for the following reasons: 1. Diuretics, mineral waters, &c. open the passages too much, and bring on a paralytic state. 2. The analogy to other increased secretions, from laxity, as sweating from too relaxed a skin, makes this probable. 3. The cure, by stimulants, incrassants, astringents, corroborants, &c. show that laxity is the cause. 4. External constriction, by a belt, is of use in curing this disease.

5. In-

5. Inspection of the body confirms it, as the kidneys are found lax. Petrus Pawus * says, “Filia diabete laborabit, &c. inveniunt renes solito flaccidiore.” Morgagni † has a similar case. In our patient, the same was discovered. To this opinion, it may be objected, 1. That too much cold water may bring on general, as well as topical laxity, 2. That tonics, &c. cure general, as well as topical weakness. 3. That Morgagni has three other cases, where the kidneys were lax; but no diabetes subsisted. 4. That if it depended on the kidneys alone, the disease would happen oftener, from inflammations, calculi, &c. affecting them. 5. That no state of the kidneys, alone, can produce saccharine matter.

The secretory vessels of the kidneys may be supposed so altered, as to produce these symptoms. For, 1. The secretion depends on the state of the secretory organ; so the former must alter with the latter. 2. No saccharine matter is discovered in the serum or sweat. 3. There is three times

* Vid. Observat. Anatom. 2. † Vid. Morgagni Epist. 42.

more of saccharine salt in diabetic urine than in milk, from which alone it is supposed to arise. To these arguments, it may be objected, 1. That, in most secretions, the secreted matter, as milk, sweat and urine, is allowed to have existed in the vessels; so, it is probable, that it does in the rest. 2. That, to suppose the kidneys capable of forming such a quantity of saccharine matter, without direct proof, cannot be credited, especially as such a salt enters from the primae viae. 3. That the quantity of saccharine matter in the chyle is not yet exactly ascertained.

Were I to give a theory, to explain the nature and symptoms of this wonderful disease, I would say, that it arises from a defect of the animal or assimilatory process, by which the aliment is converted into the nature of our body. I have long looked on the excess or defect of this process, as the source of many disorders. All putrid diseases, the scurvy, &c. seem to be owing to its excess; acidity of the stomach, &c. to its defect. Among the latter the diabetes may be arranged. For, 1. The remote causes shew it. It arises from what debi-

debilitates the body, as moisture, preceding diseases, great evacuations, &c. by which it becomes incapable to assimilate the food. So Sydenham thought, “*Assimulandis succis protinus impar est.*” 2. The white chylous matter, which is often secreted with the urine, shows, that the vegetable part of the chyle is not assimilated. The dilatation of the urinary excretories cannot, alone, account for this, as the serous part of the fluids would then escape too, which does not happen. 3. Sugar is found in diabetic urine. Sweet chyle is the first product of the stomachic and intestinal digestion; as chyle, in the thoracic duct, and milk, which is a speedy secretion of it, contain much saccharine matter. This is changed, in some hours, by the animal process, into an ammoniacal salt, which is that found in all the excretions. But the saccharine salt, still remaining in diabetic urine, which is the most perfectly animalized fluid, shows that there is great defect in the animal process. 4. Urine, being of a septic nature, runs fast into putrescency. But the diabetic urine turns acidulous; and with, and often without yeast, undergoes the

vinous fermentation. These peculiarities show its vegetable nature; as vegetable juices, alone, are capable of the vinous and acetous fermentations. It likewise shows, that it is the saline parts alone of bodies that ferment; for the fire must have coagulated the mucilaginous particles, had there been any in the diabetic urine.

These vegetable salts show a defect in the animal process. These arguments appear more convincing than any of the former. But it may be objected to them, 1. That animal food should cure it; which it did not. 2. That septics, which brought on putrid eructations, made no change. 3. That the proportion of saccharine matter is much greater in their urine than in milk. But milk has not, perhaps, the whole saccharine salts of the chyle.

If the theory alone of this disease were defective, it would be a matter of less consequence. But, from what we are to relate, the cure is fully as imperfect. All those who have seen the disease, agree in pronouncing it to be difficult of cure, especially if the patient is old, if it arose from habitual drinking, or if it has been
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of long standing. As with these two patients, before I saw them, and afterwards, many medicines were tried, I shall divide them into seven classes, sudorifics, antispasmodics, stimulants, astringents, tonics, incrassants, and septics.

1. As many are of opinion that it arises from a defect of perspiration, it was proper to try such medicines as increased that discharge. Besides opening the skin, they would make a new determination from the kidneys to the surface. Hence Arthur, before he came into the clinical ward, had taken a scruple of Dover's powder. It sweated him, but made no alteration on the disease. Murray had gotten it too; but without success. Arthur had likewise been tried with the hot bath, without effect. So that increasing the excretion of the skin does not diminish that by the kidneys, although both these excretions are, in general, so similar, and so often compensate the defect of each other.

2. Antispasmodics were naturally thought of, as the disease has been attributed to spasm. A blister had been applied to Arthur's loins, which, from its stimulus and
drain,

drain, is a powerful antispasmodic; but without any good effect. He had gotten a vomit of ipecacuanha, without success. He had taken ten grains of the mercurial pill, morning and evening, till his mouth was affected; but they did no good. With this view, I gave him opium, to the quantity of three grains a day. It made him sleepy, but did not diminish his urine. Murray got bark, without effect. I gave him a drachm of assafoetida in the day; but it took away his appetite, was attended with a feverish state, and was at last given up, as disagreeable to him. It seemed rather to hurt him.

3. As this disease was thought to arise from laxity, and a paralytic state of the tubuli uriniferi, stimulants, to excite their action, have been recommended. In this view, Dr. Brisbane considered the disease, when he proposed the tincture of cantharides as a cure. This Arthur had taken from the quantity of fifteen, to that of forty-five drops, every night at bed-time, without effect; which I thought a sufficient trial, so did not repeat it. Murray had taken from fifteen to eighteen drops a day.

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By mixing fix drachms of the mucilage of gum Arabic, it may be given to the quantity of fifty drops twice a day. So he was brought, by degrees, to take that quantity; but without any advantage. It griped him; but produced no aphrodisiac effect. Both these cases make the antidiabetic powers of this medicine very doubtful. It is, indeed, difficult to conjecture how a diuretic can cure the excess of this evacuation. With the same view, Arthur had taken three grains of the blue vitriol a day. It excited a nausea; but had no good effect.

4. Astringents are given in all increased evacuations; hence they are used in this disease. They brace the vessels, and make the nerves less sensible. Arthur had taken from ten to twenty grains of alum, along with five grains of the terra Japonica every two hours; and afterwards the serum aluminosum, so much recommended by Mead, in the quantity of four ounces for each dose. But these did no good. He had taken lime-water without any better success. As little, in this way, was left for me, I tried one of the strongest astringents,
gum

gum kino, to the quantity of fifteen grains; and that its operation might be stronger, by opening a new drain, three grains of the salt of hartshorn were added to each dose. He generally sweated with this during the night; but it had no effect in the cure of the disease. I ordered a tea-spoonful of the tinctura antipthifica twice a day. In two days, the quantity of his urine was only eight pints a day. But its good effects did not continue. He drank for several days, hard water, which is similar to Bristol water, so much used in the diabetes, as both contain an imperfect salt of an astringent nature; but it did no good. Murray had taken four ounces of the *ferum aluminosum*, twice a day; and afterwards alum in substance. He got ten grains of the gum kino, four times a day; then half a drachm, and afterwards a drachm of alum and dragon's blood, in equal parts, liquified, four times a day; but all without effect.

5. Tonics are more powerful corroborants than astringents are. Many of those are astringent, as bark, &c. But they have, besides, a stimulating power, by which

which they rouse the nervous system, excite the circulation, and are powerful in all cases of debility. They were amongst the first remedies given to Arthur, as they had not before been tried. I gave him half a drachm of the bark, four times a day, for ten days. It made him more thirsty; but had no good effect. As cold is a good tonic, a fall of cold water was applied to the region of his kidneys. It produced a heat there, which lasted a quarter of an hour. This was continued for five days. He then used the general cold bath; but all without effect. A bandage, which corrects the laxity of the body, and diminishes the irritability, has been recommended to be applied to the loins. But it did no good. Strengthening plasters did no service. Murray got Hartfield Spaw, bark, and a bandage, without effect.

6. Incrassants and demulcents are used to stop all thin secretions, and oppose acrimony. Hence Arthur was ordered a decoction of iſthyocola and gum Arabic, with mucilaginous food, as fago, and thirty oysters a day. These diminished the urine to nine pints a day. But, as it did not

decrease any more for seventeen days, during which this course was continued, it was given up. Murray got the same medicines, with forty oysters a day; but without any effect.

7. As the urine appeared too little animalized, I endeavoured to promote the animal process by septics. It is the first time that I, or perhaps any other, ever pursued that intention. At first a drachm, and then two drachms of crabs eyes were therefore given, four times a day, along with a tea-spoonful of the spirit of harts-horn, in three ounces of water. His body soon became bound, he turned thirsty, and his eructations were putrid, which showed that the medicines had answered their intention, at least in the primae viae. But the urine was not altered in quality or quantity. The same plan was pursued with Murray, and with the same effects; and besides, he felt a loss of appetite, and a pain of his stomach.

Thus these two patients exhausted all that experience had ever recommended, and almost all that theory could suggest. Yet, in both cases, the disease resisted all the means

means of cure used. When we are convinced of this, these histories are not without their advantage; as, by showing that the field is quite open, we may hereafter hope for some more successful attempt.

S E C T. XVII.

Experiments upon some remedies used in the Hydrops.

There is no disease which affords hospitals more numerous patients than the different species of Hydrops, and none of which fewer are cured. The incurable nature of hydropic affections, was of old remarked by Aretaeus: “Ab ipso pauci
“liberantur, idque felicitate, ac deorum
“potius quam artis auxilio.” Modern physicians were they as honest, could say little more. All attempts, therefore, to gain ground in the cure of such diseases, are worthy of attention. I shall, therefore, relate the successful and unsuccessful experiments which have been made.

CREMOR TARTARI.

Vincenti Manghini * first proposed cream of tartar, as a cure for the ascites and anasarca and supported his proposal with sixteen cases, in most of which it had been serviceable. He gave from four to six drachms a day. Often twenty, sometimes forty days elapsed, before it had any visible effect in increasing either the stools or urine; but, afterwards, the body became loose, and the urine thick, bilious, and fabulous. Many of the patients had swellings in the liver and spleen, which were likewise cured. From these cases, this medicine appeared to be a powerful diuretic, and the patients were reduced to great leanness; but they soon recovered, after its employment was given up. The patients, indeed, were all young; and the disease was generally but of some months standing. Some other Italian physicians, after this, had mentioned its general success, but without fixing it on the foundation of experiment, as Manghini had done, and

* Vid. Commentar. Bohon. tom. iv.

as the subject merited. The facts appeared to me authentic, strong, and meriting our utmost attention. Relying on these, it was first exhibited here in the year 1769, when I gave a course of summer clinical lectures; and it was at that time successful in the cure of some hydropic diseases. During that summer, therefore, and the following, its value was further ascertained. It has, since that time, been much made use of here, and over Scotland; but is, as yet, little used, as I am told, in the southern part of the island, though each winter students of medicine have an opportunity of learning and seeing its good effects. So slow is the progress of approved medicines. Manghini has the whole merit of the discovery, and of introducing a new and valuable medicine. I shall give the facts, successful and unsuccessful, that every one, where this medicine is not so much used as here, may be at liberty to form his own conclusions.

EXPER. I. May 23, 1769. Alexander M'Intosh, 21, has had, for two months, a quotidian, for which he had taken vomits, physic, and the bark. His last fit was on

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the 20th. His legs had been swelled for a fortnight, and his belly for some days. He feels a pain and swelling about the liver, with head-ach, drought, cold and hot fits, cough, and pain of his breast. Pulse 94. R Crem. tart. unc. fs. diff. in aq. font. unc. x. cap. quotidie summane. June 1st, his abdomen is less swelled. His body is more regular; but it is not loose. His urine is increased. Rep. crem. tart. drach. vi. diff. in aq. lib. i. cap. u. a. 21st, His legs are much fallen. His abdomen is of the natural size. The pain and swelling of his side are gone. He makes about four pounds of thick urine a day; and his body is more open. July 7th, He was dismissed cured, but much leaner. This patient was cured in six weeks. The medicine operated as a diuretic, but not as a purgative. He had taken about twenty-two ounces of the cream of tartar.

EXPER. II. July 25. Christian Sutherland, 20, has been affected with anasar-
cous swellings of her legs for two years. These have much increased since a fever, which she had a few months ago. She has

felt a constant pain, especially on pressure, in the region of the liver. There is no swelling of her belly; nor is there any diminution in the quantity of her urine. Her menses are regular. Pulse 100. She began with half an ounce of the oxymel of squills in the day, which was increased to an ounce and a half. It operated powerfully by urine; but the swellings did not diminish. August 2d, she began to take half an ounce of the cream of tartar, and this quantity was soon increased to six drachms, dissolved, each day. She sometimes threw it up; and it neither increased her urine, nor affected her body. 26th, Her left leg is fallen an inch; and her right, half an inch; and they do not pit on pressure. The pain of her side returned, for which she was bled. Sept. 9th, she was dismissed cured. Thus, anasarcaus legs, of two years standing, were cured in forty days, without any sensible evacuation; and the cure so confirmed, that she suffered no relapse from bleeding.

EXPER. III. Aug. 23. John Hamilton, 28, on leaving Kent, was seized with a quotidian, which continued for two

months, and then stopped. But there remained, in the left side of the abdomen, a pain, and great hardness, which seemed to be in the omentum. His legs had swelled, and continued so for seven weeks. On the anasarcaous swellings going off, the size of his belly increased; it has remained in that state ever since, and is about six inches larger than its natural size. He complained of head-ach, and he had a frequent bleeding of his nose, for which he had been bled. Pulse 92. There was no diminution in the quantity of his urine. He began with half an ounce of the cream of tartar dissolved; and as it had no visible effect on his urine or body, it was increased to six drachms. On the 29th, he got an ounce. Sept. 7th, belly fallen two inches. The hardness on the left side is less, and is moveable. His body is generally open, and his urine is somewhat increased in quantity. 15th, His belly hath fallen three inches, and the hardness is less. He passes more urine, but he has little purging. My attendance was finished before the cure was quite complete. Here the dropfy was owing to an obstruction in the

the omentum and mesentery; and the former decreased, as the latter diminished, without much increase of urine, or almost any purging, though he got an ounce of this medicine a day.

EXPER. IV. Aug. 26. To see how far its powers extended, it was tried in a case which to me seemed desperate. Agnus Johnstone, 40, after being overheated, and cooling suddenly, about a year ago, was seized with difficult breathing, and alternate cold and hot fits. His skin, eyes, and urine soon turned yellow. After taking many vomits, and much physic, his belly began to swell, about seven weeks ago, and his urine diminished in quantity. He complains of a pain in the left side of the hypochondrium, and he cannot lie on it. An evident fluctuation is to be felt in his abdomen. His respiration is difficult. His body is loose. Pulse 88. Notwithstanding the looseness, he was ordered six drachms of the cream of tartar in the day. 31st, Purging diminished, and pain of the side, breathing, and appetite better; so the medicine was increased to an ounce. Sept. 8th, he was

seized with looseness yesterday, and he passed much green matter. His belly has fallen two inches. His breathing is relieved; and he can now lie easier on the left side. 14th, His belly hath swelled again, and it is tense. The pain in the left side is quite gone; but he felt a pain below the short ribs of the right. His body is rather bound. I left him in the hospital. He was tapped; but his belly soon swelled again. The former plan was continued, and the quantity of cream of tartar was increased to an ounce and an half a day. Under this plan, the swelling of his belly gradually disappeared; and he was seemingly well. But, on November 8th, having met with some vexation, he unexpectedly died. When opened, the external surface of the brain was tinged yellow, but it was not of so deep a colour as the skin was. On the external convex surface of the right lobe of the liver, a large cyst was found, with its sides as hard as a bone, containing a pint of clear serous water, in which swam many hydatides. The whole liver was large and hard; the gall-bladder was quite empty, but the
ducts

ducts were not obliterated. No fluid was found in the abdomen or thorax. This case, though mortal, yet is strong in favour of the cream of tartar, as it removed the dropsy, which was the effect, though it could not remove the obstruction of the liver, which was the cause of the disease.

EXPER. V. July 10, 1770. George Brown, 26, affected, for about two years, with the lues venerea, which had destroyed the palate and septum narium, had produced ulcers about the anus and internal canthus of one eye, &c. About four weeks before he came in, his belly, scrotum, and ancles, began to swell. He had had an anasarca over all his body when I saw him. His abdomen was much swelled, and an evident fluctuation was felt. His urine was in small quantity. I put him on a course of the praecipitatus cinericeus, with sulphur antimoni praecipitatum. After the mercury began to affect his mouth, on the 20th, he was ordered the praecipitatus cinericeus, and the cream of tartar, alternately, every other day. It opened his body, and increased the quantity of his urine. He

often vomited, and sweated during the night, on which he took the mercurial preparation. On the 29th, the swelling of his legs and belly was diminished. Issues were put between his shoulders. August 6th, His belly hath fallen two inches. He spits a pound and a half a day. His legs are almost well. The issues do not run. 16th, His belly is fallen another inch. He spits three pounds. 24th, His belly is three inches less. He was allowed a little wine. Sept. 1st, His belly is fallen two inches. The spitting is diminished. He passes much urine. Sept. 8th, When almost well of both diseases, we were obliged to leave him in the Infirmary. The internal operation of the mercury and the sulphur antimonii præcipitatum, and the vomiting and sweating, which often happened after this medicine was taken, assisted much the effects of the cream of tartar, which, therefore, has but a share in the merit of this cure.

EXPER. VI. July 27. Janet Frazer, 48, about three years ago, felt her belly increased in size, and her urine diminished considerably. A few weeks after, her legs
swelled

swelled in the evening. Her abdomen is at present much enlarged, with evident fluctuation. She feels a pain in both hypochondria, and a palpitation and constriction about her heart. Her breathing is difficult in bed, and she cannot lie on either side. Pulse 64, and weak. R Crem. tart. unc. ss. &c. 29th, Her body is more open, and her urine is increased. Rep. crem. tart. drach. vi. Aug. 6th, Her legs are much fallen. Her body is bound. Rep. crem. tart. unc. i. 16th, Though the salts sometimes purged her, yet she was often so costive, that we were obliged to order a clyster. She sweats about her neck and breast. 28th, Her legs are of their natural size; and her belly is almost reduced. 31st, The pain of her breast, and the difficulty of breathing are almost gone, so that she can lie equally well on either side, and on her back, which she has not been able to do for these two years. Sept. 8th, She was dismissed cured. This patient was cured in about forty days, of an anasarca, ascites, hydrothorax, and perhaps hydrops pericardii, without any considerable increase of the excretion of urine,

urine, or of stool, her body being generally bound during the cure.

EXPER. VII. August 18. Margaret Richardson, 37, after a fever, was seized with a swelling of her legs, and diminution of urine. Her feet and ancles are much pained, swelled, and pit on pressure. She has a drought, and a white tongue; and complains of head-ach, and want of sleep. Pulse 88. R Crem. tart. unc. fs. diff. in aq. Cap. mane. 27th, Her stools are loose, and her urine is increased. Her ancles and feet are now alone swelled. 31st, The swellings are almost gone. Her urine is high coloured, turbid, and thick at bottom. She purged thrice a day. Sept. 4th, She was ordered the bark. 8th, Dismissed cured.

EXPER. VIII. July 16. Jean Short, 70, was attacked with anasarcaus legs, about five months ago, on the disappearance of some hard, and blue or livid tumours on her legs. The anasarca is general over all her body. Her belly is also swelled; but no fluctuation can be felt. Her urine is diminished; and she has had great thirst, and a diarrhoea, attended with
white

white stools for some days. Cap. L. L. gtt. xx. h. f. Cap. crem. tart. unc. fs. dissolut. mane. 19th, The purging has stopt since she took the opiate. Her body is bound, and her urine is not increased. The swelling of her abdomen and feet is diminished. 24th, Her body is gently opened by the medicine. She sleeps none for cough and pains, for which we were obliged to repeat her opiate often. Aug. 7th, Her belly is almost in a natural state; and the other swellings are still abating. 10th, Pulse quick and low. She complained of sickness and pain in her belly. The bark and wine were ordered; but she died on the 12th at night. This fatal issue seemed neither owing to the dropfy, nor to the evacuation produced by the cream of tartar; but to a preceding diarrhoea, and to a palsy which then threatened her.

EXPER. IX, February 11, 1774. Francis Hardy, 60, a smith, and used to drinking, has been affected for six years with difficult breathing, cough, pain of his breast, sense of weight between his shoulders, and increase of his complaints when he lies on his back, or left side.

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Some time ago, his legs and body began to swell. A sensible fluctuation can be felt in his abdomen. He has a paucity of urine. His body is bound. Pulse 100. From a sensation of suffocation, when going to sleep, he starts up to an erect posture. Here anasarca, ascites, and hydrothorax seemed to be complicated, and the case appeared to be very dangerous. He was put upon a course of cream of tartar. 14th, His body is rather loose. His legs and arms are fallen. He has little appetite; and he was allowed table broth and meat. 16th, Pulse 84, and weak; so I omitted his medicine, and gave him wine and cordials. 17th, He died. On inspecting the body, there were found about three pounds of fluid in the thorax, contained mostly in the right side, with some slight adhesions of the lungs to the pleura. The right lobe was found; but, on cutting the left, a good deal of pus issued out. The pericardium was much fuller of fluid than it ought to be. In the cavity of the abdomen, about six pounds of lymph were found. The liver was harder than usual; but there were no marks

marks of scirrhus. The other viscera were found. The immediate cause of his disease and death was the scirrhus and purulent affection of the left lobe, which did not allow the medicine time to produce its effects.

EXPER. X. March 4. John Farquhar, 60, about the beginning of January last, felt a pain in the region of the liver, especially on being pressed. His belly began to swell about the middle of the month. In the beginning of February, his legs became oedematous, one of which is excoriated, and discharges a thin fluid. He can scarcely lie horizontally in bed, and starts, for fear of suffocation, when going to sleep. He has not been able to lie on his left side for two months, as it occasions the pain, and difficulty of breathing. He feels neither weight, oppression, nor fluctuation in his breast. His cough is dry; and his body bound. His urine is of a deep colour, and diminished in quantity. Pulse 110, but not irregular. He has had a nausea and vomiting these four days. Cap. crem. tart. unc. fs. &c. 7th, He is purged gently; and

and his urine is considerably increased, and feels hot. He vomits sometimes. The pain of his liver is increased, when he lies on the left side. 8th, He died this day, when raised up in bed, and speaking as usual. In the abdomen, there was found about a pound of lymph; and the intestines adhered in some places to the peritoneum. The liver was considerably larger than natural; but it was not scirrhous. About a pound and a half of fluid was found in the right cavity of the thorax. The under part of the right lobe of the lungs, and the diaphragm and pleura contiguous to it, were much inflamed. Part of the pulmonary artery was ossified.

EXPER. XI. March 15. Alexander Walker, 18, weaver, was affected, two years ago, with oedematous swellings of his legs. In December last, they turned red and itchy. Within these three weeks, he has felt a pain, when coughing, in his right side. Pulse 100, and soft. Cap. crem. tart. unc. fs. &c. mane. 18th, His urine is augmented; but his body is not affected. The cream of tartar was increased

creased to six drachms. 20th, Pulse 120; and his body is open. His legs are much fallen, and less discoloured; his urine is much increased, and as limpid as water. Half of the cream of tartar is taken in the morning, and the other half at night. 27th, Pulse 114; the swelling of his legs is much diminished, and their colour is natural. His body is not so loose since the dose was divided. 27th, His legs, for these three days, have been of their natural size. 28th, Dismissed cured.

EXPER. XII. March 31. John Young, 22, has had a cough, and pain of his breast, for three years. About ten days ago, he was seized with severe pains in all his lower extremities, which went off on bleeding. After this, his legs and feet began to swell. Last night, he was seized with cough, dyspnea, and spitting of blood. Urine not less. Pulse 170. Fiat venæf. ad unc. ix. April 4th, Legs much swelled. Cap. crem. tart. unc. ss. quotidie mane. 7th, Swellings better. His body is loose, and his urine is increased. 13th, The oedematous swellings are gone.

EXPER.

EXPER. XIII. Dec. 4, 1774. James Smith, 23, about October 29th, perceived his legs and abdomen begin to swell, with evident fluctuation, but without any diminution in the quantity of his urine. He had taken jallap and calomel, the bark, and the decoctum Lufitanicum; and his belly had been rubbed with camphorated oil, without any good effect. His pulse is regular. Cap. crem. tart. unc. fs. &c. unaq. mane. 11th, He was purged twice a day, for a few days, but not afterwards. The quantity of his urine is increased. Rep. crem. tart. ad drach. vi. 13th, His body is bound, and is half an inch less in its circumference. Rep. crem. tart. ad unc. i. 20th, His body is bound, and his urine is in less quantity; but his belly is an inch less. Rep. crem. tart. ad drach. x. 26th, His body is always bound. Rep. crem. tart. ad unc. i. fs. Jan. 3d, Urine not increased. His belly has fallen three inches. 9th, His belly has increased to near its former size; and he is always costive. I was now obliged to change it for the squills, which were attended with no better effect. 17th, Being tapped,
about

about sixteen pints of a bloody fluid came off. A hardness was now felt in the left side of the abdomen. He was then put on a course of mercurial pills, till his mouth was affected. But, on the 21st, his belly began to swell again. On the 8th, He was dismissed not cured. Here the body was constantly bound, and the urine not increased in quantity, though this patient was taking an ounce and a half of the cream of tartar in the day. It had once reduced his belly three inches, which neither the squills nor mercury did.

EXPER. XIV. February 15, 1776. Janet Millar, 22, unmarried, after a fever, two years and a half ago, observed her belly begin to increase. She said that the tumor appeared first in her left side, and towards the bottom of the abdomen; that it was circumscribed, and gradually increased for some months, before any swelling appeared on the right side. But no induration or circumscribed tumor could now be felt; and a fluctuation in the abdomen was evident. Her legs began to swell about ten months ago. Her urine was not diminished. Her body is costive.

A a

Pulse

Pulse 92, and rather weak; and she has a dyspnoea. Menfes regular. Cap. crem. tart. unc. fs. mane. 19th, The powders had no sensible effect. Rep. mane, & hor. 5ta, P. M. 21st, They produce no effect. Rep. ad drach. vi. bis in die. 23d, Pulse 110, body loosened twice or thrice a day. As she was feverish, we suspended the medicine. 25th, Rep. crem. tart. 28th, Her body is bound, and she has colic pains. Injiciat. clyfma. March 9th, Salts do not purge her. Rep. crem. tart. ad unc. i. bis in die. 10th, The salts produced no effect. I now discovered that they had been given with only a gill of water. They were ordered to be dissolved in twenty ounces. 11th, The salts now purged five times; so I was obliged to diminish them to six drachms. 16th, Her urine is not increased; but her body is loose. Her belly is fallen near three inches altogether. 22d, Her belly is fallen about four inches and a half. 30th, Her belly is fallen six inches. After this her belly did not continue to fall; so we ordered dried squills, which she continued to take for twenty days, without any advantage.

EXPER.

EXPER. XV. March 4. David Bethune, 31, a sailor, on the stopping of a diarrhoea, which had lasted two years, perceived his abdomen to swell, about the 20th of December. After the use of some medicines, his belly fell. February 24th, From exposure to cold and wet, his belly and legs again swelled. He has now an evident fluctuation, dyspnoea, cough, with some viscid expectoration, little urine, great thirst, and a hydrocele. Pulse 114. Cap. crem. tart. unc. fs. bis in die. 8th, He has purged once. Rep. crem. tart. ad drach. vi. bis in die. 9th, He is not purged, nor is his urine increased. Cap. crem. tart. unc. i. pulv. jallap. gr. vi. bis in die. 10th, He had only two loose stools. Rep. crem. tart. cum pulv. jallap. 11th, He was remitted to the surgeons; and was afterwards tapped, and he died on the evening of the day on which the operation was done.

EXPER. XVI. December 25, 1776. Ann Mill, 30, about eight days after delivery, perceived her abdomen begin to swell; and a fluctuation is now felt in it. Her legs are much swelled, hard, and

elastic. She has an orthopnoea, cough, pain in her breast, less urine, and thirst. Pulse 80. Cap. crem. tart. unc. fs. quotidie mane. 29th, She purged generally twice a day. Her urine is increased. Her left leg is fallen in size; and she now breathes easier in bed. January 2d, Her urine is much increased; and her belly and legs are much less swelled. Her urine is of a straw-colour, with some sediment. 8th, Dismissed cured.

EXPER. XVII. February 10, 1778. Malcolm M'Culloch, 53, addicted to drinking, had, five years ago, a fever, followed by three relapses. His legs afterwards swelled and pitted, especially when he was exposed to cold and moisture. A month before he came in, he was seized with a dry cough, dyspnoea, orthopnoea, tightness and pain of the breast under the sternum, and sudden starting when going to sleep, as if from suffocation. An evident swelling was observed in his breast, at the extremity of the first and second ribs, on the left side, where he received a stroke five years ago, and which still continues painful on pressure. His urine is

in natural quantity; but it is high coloured. His pulse is from 64, to 68, and weak, but not irregular. Cap. crem. tart. unc. fs. quotidie mane, diff. in aq. font. unc. xii. 14th, His breathing is a little easier; his body is loose; and his urine is increased, and is very limpid. 16th, His legs are less swelled; and his breathing is easier. 21st, The swelling of his breast is almost gone; his cough is less; and his urine is pale, and much increased. 26th, His body is opened only every other day. March 3d, All his complaints are gone, except a slight cough, which he has had for these five years. The salts were stopped, and some tonic pills were given. 11th, Dismissed cured. Thus this hydrothorax was cured in twenty-three days.

EXPER. XVIII. March 12. Euphemia Johnstone, 48, mother of twelve children, was affected for three years with cough and dyspnoea. Last October she was seized with pains in the left and inferior part of her abdomen. Within these three weeks, her belly, loins, and legs, have swelled. She can lie easiest on the

left side. Her urine is diminished. She has thirst. Pulse 96. Cap. infus. bacc. junip. unc. iii. quater in die. 16th, She has passed a pound and a half of urine during the last twenty-four hours, which formerly she would not have done in three days. 18th, The swellings are not decreased. I tried her with dried squills, which purged her, and increased her urine; but the swellings were not diminished. April 1st, Cap. crem. tart. unc. fs. &c. mane. 5th, Her legs are less swelled at night. 11th, The swelling of her legs at night is entirely gone. Her body is loose, and she makes more urine. A preternatural swelling was discovered in the region of the liver. 20th, The region of the liver is less swelled and hard. Her belly is much fallen. 24th, The swelling of the abdomen is gone, and she has no complaints. She was ordered half a drachm of the chalybs tartarizatus, twice a day. 28th, Dismissed cured.

EXPER. XIX. March 16. Sophia Mack, 31, caught cold about three weeks ago, while taking purging salts. Two days afterwards, her legs, and then her body, began

began to swell; and she is now very anasarcaous. These complaints were attended with a dry cough, much hoarseness, pain of her head, dyspnoea, nausea, thirst, frequent shivering, severe stitch in her breast, and with a difficulty of lying on the left side. Pulse from 70 to 80, and very strong. As these dropical complaints appeared to arise from a local pulmonary affection, or, at least to be attended with a general inflammatory state, which is uncommon in this disease, venesection, mucilaginous pectorals, and castor oil were ordered. The blood was covered with a thick inflammatory crust. 19th, Pulse 76, and still strong. She spits some blood; and her breathing is difficult. Repet. venaes. ad unc. ix. 20th, Her blood is as before. The haemoptoe is gone. 21st, Her legs are less swelled, and her breathing is easier; but she feels a pain in both sides when she coughs. Rep. venaes. ad unc. viii. 22d, Pulse 72, and yet too strong. Her blood has still an inflammatory crust. She was seized last night with a severe stitch in her left side, a palpitation and constriction at her breast, and a severe dry cough.

Rep. venaef. ad unc. viii. Rep. ol. ricini. 23d, Pulse 72, and softer. Her blood is still with an inflammatory crust. Her breathing is easier. The swellings of her legs and body are now better. Cap. crem. tart. unc. fs. quotidie mane. 27th, Her body is rather bound; and her cough is severe. Pulse still strong. Rep. venaef. ad unc. viii. 28th, The pain of her breast is gone; and she lies on the left side, as easy as on the right. Her hoarseness is much better. Her blood is still fizy. Her legs are less swelled; and she makes more urine. 30th, She has spitten a little blood. Rep. venaef. ad unc. viii. Blood as before. She feels herself easier, April 3d, She had a severe cough during the night. Her pulse is still strong. Rep. venaef. ad unc. viii. Her blood has less inflammatory crust. 5th, Her nose bled a little this morning, and the bleeding would have continued, but she stopped it. She went out this day almost well. This case is curious, as it shows, that this disease may be, sometimes acute and inflammatory; and that bleeding, seldom admissible, does then become the principal remedy. The cure here may be attributed

buted more to the six bleedings, after each of which she was sensibly relieved, and the swelling decreased, than to the cream of tartar. I was directed, chiefly, by the strength of her pulse. This dropsy probably arose from an inflammatory obstruction in the lungs, in which the cream of tartar was undoubtedly of some use.

EXPER. XX. December 5. Jean Robinson, 33, being delivered of a child, five weeks ago, was seized, a few days afterwards, with a violent pain in the region of the liver, attended by a pain in the right shoulder, cough, and dyspnoea. About eight days afterwards, these symptoms abated; but she perceived her legs and face, and then her belly, to swell. Her urine is defective, and high coloured. Thirst. Pulse 88. She was put on a course of the cream of tartar, in the quantity of half an ounce, each morning, which was by degrees increased to an ounce. The swellings went off gradually; and, in fifteen days, all her complaints were gone. Even the obstruction of the liver was cured,

Thus

Thus I have faithfully stated the facts, with every circumstance which appeared to me to belong to the disease, or remedy, of which we are treating. It now remains to draw some conclusions from the preceding experiments..

1. Of twenty hydropic patients, thirteen were cured, and seven were not cured of their hydropic symptoms; that is, certainly, a very great proportion of the successful to the unsuccessful cases, in a disease which is generally so very dangerous. A remedy, which cures near two thirds of those labouring under this disease, where nature lends but very little assistance, is a valuable medicine. Though this distemper is very subject to relapse, yet it has happened to none of them, so far as I know.

2. Let us consider these cases in detail. The anasarca is complicated with eighteen of the twenty cases. Of pure anasarcous cases, there are seven, of which five were cured, and two were not. Of twelve cases of ascites, seven, of which only two seemed pure, were cured, and five were not. This is more than the half, and a
great

great proportion in a species of dropfy, which is more difficult to cure than the former. Of four in hydrothorax, two were cured, and two were not. These were all complicated with the other species. This still seems to me a very great proportion, in a species of dropfy, the most incurable of any. Another hydrothorax was cured, in private practice, with the cream of tartar. It follows, therefore, that we may depend most on its success in the anasarca, next in the ascites, and less in the hydrothorax than in the other two.

3. We cannot but observe, from the cases, that the disease was mortal in the three eldest, two of whom were of sixty, and the other seventy years old. This will naturally be thought owing to the evacuative and debilitating effects of the remedy. There is some reason to think so in Exper. VIII. where there was a previous diarrhoea. But it is more probable that it was not, as the medicine neither purged her, nor increased the quantity of her urine. It is rather to be attributed to the causes of the disease being
more

more difficult to remove in a person of such an advanced age. Besides, in Exper. VIII. where the patient was seventy years of age, there was some paralytic symptoms; in Exper. IX. there was purulent matter in the lungs; and in Exper. X. there was an ossification of the pulmonary artery.

4. In Manghini's cases, the disease was recent. Many of our present cases were not only of some months, but of some years standing. In Exper. II. and XI. the anasarcaous swellings had continued for two years. In Exper. VI. the ascites had subsisted for three years. In Exper. XVII. the oedema of the legs had lasted for five years, while the hydrothorax was of a later date. The older the disease, the more difficult, certainly, the cure becomes. This view of the cases is very much in favour of the powers of cream of tartar in this disease.

5. Let us state the visible effects of this medicine. It seems once or twice to have excited vomiting. But that it is so rare an effect, that it may be attributed to the disease, rather than to the medicine. It generally purges twice or thrice a day.

But,

But, in many of the cases, it was not purgative, as in Exper. I. II. III. VI. XIII. XIX. In some of them, it seemed rather to have rendered the body more costive; as in Exp. IV. VI. VIII. XIII. In the two last, the patients had, when they began to take this medicine, even a diarrhoea; yet it diminished afterwards. So the purgative quality of this medicine seems to be very weak. When it does not open the body, it sometimes produces slight colic pains. It generally increases the quantity of urine, though not near so much as the juniper berries, squills, &c. In many, the urine was not sensibly, or but little increased, as in Exper. II. III. VI. VIII. XIII. Manghini observed, that the urine was thick, bilious, and fabulous. The urine of our patients, two cases excepted, was always paler and clearer than natural. In some of them, it seemed neither to affect the body nor kidneys; as in Exper. II. III. XIII. XIX. and but very little in Exper. IV. VI. VIII. During the use of it, the appetite became better, the thirst less, and the heat and fever diminished. The patients

patients were a little leaner at the end, but not so much as Manghini describes.

6. If we can discover the mode of its operation, we shall more certainly secure its success. It seems to act, 1. As an evacuant, for it is purgative and diuretic. Purgatives and diuretics cure: Much more must a medicine which excites both evacuations. By stimulating these excretory organs, it determines more fluids to them, and increases the evacuation. The vessels being thus emptied, the absorption from the cavities is increased to fill the vessels again. 2. As a deobstruent, which I consider as its principal mode of operation. We have found, that the oxymel colchici, juniper berries, &c. are much stronger diuretics, but much weaker antihydropsics, than cream of tartar is. We have seen, that it often neither increases the excretion by urine nor stool, and yet that it cures. Though we have many proofs, a single instance only is sufficient to show, that it can operate in other ways than by evacuation. It is well known, that obstructions of the different thoracic and abdominal viscera, especially of the liver, are the
general

general causes of dropfy. Deobstruents, which remove this cause, must have the greatest share in the cure of the dropfy. It appeared powerfully deobstruent in Exper. XX. I have of late used it with great success in obstructions of the liver. I have long looked on this as the principal operation even of all diuretics and purgatives, as they all possess this quality, especially the drastic purgatives. They stimulate the obstructed vessels to quicker motion, so act as powerful aperients. All vegetable acids, of which tartar is one, are deobstruent. Vinegar has cured many dropfies. The leanness that follows the long use of this medicine, is a proof that it acts in this way. It appears from the cases, that this medicine is more successful in the warm weather of summer, than in the cold of winter. But, in winter, it must prove more diuretic, if not more purgative too; in summer, more deobstruent; which observation strongly supports my opinion. This mode of operation appears to me more powerful, extensive, and useful, than its evacuant quality.

7. Let us next view the quantity to be given. I have generally begun with half an ounce exhibited in the morning, at different times; so that the last dose may be taken an hour before breakfast. The medicine was gradually increased to six drachms, and in one case to two ounces, a day. The dose ought generally to be regulated by its effects on the body, which should be open during the course. When an ounce a day is given, and excites purging, one half should be exhibited in the morning, and the other in the evening, that it may not run directly through the intestines, but may enter the habit. If it is to act as a deobstruent, it must necessarily operate in the vascular system.

8. The manner of exhibiting it seems to be of great moment. I have always given it dissolved in water. As this salt is very insoluble, it requires, at least, twenty times its quantity of cold water to keep it dissolved. It has been generally given, by others, in the solid form of an electuary, as a quantity of liquid, sufficient to dissolve it, was thought to be improper in this disease. But the former method seems preferable

ferable. 1. Water appears to be medicinal, and a cure for dropfy. The patient has a constant demand for drink, which, if hurtful, is perhaps the only appetite of the deceitful kind which occurs in diseases. I have known several cured by drinking Dunse water plentifully, even after it had been carried home, at the end of which time it could not be better than common water. Dr. Baker has given us many cases, where cold water, in great quantity, brought on a flow of urine, and cured the dropfy. 2. If given in a solid form, it cannot find fluid in the intestinal canal sufficient for its solution; so cannot act. Of this, a most convincing proof occurred. In Exp. XIV. I was surpris'd that an ounce of cream of tartar had produced no sensible effects. On enquiry, I found that the nurse had only put three or four ounces of water to it. It was ordered to be dissolved in the due quantity of water. It then purged five times; so that, afterwards, we were obliged to diminish the dose. If not dissolved, it cannot enter the vessels; so cannot act as a deobstruent. Besides, when not

dissolved, it is apt to produce colic pains, as in that experiment.

9. The medicine must be continued until the disease is gone, and for some days afterwards. Manghini says, that it often produced no sensible effects for twenty, nay, even for forty days. Its effects are generally visible in two or three weeks. If not then, few can be persuaded to try it longer. In some of the preceding cases, if continued, it might perhaps have succeeded. But the continuance of it, for a very long time, becomes disagreeable, especially when not attended with very evident success.

10. I generally order friction by means of the flesh-brush along with it. This assists the circulation through the veins, hence removes one cause of deposition. It also promotes the absorption of the lymphatics; hence removes another.

11. As dropy arises from a laxity of the vessels, and as this course must weaken, it appears prudent, after the cure, to give tonics, as bark, gentian, steel, &c. for some days. These will restore the tone of
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the system, and prevent, as far as we can, any fresh deposition.

SCILLA EXSICCATA.

The squills have been long used in the cure of the dropsy. Dioscorides and Pliny recommend them. The moderns trust much to them. But in exhibiting them, in the common method, I seldom met with success. In adhering tenaciously, however, to a medicine consecrated by long experience, I observed after a length of time, that they produced violent vomiting, attended with the ejection of much liquid, though none had been drunk, and with some other singular circumstances; and that after the fit of vomiting was over, the hydropic swellings and symptoms were either much abated, or entirely gone. This accidental discovery suggested a method of using this medicine, which I alone, as far as is known to me, have yet practised, and with considerable success. The facts shall first be stated, that every one may judge for himself.

EXPER. XXI. May 24, 1769. Thomas Keir, 45, a taylor, has been affected, for four years, with dyspnoea, cough, uneasiness when he lies on his right side, a sensation of something moving in his breast when he turns himself in bed, and with a pain and swelling about the liver. These symptoms still continue. About six weeks ago, an anasarca and ascites appeared, with a sensible diminution of his urine. He had used garlic, for six weeks, in vain. He first got two drachms of the oxymel colchici, which quantity was gradually increased to ten drachms, each day. It kept his body open, and sometimes augmented his urine. June 10th. As the hydropic swellings were no better, it was changed for Pulv. scill. exsic. gr. iii. sal. nitr. Pulv. nuc. mosch. aa gr. x. fyr. q. f. M. fiat bol. Cap. cras mane, & repet. quotidie. This produced pain in his stomach, vomiting, purging, and increased his urine. 13th, The swelling of his belly and legs is much fallen. I reduced the dose of the squills to two grains, and gave an opiate at bed-time. 15th, He has had a severe fit of vomiting each morning after his bolus,

lus, during which he throws up much bile, and watery fluid. His belly and legs are quite fallen to their natural size. His cough is easier; his breathing is relieved; and he can lie on his right side. As the waters had gone off so quickly, and as he complained of weakness, his belly and legs were bandaged, and some tonics were ordered. After this his urine continued in great quantity, though the squills were stopt. July 4th, He was dismissed cured. This patient continued well for six months, at the end of which time he was again seized with similar symptoms. I was told that cream of tartar was tried with him, and that it increased his urine; but he died. When opened, his lungs adhered almost wholly to the pleura; and, in the right cavity, there was found a pint of fluid, which must have pressed much, as the lungs adhered almost wholly. We found, on the right lobe of the liver, pointing to the ribs, two contiguous tumors of a white colour. Their coats were as hard as cartilage, and they contained a thick steatomatous matter. They would have weighed about half a pound. The

gall-bladder was moderately full. There was no fluid in the abdomen. Here was an anasarca, ascites, and hydrothorax, as the symptoms showed. These were all carried off in a few days, by the emetic power of squills. The inspection of the body made the preceding disease more certain.

EXPER. XXII. May 30. Isabel M'Donald, 60, perceived her legs first begin to swell, then, about fourteen days ago, her belly, which is at present very big, and an evident fluctuation can now be felt in it. Her respiration is difficult, especially when she lies on her left side. She makes little urine. She complains of much thirst; and of a pain in both hypochondria, but mostly in the right, which is much fuller than the left. *R. Pulv. scill. exsicc. gr. iii. &c. Cap. quotidie mane.* June 1st, Another grain of squills was added. 4th, The bolus has purged her, and increased her urine; and she vomited much last night. The squills were reduced to three grains. 6th, She vomited and purged frequently. Her urine is much greater in quantity than her drink.

drink. Her legs and belly are much fallen. 17th, She has vomited frequently for some days. The swellings are almost gone. Her belly and legs were bandaged; and some tonics were ordered. 28th, The pain about the liver gone; and she can now lie equally well on both sides. July 18th, Dismissed cured. This was a bad case, from her age, and weakly habit; but the disease was recent. It is probable, that she had an hydrothorax. The pain and fulness in the right hypochondrium, shew that the liver was affected. The squills increased all the evacuations violently, and carried off the waters in seventeen days.

EXPER. XXIII. July 11. Roderick M'Kenzie, 18, after exposure to cold, was seized with cough, and pains in the right and left hypochondria, for which he was bled. About the 1st of May his belly began to swell. At present his urine is high coloured, but not diminished; and his belly is much swelled, and an evident fluctuation can be felt in it. Pulse 90. R. Pulv. scill. exs. gr. ii. &c. Cap. quotidie mane, & h. f. 13th, No nausea nor purging; but his urine is increased; and he

sweats. 15th, His belly is much fallen. R. Pulv. scill. gr. iii. &c. Cap. u. a. 17th, He vomited and purged; but his urine is not increased. Belly much less. 18th, Vomited much this morning, during which his pulse was 48, and weak. Cap. statim L. L. gtt. xxv. He vomited after this dose. 19th, His belly is now of a natural size, and has altogether fallen about nine inches. Pulse 58. He has had no increase of urine. No pain now in the hypochondria. Tonics were then ordered. 22d, As he complained a little of the pain under the short ribs, the squills were again prescribed, which excited vomiting on the 24th, and generally purged him. The squills were given up on the 25th, and the tonics were continued. Afterwards, he got the infusion of Juniper berries, which proved much more diuretic than the squills. Aug. 6th, Dismissed cured. This disease arose evidently from an obstruction in the liver, as a pain under the short ribs of the right side appeared before the ascites. Two grains of squills increased his urine, but no other evacuation; and his belly diminished. On giving three grains, he vomited

mitted often during a whole day, threw up much fluid, and purged some. His cure was chiefly owing to vomiting, as the evacuation by stool and urine was not great.

EXPER. XXIV. July 7. Richard Donaldson, 23, a negro, fourteen days ago, observed, without any cause, his abdomen swell, which has gradually increased, with obscure fluctuation. There is no pain or hardness to be felt about the liver. His urine is diminished. He complains of drought; and his body is rather loose. Pulse natural. R. Mass. pill. scill. unc. ss. pill. merc. drach. ss. M. divid. in pil. pendent. gr. v. Cap. pil. vi. h. f.; and that they might, with the more certainty enter the system he was ordered to take, after each dose, twenty drops of laudanum. In a day or two, he took likewise the pills in the morning. On the 10th, 11th, and 12th, he vomited after each dose, and his urine was increased a little. Belly less. He was then ordered to take only four pills night and morning. 15th, His urine is not increased, and his belly is not fallen. The number of pills were

were again augmented to six. 16th, His belly is more swelled, and his urine is in less quantity than natural. The pills were omitted. R. Pulv. scill. exsicc. gr. iii. &c. which were afterwards increased to four grains. This continued to purge only, and to expel much wind, which reduced, for the time, his belly; but it soon returned to its usual size. 20th, As he complained of weakness, the medicine was suspended for three days, during which he got oxymel colchici to the quantity of ten drachms the last days, without any sensible effect. 23d, As his strength had returned, he was again ordered dried squills, morning and evening. They increased his urine, and kept his body open. On the 28th, he vomited, and his belly became less. Cap. L. L. gtt. xxv. h. f. 29th, He vomited for many hours, and threw up more than 12 pints of fluid; but he did not purge any, or pass more urine. During the vomiting, his pulse was 40 in a minute. At night, he took an opiate, and had his belly bandaged. 30th, Pulse 76. His belly is of its natural size. Tonics were prescribed. August 12th, His urine has been
for

for some time in the natural quantity. Dismissed cured. Here the belly never fell, but after a fit of vomiting.

EXPER. XXV. July 23, 1770. Alison Bell, 50, labouring under cough and dyspnoea for twelve years, was affected, three weeks ago, with anasarcaous swellings of her legs, and some feverish symptoms. An ascites appeared some days after the fever retired. An evident fluctuation of his abdomen can be felt. R. Pulv. scill. exsicc. gr. iii. &c. 26th, Urine increased. Rep. bol. h. f. & mane. 28th, Urine much increased; and he vomited last night, and this morning. His legs and belly are less swelled. 29th, He vomited much, and purged last night. His urine is increased; and his belly and legs are more fallen. He took the bolus, generally, but once a day, in the morning; and a mixture, consisting of a scruple of theriac and half a grain of opium, at bed-time. August 1st, Swellings totally gone. He began to take tonics; and on the 11th, he was dismissed cured.

EXPER. XXVI. February 11, 1774. Janet Hays, 17, felt a swelling in her abdomen,
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domen, about a month ago, accompanied with thirst, paucity of urine, dyspnoea, cough, which two last symptoms are much increased when she lies on her left side. Pulse 104. Her menses are regular. R. Pulv. scill. exsicc. gr. ii. &c. 13th, No sensible effects can be observed from the medicine. R. Pulv. scill. gr. iii. &c. 15th, His body is loose, and his urine is not increased. Rep. bol. h. f. & mane. 17th, R. Pulv. scill. gr. iv. &c. 22d, Produces no sensible effects. R. Pulv. scill. gr. v. &c. 24th, She vomited after each dose, last night, and this morning. 25th, About an hour after taking last night's bolus, she began to vomit, which continued frequent during the night. Her nose bled a little. She vomited again this morning after the bolus; and she has thrown up about two pints of fluid. She has had one loose stool; but her urine is not increased. Her belly has fallen about an inch. In the evening she vomited again about a pint and a half of fluid. Her stomach is much pained, hard, and seems swelled. During the night, she threw up about a pint and a half. Her urine increased. 27th, Threw
up

up a pint this morning. Abdomen softer and less swelled. March 2d, Her belly has fallen about six inches altogether. She vomited this morning, and her stomach is still pained. 3d, Vomited much. Belly fallen an inch more since yesterday. 6th, Vomited. Pulse 54. The quantity thrown up is about a pint and a half. Body bound. 9th, She vomits at times. Her belly is of natural size. Pulse 58, when the day before it was 80, and the day after 90. She was put on a course of tonics, and in a little time she was dismissed cured. Here the paroxysms of vomiting were frequent, as they continued for sixteen days, and but a small quantity of fluid was evacuated at once, attended with pain of the stomach, and a slow pulse.

EXPER. XXVII. February 10. George M'Alister, 44, was affected, six weeks ago, with swelling and evident fluctuation of his abdomen, decrease of urine, and pain in the region of the liver when pressed, which hinders him to lie on his right side. Pulse 94. R. Pulv. scill. exsicc. gr. iii. &c. cap. mane. 18th, Belly opened. Urine not increased. Ordered an opiate at bedtime,

time, and some wine. 23d, Urine increased. Weak. Belly somewhat fallen. 28th, Pulse 116, and weak. Tapped, and twenty-four English pints drawn off, two thirds of which coagulated. He complained afterwards of a great pain in the region of the liver, which part was hard and tumified. Died that night. On opening him, his liver was very much enlarged, and scirrhus. The mesenteric glands in were the same state. The squills produced no vomiting here, and the ascites was but little diminished.

EXPER. XXVIII. Feb. 14, 1776. David M'Kenzie, 41, a weaver, of a scorbutic habit, has been affected, after cold, for eight weeks past, with swelling of the abdomen and lower extremities, paucity of urine, dyspnœa, and cough. Pulse 90. He had been dismissed from the hospital three months before this, cured of the same complaints by the cream of tartar and dried squills. R Pulv. scill. gr. ii. &c. 18th, The squills by degrees were increased to four grains, and given morning and evening. This quantity produced no sensible effects, except making his
body

body more loose. His abdomen has fallen an inch in size. 26th, His body is rather bound. The squills were increased to five grains. 28th, His abdomen has fallen two inches. Urine increased. Body loose. The squills were increased to eight grains. March 6th, The squills were increased gradually to twelve grains, which quantity scarcely produced any visible effects. His belly has fallen altogether about four inches. 7th, Vomited this morning, and purged often. 10th, He took his bolus last night, with addition of a grain of emetic tartar. He began to vomit about two hours after, and threw up two pints, during which his pulse was 56. His belly has fallen an inch. The swelling of his legs is quite gone. 23d, The squills by degrees were increased to eighteen grains, twice a day, without any very evident effect. Hydropic symptoms gone. Tonics were prescribed; and on the 28th, he was dismissed cured. This case is singular, from the great quantity of the squills taken, and the gentle evacuations which followed; yet the size of the belly diminished.

EXPER.

EXPER. XXIX. March 27. Farquhar M'Donald has an ascites, of nine years standing, with an evident fluctuation of his belly. It was preceded by pain, and swelling in the region of the liver. At present, he has a pain in the left hypochondrium. His urine is in small quantity. Pulse 72. R. Pulv. scill. gr. ii. &c. h.f. & mane. April 6th, His belly has fallen half an inch; and his stools and urine are increased. R. Pulv. scill. gr. iii. &c. 9th, His belly is a little less. He is sick after taking the medicine. R. Pulv. scill. gr. iv. 16th, The squills were increased to six grains, which purged only. 20th, The squills were increased to seven grains. 26th, He left the Infirmary. Here the squills produced purging, but they did not vomit; and, though he had continued them for a month, yet he was not much relieved.

EXPER. XXX. Jan. 9, 1777. Agnes M'Kenzie, 17, about a month ago, after exposure to cold, was seized with pains, and swelling of her abdomen. An evident fluctuation can be felt in it. Pulse 100. R. Pulv. scill. gr. ii. &c. cap. h. f. 6 12th,

12th, Purged six times. Rep. bol. adend. opii gr. fs. 12th, He purged often; and his belly has fallen two inches. 22d, He is much purged; but his belly has not fallen. Cap. tart. emet. gr. ii. pulv. ipecac. gr. v. This taken, without drinking any, made him throw up three pints of fluid. The squills were given up, as they purged so much, even although one grain only was exhibited. The cream of tartar was afterwards tried, for sixteen days, without effect. Here the nerves of the intestines were very irritable, but not those of the stomach.

After stating the facts, it remains that we draw some conclusions from them.

1. Of ten hydropic patients, seven were cured, in each of whom the squills produced vomiting, and three were not cured, none of whom had any vomiting. The contrast here, between the emetic and other evacuative powers of this medicine, is very apparent and decisive. In these three, who were not cured, the other evacuations were increased, but no vomiting was produced. All the ten patients laboured under ascites. Four of the seven cured, had anasarca;

three of them had hydrothorax; and two of them had both anasarca and hydrothorax. In all the three not cured, there was a pure ascites, one of which was of nine years standing. In Exper. XXVII. where the case proved mortal, there was an incurable scirrhus of the liver and mesenteric glands. These facts are strong in favour of the emetic method of using the squills, when compared to the other evacuative methods, in which they are commonly exhibited. Dr. Russel, de Tabæ Glandulari, desires us to shun vomiting; but we have found it to be the speediest method of cure. This method appears most successful in summer, as the first five patients were all cured in that season. Of the latter five, in winter, only two were cured.

2. The visible effects of this method are the following: The squills, at first, produce purging, and increase the urine, which are their natural effects, and sometimes reduce the hydropic swellings a little. In a few days, sooner in some, later in others, a nausea and vomiting came on, which are often severe, and attended with

with an acute pain in the stomach. During this fit, the pulse is remarkably slow. I was amazed when this symptom was at first observed, and was afraid of danger, which made me give laudanum and cordials, to stop the vomiting; but I have since found it to be a constant effect of that state, and attended with no danger. It is not, perhaps, very easy to explain the cause of this symptom; but probably it either arises from the brain and heart being defrauded of blood, as the pressure is removed from the aorta descendens; or from the acute pain of the stomach, as the slowest pulses, with which I have met, have been accompanied with pain. During this vomiting, much fluid is thrown up, and the abdomen falls in proportion. Sometimes, a pint or two only, sometimes twelve pints, are evacuated, in one paroxysm of vomiting. In this way, the hydropic symptoms disappear, which commonly happens from two to sixteen days.

3. This method cures, 1. By evacuation. The squills stimulate the nerves of the stomach, as appears from the pain attending the fit, and excite vomiting. The

action of the exhalent vessels of the stomach, thus increased, pour out the lymph in great quantity. The vascular system being emptied, the lymphatics absorb from the cavities more plentifully, especially from the abdomen, where they are assisted by the pressure from the convulsive motion of the abdominal muscles. In this way the hydropic waters are evacuated.

2. By the deobstruent power of the squills. They are known to be a powerful remedy in cases of obstruction, and act by stimulating the whole vascular system. They act in this way, perhaps, for some days, before the vomiting commences. The pains and obstructions in the liver disappearing, after this method has been continued on for some days, are a proof of it. 3. By the deobstruent action of vomiting, arising from the previous nausea, and subsequent convulsive motion of the diaphragm, abdominal muscles, and indeed of all the muscles of the body. Its greater success in summer than in winter, is a strong proof of the deobstruent effects of this method.

4. The quantity used for a dose is various, according to the constitution. Three

or

or four grains, twice a day, were generally found sufficient. I have given eighteen grains, in peculiar habits, without success. When the squills were first prescribed, it was with a design to excite urine; so a little nitre was added, and nutmeg, to correct them. The same formula has always been retained since, though perhaps this addition is not necessary.

5. The waters disappeared in some of the cases so suddenly, that I was afraid of the same bad effects as follow the paracentesis; I therefore thought it right to order a bandage to the belly, and tonic medicines, as bark, steel, and bitters, to brace the system.

U L C U S P E R P E T U M.

In the anasarca, where the fluid is collected in the cellular membrane, I prescribe issues, with great success. Incisions were used by the antients; and this method of cure has been much followed by the moderns. Asclepiades is the only one amongst the antients who recommends

issues in the anasarca; but none of the moderns, so far as I know, have as yet used them. My first trial was not altogether voluntary, but the effect of compulsion.

A young lady after taking, during a year, a great variety of medicines for an anasarca, under which she laboured, put herself under my care, but with this express condition, that she was not to swallow any medicines. She was swelled to the size I had ever seen any person. In the morning, scarce a feature of her face could be distinguished; her legs were as much swelled at night. My only resource was in a cuticular drain. An issue, therefore, was put in each leg, and a seton in her neck. The matter was, for some days, thin; afterwards it turned thick. In six weeks the swelling was evidently less. Friction, country air, and exercise, were ordered. Her size decreased gradually, and in eight months she was perfectly well. This became a leading cure, which I afterwards followed.

EXPER. XXXI. May 14, 1770. Janet Ogilvy, 26, after cold, began to swell,
about

about two months ago, and her legs are so tumefied in the evening, that she is afraid they will burst. Her belly is swelled, but no fluctuation can be felt. Her whole body is oedematous, especially her right side, on which she always lies. She has a severe cough, and a constant difficult breathing. Her body is loose. Her menses are regular. She had taken many vomits, jallap, calomel with rhubarb, saline draughts, and the diuretic decoction; but all in vain. Her legs had been punctured six days before; and the matter which came from them was very thin. *Fiant fonticuli duo, unus inter scapulas, & alter in tibia dextra infra genu.* *R. Pil. ex allio gr. xxv. pro dos.* *Cap. mane & vesp.* 16th, The pain of her legs is easier. 20th, The issues begin to run. The pills purge her. The swelling of her face is abated. I changed the former medicine for some tonic pills of extract of bark, gentian, and filings of steel. 24th, No swelling above the knees. June 3d, The cough and difficulty of breathing are better, and the swellings are less. 14th, Dimissed cured. I attributed the chief

part of this cure to the issues, as the urine was never increased in quantity.

EXPER. XXXII. December 21, 1774. John Hay, 52, shoemaker, after drinking freely, perceived a swelling in his feet and ancles on the 8th of the month, which soon spread over all his body. His loins and belly, externally, are much swelled. The quantity of his urine is less. His breathing is difficult in bed, or on motion. Pulse 70. He had been bled, taken physic, and had been once sweated. Fiat foniculus unus, in utraque tibia, infra genu, per lanceolam. Cap. pil. ex allio drach. ss. mane & vesp. 24th, Urine increased to almost double the usual quantity. 26th, Body less swelled. January 3d, Ancles fallen an inch; and there is no swelling above the knee. A thick matter runs from the issues. 8th, The swelling of his legs is almost gone. The issues discharge well. 17th, The swellings are gone. He was ordered some tonics. 26th, Dismissed cured. The pills had some share in this cure.

The effects of issues, therefore, appear to be strong in the cure of anasarca; and, from Exper. XXXI. they seem to be preferable to incisions,

incisions, which soon heal up, and must be renewed, to which few patients will submit; whereas the issues continue long open. I have used them often with success, and never saw any disadvantage from them. In some cases it has been thought, that they have even evacuated the fluids from the thorax and abdomen. By these drains we only imitate nature, as the skin sometimes bursts, and a cure is performed in this way. As the whole cellular membrane communicates, so the whole part affected is emptied by issues. Perhaps a small portion only of what is evacuated is seen, as the thinnest part evaporates. The emaciation of a member, from an issue, is a proof of this,

S E C T. XVIII.

Experiments upon some Remedies used in the Amenorrhoea.

There is no disease which appears more frequently, in the clinical ward, than the amenorrhoea, either in a simple, or in a complicated state, as the cause of a multitude

tude of other disorders. We have, therefore, much opportunity to make improvements in curing it. In no disease is the cure, by the common methods, more precarious or uncertain. To see how frequently the old methods fail, is one step towards the discovery of some new and useful remedy.

How often chalybeates disappoint us, every practitioner must have felt. With me they have seldom or never succeeded; and I have always found them more useful in diminishing this evacuation, when too great, than in restoring it, when deficient.

I next expected to have found more success from the use of the tincture of the black hellebore, as it was so strongly recommended by one of such extensive practice as the late Dr. Mead. He says of it, “Vix
“ unquam spem fefellisse meminerim.” If it does not produce the menses, “Sanguis
“ per alias vias propulsus fuerit, unde clarissime constat, quanta vi sanguinem propellendi polleat ista medicina.” After such encomiums I had great hopes. But, on trying it in nine or ten cases, it succeeded once only, though I gave it to the length

of four tea-spoonfuls a day, when Dr. Mead thought that two were sufficient.

COMPRESSION OF THE CRURAL ARTERY.

Dr. Hamilton's proposal,* of producing a temporary plethora in the uterus, by compressing the crural artery, so as not to stop altogether the circulation, seemed to me worthy of attention, especially as it had succeeded, when tried by him. There was one obvious objection to it, that young ladies would never submit to this operation, as a surgeon behoved to conduct it. It was amongst the commonalty that this method was to be tried and re-judged. As this has not yet been done, so far as I know, I shall relate the experiments which have been made.

EXPER. I. June 26, 1769. Elizabeth Graham, 15, laboured under an emanfio menfium. The arteries in both thighs were compressed during an hour, by the tourniquet, which at the end of this time

* Vid. Physical and Literary Essays of Edinburgh, vol. 2d.

was obliged to be removed, as her thighs were discoloured. During the compression, she felt a vertigo, and a pain in the lower part of the belly, and in her back. 28th, It was tried a second time, and the same symptoms attended it. 30th, It was applied again. Pulse 108 before the application. An hour after this, during the compression, pulse 100, and of the same strength and fulness. It produced great head-ach, difficult breathing, pain in her stomach, and violent pain in the lower part of her belly, stretching to her back. But it had no success in bringing on the menses.

EXPER. II. June 9, Jean Manson, 22, obstructed for two months, and affected with tremors, and hysterical symptoms, had been bled, vomited, and taken pulv. rutea, which removed the hysterical complaints, but not the amenorrhoea. The iliac arteries were compressed for an hour, which produced vertigo, dyspnoea, and pain in her back. After the compression was finished, she felt a pain and weight about the uterus. Pulse not altered. It was afterwards applied twice with the same effects.

effects. 14th, Pulse 130, and she complains of dyspnoea. After this she was cured by the powder of fabine.

EXPER. III. April 5, 1775. Margaret Neilson, 31, obstructed for 8 months, is affected with nausea, cardialgia, vomiting, colic pains, &c. At 8 P. M. when her pulse was 82, the tourniquet was applied. Five minutes after the application, she complained of vertigo, thirst, numbness and coldness of the right leg, which alone was compressed. 5th, Pulse 80. She has a moisture on her head, body, and arms; but the vertigo is gone off. 30th, Pulse 78. She feels a nausea, with pain and tension in the region of the uterus; and a pain in the back and upper part of the thigh. An hour afterwards, pulse 78, and the sickness gone; but the moisture continues over all her body, except on her lower extremities. She complains of a pain in the back, and inferior part of the abdomen; and of a numbness of the compressed leg and thigh. 6th, The same effects followed its application. 7th, Artery compressed this night. Pulse 84; and half an hour after the application, it

it was 78. She feels rather more sickness and thirst; and she had a pain of her head and stomach next day. Seven days afterwards she was bled, and the menses appeared.

EXPER. IV. April 3. Margaret Bowie, 20, of a florid complexion, has had an amenorrhoea for two months. Her eyes and fauces are inflamed; and she has a head-ach. Two or three weeks before this, she had been twice bled. At 7 P. M. when her pulse was 98, the tourniquet was applied to the left thigh. Half an hour afterwards, pulse 89. She complains of vertigo, head-ach, nausea, thirst, and of pain about the uterus, similar to that which precedes the menses. The compressed leg was cold, while the other had a natural heat. The pulse in the ham was scarcely to be felt. These complaints about the uterus, and her thirst, continued all night. The menses appeared on the 6th, and remained for four days, in greater quantity than usual. Their appearing so soon after compression, leaves no doubt of their being produced by it.

EXPER. V. Jan. 5, 1776. Christian Bay, 26, has been affected, for three months, with

with an amenorrhoea, attended with flatulence; pain of the head, stomach, and back; vomiting; and ischuria. The ligature was applied at 8 P. M. when her pulse was 96. In half an hour it was 120, and she felt sickness, and pains over the whole abdomen. An hour afterwards, her pulse was 96. 6th, It was applied again. In half an hour, a pain in her stomach; and in an hour, sickness, and a pain in the uterine region, were felt, as before the menses; but they did not appear.

EXPER. VI. Nov. 23, 1778. Elizabeth M'Kenzie, 25, has been affected with amenorrhoea for six months. The tourniquet was applied to each thigh. About ten minutes afterwards, she complained of a pain in the uterine region, such as she used to feel before the menses appeared; and likewise of head-ach, dyspnoea, and nausea. The nurse said, that, after the application was finished, she found the urine bloody; but no menses appeared. It was applied again, and her pulse increased fifteen beats in a minute. She was afterwards cured by the powder of sabine.

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This application has, therefore, succeeded in one case only out of six, in which it was tried. But this is too small a proportion, and not sufficient to support the character of any remedy. From the above described effects of compression, it has the strongest appearance of loading the uterus with blood. To judge from the sensations of the patient, it produces the same effects in the uterus as the approach of the menses does. It has every appearance in its favour, yet it did not succeed. The uterus, I imagine, is oftener in too plethoric and inflammatory a state, when this remedy will hurt, than in a state of inanition. The good effects of venæsection, especially in the vena saphæna, of pediluvium, and of purgatives, are strong proofs of this. From its effects, it would seem to be most proper in cases of inanition and debility, as it can produce a local, without a general plethora; and yet we must, at the same time, freely own, that, in the only case where it succeeded, the patient was plethoric and inflammatory, which contradicts our reasoning.

·V E N A E·

V E N A E S E C T I O N.

Bleeding often succeeds in curing the amenorrhoea.

EXPER. VII. Dec. 6, 1774. Peggy M'Kay, 20, has laboured under this disease for nine months, attended by vertigo, flushing of the face, heat, pain of the head, temples, and back. Pulse 118, and strong. Fiat venaesect. ad unc. viii. The blood was fizy. 7th, Pulse 124; she complains of palpitation of the heart. 8th, Pulse 100, and still strong. The head-ach and palpitation of her heart are easier. Rep. venaesf. ad unc. viii. Blood rather more fizy. 9th, The menses appeared, and continued until the 12th.

EXPER. VIII. Feb. 29, 1775. Margaret Haig, 23, of a sanguine habit, subject to hemoptoe and hysteria, after a fever in November, had the menses in very small quantity, and at very irregular times; and she complained of nausea, hiccup, dyspnoea, thirst, cough, and pain in the side. Pulse about 100. Fiat venaesect. ad unc. x. Blood in a natural state. March 2d, she

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complains

complains of a pain in the left side. Her breathing is easier. Rep. venæsect. ad unc. x. Blood very fizy. 4th, Pulse 106, and strong. Pains easier. Rep. venæsect. ad unc. viii. 6th, The menses appeared, but they stopped on the 7th. 9th, The menses returned again, and remained until the 11th.

EXPER. IX. Margaret Neilson, Exper. III. after trying the rubia tinctorum, fabine, compression of the crural artery, and the tincture of hellebore, was bled for a severe stitch under the sternum to the quantity of nine ounces, on the 11th of April. The blood was fizy. The menses appeared on the 13th, and continued for three days.

I could give many more cases ; but these are sufficient to show the utility of bleeding. The uterus seems often to be in an inflammatory state, and attended with symptoms similar to other topical inflammations, as fizy blood, increased heat, redness of the face, strength of pulse, &c. In such cases, bleeding is the principal remedy ; and, as it removes the plethoric state of the uterus, and relaxes its fibres,

it gives the vessels full play ; so that their own action overcomes all resistance, and the evacuation takes place. But it is only in the plethoric, where it can be of advantage. It is of no great moment from whence the blood is taken. The vena sapheena will, perhaps, empty the uterus most ; but then the quantity is with difficulty got from it, and cannot be so well ascertained.

S A B I N E.

The Sabine is infamous, for its strong effects on the uterus. It is often used to procure abortion ; and is said to endanger the mother by the violent hemorrhagy which it occasions. In many countries it is not allowed to be sold, but by the order of a physician. It has been much used to promote natural birth, and is reputed a strong emmenagogue, even when applied externally to the skin. These facts suggested the use of it to me. Its bad effects might be shunned without difficulty, by giving a small dose. Authors mention a

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drachm

drachm as the proper dose. I gave generally but half that quantity, and have found it useful and safe.

EXPER. X. Jean Manson, Exper. II. with whom the tincture of hellebore, and compression had in vain been tried, took half a drachm of the powder of sabine, twice a day. In four days the menses appeared, and continued for two days.

EXPER. XI. Janet Dallas, 28, was obstructed for six months, and attacked with head-ach, flatulence, acidity, indigestion, &c. Pulse 68, and rather weak. She had taken a vomit, the elixir sacrum, and pills made of the filings of steel and the extract of gentian, for ten days. Then she was ordered a scruple of the sabine twice a day. On the third day, the menses appeared.

EXPER. XII. Elizabeth Graham, Exp. I. in emanatio mensium, after trying the filings of steel, the tincture of hellebore, compression of the crural artery, and electricity, in vain, took half a drachm of this medicine twice a day. She continued it for seven or eight days; and each dose raised

a pain in her stomach and belly ; but no menses appeared.

EXPER. XIII. Margaret Neilson, Exp. III. took first a scruple and then half a drachm of it, twice a day, for five days. It excited severe pains in her belly, which she compared to those preceding the menses. But no menses appeared till repeated bleedings brought them.

EXPER. XIV. Elizabeth M'Kenzie, Exper. VI. had a scruple of this medicine, twice a day. The dose was increased by degrees to a drachm. On the eighth day, the menses appeared.

From these trials the sabine appears to be a powerful remedy, as it succeeded in three of five cases, or rather of four, as in Exper. XII. the disease withstood every application. From Exper. XIII. it appears improper in plethoric habits ; from Exp. XI. well suited to the debile. These different effects in different cases, arise from its strong topical specific stimulus.

RUBIA TINCTORUM.

The root of the rubia tinctorum, or madder, has always been used as a deobstruent in the jaundice, dropfy, and scrophula. Tournefort says, in his *Materia Medica*, "that it strongly provokes the courses." Hence I was induced to try it in obstructed menses, and have discovered it, by repeated trials, to be the strongest and safest emmenagogue with which we are acquainted. As this medicine is but just beginning to be known here, from the report of those who have seen its effects when used in the clinical ward, I shall lay before the public a detail of my experiments.

EXPER. XV. June 6, 1770. Agnes Paterson, 18, obstructed for the two last periods, complains of sickness, hot fits, flatulence, pains in her arms and loins, and tremors. Pulse 88, and of natural strength. She had an emetic. 8th, Cap. pulv. rub. tinct. drach. ss. quater in die. 13th, The menses appeared, and continued for two days.

EXPER.

EXPER. XVI. June 9. Margaret Alexander, 34, has been obstructed for seven months. Since which she has been attacked with hysterical complaints and a settled melancholy, and has been, at times, furious. She was put on a course of the tartarus solubilis, without much effect. 27th, Cap. pulv. rub. tinct. scrup. ii. ter in die. 30th, The menses appeared, and continued for four days. After this, her complaints abated by degrees. She was regular next period.

EXPER. XVII. March 3, 1774. Agnes Weir, 23, about five years ago, was exposed to cold during menstruation, on which the menses stopped, and have never again appeared. She has ever since been subject to head-ach, nausea, weight at her stomach, cardialgia, pain in her sides and belly, lassitude, fluor albus, thirst, costiveness, want of sleep, and dyspnoea on motion. Pulse 70, and weak. She took a vomit, and first half a drachm, then a drachm of the rubia tinctorum, four times a day. Her pulse is not quicker, nor is her drought increased by it. 13th, The menses appeared, and continued for more

than four days. At the same time next month, as she did not menstruate, it was again ordered. 21st, The menses appeared, and in greater quantity than last time.

EXPER. XVIII. March 19. Margaret Stewart, 22, was obstructed for two months, from exposure to cold during menstruation. She complains of head-ach, cough, pains in her breast and belly, sickness, and coldness of feet. An emetic, and the tincture of hellebore were prescribed in vain. She took the rubia tinctorum four times a day, for fourteen days. All her complaints went off; but the menses did not appear.

EXPER. XIX. April 5. Ann Grant, 21, has had her menses obstructed for two periods, and in small quantity for two years past, attended with head-ach, acidity, nausea, flatulence, thirst, costiveness, and vertigo. After vomits, laxatives, bark, and the salt of steel; she took this medicine for four days only, as she went out, finding herself free from the preceding symptoms. But the menses did not appear.

EXPER. XX. November 26. Jean Gould, 26, has had an amenorrhoea for a year. She

She is affected with a pain in the region of the stomach increased on pressure, cough, and vomiting of blood for twenty days. Pulse 80, rather strong. She was bled, cupped opposite to the stomach, and took the infusion of tamarinds. December 3d, She was ordered half a drachm of it, four times a day, which was gradually increased to a drachm. During the use of it, her complaints became better. 11th, She feels pains about the uterus; and she has a head-ach. 12th, The menses appeared, and continued next day.

EXPER. XXI. December 9. Margaret Sommerville, 36, had been affected with amenorrhoea for four months; and with pain and swelling in the hypogastric region, vomiting, costiveness, and hysteric fits. Pulse 100. She took assafoetida for some days, without effect. 17th, Cap. pulv. rub. tinct. drach. ss. ter in die. 19th, The menses appeared this day.

EXPER. XXII. December 27. Ann Dunbar, 31, was delivered of a child in August last, since which time her menses have not appeared. About two months after delivery, she had a severe fever, and
ever

ever since she has complained of head-ach, nausea, vomiting, swelling and hardness about the stomach, severe pain in the back and left side, swelling and pain of her feet in the evening, fluor albus, and tremors. Pulse 106. She was ordered half a drachm of the rubia tinctorum, four times a day. It was increased by degrees to a drachm. January 3d, She complained of a stitch in her right breast. The powders were stopped, and she was bled five times. 13th, The medicine was repeated. 23d, She felt the same symptoms which precede the menses. As she had frequent vomiting, the powders were omitted.

EXPER. XXIII. January 14, 1775. Catharine M'Callum, 28, has had no menses for three months. She is affected with nausea, head-ach, cold sweats, swelled legs, and pain in her back and arms. Pulse 104, and of natural strength. She took the sabbine for ten days, without effect; then a drachm of the rubia tinctorum, four times a day, for ten days, likewise without effect. Calomel, the filings of steel, extract of gentian, and other medicines were afterwards tried without success.

EXPER.

EXPER. XXIV. January 31. Flora M'Bain, 18, has had an amenorrhoea for five months, attended by cephalalgia, tinnitus aurium, dulness of hearing, and pain in the uterine region. Pulse 84. Fiat naefect. ad unc. ix. Blood fizy. She was ordered first half a drachm and then two scruples of this medicine, four times a day. 5th, Menfes appeared.

EXPER. XXV. February 21. Ann Morison, 23, came in with a fever, and had passed her usual period of menstruation for fourteen days. She took it to the extent of a drachm, four times a day, for a fortnight, without the menfes appearing.

EXPER. XXVI. March 11. Elizabeth Paton, 21, of a sanguine habit, hath been obstructed for a year, except at one period; and she is at present affected with nausea, loss of appetite, pain and swelling of her stomach, weakness and pain in the spine, and swelling of the right ancle. She was bled, and her blood had a fizy crust. She took a vomit. 13th, Cap. pulv. rub. tinct. drach. i. quater in die. It made her sick. 17th, The menfes appeared.

EXPER.

EXPER. XXVII. November 30, 1776. Nelly Steele, 19, no menses having appeared for nine weeks, is affected with flying rheumatic pains, and sweatings. Pulse 96. She was bled twice, and her blood was in a natural state. December 9th, She took half a drachm of this medicine, which was increased to a drachm, four times a day. She had blisters applied to the pained joints. 22d, The menses returned.

EXPER. XXVIII. January 1, 1777. Elizabeth Cattanach, 36, hath been affected with amenorrhoea for three years. She had just recovered of a fever, attended with many of the symptoms of suppressed menses, when she began to take a scruple of the rubia tinctorum, four times a day: 8th, Menses appeared.

EXPER. XXIX. March 2, 1778. Betty Edmunson, 18, has had no menstrual discharge for six months, since which she has been affected with convulsive and hysteric fits, twice or thrice a day. These latter complaints the aether removed, which she took to the quantity of four tea-spoonfuls, four times a day. 21st, Cap. pulv. rub. tinct.

tinct. scrup. ii. quater in die. It was increased to a drachm. She once took four doses of it at once, without any sensible effects. 23d, The menses appeared.

EXPER. XXX. February 24. Mary M'Nab, 22, has had amenorrhoea for six weeks. She came in with a fever, and her pulse is still above 100. Cap. pulv. rub. tinct. drach. i. quater in die. She took it for fourteen days; but no menses appeared.

EXPER. XXXI. November 26. Tibby Morison, 25, has had an amenorrhoea for two periods, and for three before the last menstruation. She had besides an ophthalmia. She was twice bled. Some days afterwards she took two scruples of this medicine, four times a day. The menses appeared on the sixth day, after she had begun to take it.

EXPER. XXXII. December 8. Janet Maxwell was delivered of a child 2 years ago, which she suckled and weaned last summer; but she has never had her menses since delivery. She began with half a drachm of it, which was increased to a drachm, four times a day. On the 15th day the menses appeared.

EXPER. XXXIII. December 22. Rebecca Jack, 21, has been obstructed for four months, and at each period she was affected with haemoptoe for several days. She was bled, was ordered the vitriolic acid, and nitre. On the 29th, Cap. pulv. rub. tinct. drach. fs. ter in die. She at last took a drachm, four times a day. On the 13th, when the haemoptoe was expected, the menses appeared.

The preceding facts afford us the following conclusions:

1. Of nineteen cases, in which it was tried, fourteen were cured, and five were not cured. The cases of the former were, seemingly, worse than of the latter; as, 1. The disease was of much longer standing in those cured, than in those not cured. In Exp. XV. it was of two months; in Exp. XXI. of four months; in Exp. XXIV. of five months; in Exp. XXIX. of six months; in Exp. XVI. of seven months; in Exp. XX. and XXVI. of a year; in Exp. XXVIII. of three years; and in Exp. XVII. of five years standing. Whereas, in those not cured, in Exp. XXX. it continued six weeks; in Exp. XVIII. and XIX.

two

two months; in Exp. XXI. four months. It would appear from these facts, therefore, that the older the disease, the easier it yields to this medicine. 2. The only two haemorrhagic patients were amongst those cured, as in Exp. XX. and XXXIII.

2. Of the five where the menses had not followed the exhibition of this medicine, in Exp. XVIII. and XIX. the patients were cured of the symptoms, and dismissed seemingly well. In Exp. XXII. it was vomited, so it could be of no use. In Exp. XXIII. the patient laboured under hydropic complaints. In Exp. XXX. a fever had just preceded, and a constant quick hectic pulse subsisted, in which state no medicine, probably, could have induced the menses, and in which this was given to try its utmost powers. It would be of great moment to mark the situations in which this medicine does not succeed. With this view, I have considered the constitutions of the patients and the symptoms of the successful and unsuccessful cases; but I have not as yet been able to fix on any general principles. Its success does not depend upon the age of the patient,

ent, as three of these patients, above 30, were cured. It does not arise from the constitution or disease being inflammatory, or anti-inflammatory; which makes so great a difference in the effects of other emmenagogues; for of those cured there were five, as in Exp. XX. XXIV. XXVI. XXXI. XXXIII. which were highly inflammatory; on the contrary, there were five, as in Exp. XVI. XVII. XXI. XXVIII. XXIX. where the cases were of the anti-inflammatory kind. Of those not cured there was one in Exp. XXII. in the former, and three as in Exp. XVIII. XIX. XXIII. in the latter state. The others were betwixt the two states. The anti-inflammatory cases are, perhaps, in general, more numerous, as appears by the present list. Of this kind, therefore, there must, generally, be more cured, and more not cured, as has happened in our cases.

3. The sensible effects of this medicine are scarcely evident. It once excited vomiting; but, as that happened once only, and, as such patients often vomit naturally, that symptom might have been owing to the disease. It never quickens the pulse.

It

It never increases the inflammatory symptoms. The ophthalmia was not worse in the two ophthalmic patients. No haemorrhagy appeared, in either of the haemorrhagic cases, after the medicine was given, though both situations appeared very improper for any emmenagogue. On the contrary, the heat, thirst, and other complaints, abated, and the disease was cured. In such cases, therefore, it appears perfectly safe. It seems sometimes to remove the symptoms, without exciting the menses. In Exp. XX. the symptoms went off before the menses appeared. Where it did not cure, it did no harm, but was of some use, as in Exp. XVIII. and XIX. It, therefore, appears neither to be a medicine of the phlogistic nor antiphlogistic kind.

4. I have always begun with half a drachm of the powder, then, in two days, I have given two scruples, and if that does not prove effectual in two or three days, a drachm, four times a day. It never lies heavy on the stomach. The powder, as the most simple preparation, was preferred to the infusion or decoction, in which lat-

ter form it is given in cases of obstruction of the liver.

5. When it succeeds, the menses appear from the 3d to the 12th day, and were not later in any of the cases. I had given it twice to the 14th day, where it did not succeed. With such powerful and sometimes deliterious effects on other animals, it is surprising, that it should operate so mildly on the human body; with such gentle effects on the body in general, it is surprising, that it operates so quickly and powerfully on the uterus.

6. Its effects are accounted for, by theorists, from its astringency. But no other astringent is emmenagogue. Chalybeates indeed are the only instance of this kind. But these are stimulant as well as astringent. It would require strong proof, that the same body is deobstruent and astringent. Besides, it has a sweetish, but not a rough taste; and does not turn black with the salt of steel, which shows it not to be astringent. It does not act as a tonic, as it is useful in inflammatory cases; and, in Exper. XIX. it succeeded, when bark had failed. As it produces no
change

change in the vascular system, or excretory organs; as it is good in opposite states of the fluids; as its success appears often on the second and third day, its effects are probably produced on the nervous system. It seems to possess a specific topical stimulating power, by which it acts on the nerves of the uterus alone, as emetics do on the stomach, purgatives on the intestines, diuretics on the kidneys, &c. That appears the only way of explaining its action. Exper. XX. and XXXIII. seem convincing proofs of this theory, else it must have stimulated the vessels of the stomach and lungs, and induced the hemorrhagies to which the patients had been subject.

7. From Exper. I. it appears, that the *emanatio mensium* is more difficult to be cured than the simple amenorrhoea. What has appeared may be restored; what has not, may be impossible. It generally, perhaps, arises from some preternatural conformation of the uterus, as in the following case.

Feb. 11, 1773. Catherine Innes, 18, had never menstruated. Two years before

this, she had been in the hospital with nausea, swelling of the stomach, and vomiting; and she was dismissed cured. About three weeks ago, she was affected with the former symptoms, purging, and loss of appetite. Pulse 76. After taking vomits, and rhubarb, she was ordered astringents, the extract of gentian and filings of steel, columbo root, extract of campeachy wood, emetic tartar, lime-water, opiates, &c. But the looseness continued, a fever came on, and she died.

On opening the thorax, the right lobe adhered to the pleura and diaphragm, and was much inflamed. There was also a small quantity of purulent matter found in the superior part of the right lobe. In the abdomen, the liver was much larger than natural, and adhered to the diaphragm and peritoneum. The gall-bladder was distended with bile. The spleen was much enlarged, and adhered to the diaphragm and peritoneum. There was, on the surface of the ilium, and adhering to it, opposite to the umbilicus, a small tumor of the meliceris kind, contained in a livid cyst, and about the size and figure of a
Turkey

Turkey bean. Many others of the same kind were found around it. At this place, the intestines adhered to one another, their cavities were much diminished in some of these adhering places, and seemingly not larger than a goose quill. In the under part of these adhesions, there was a small intromission of three fourths of an inch, above which the intestines were enlarged, in a slight degree inflamed, and distended with a quantity of faeces. Many of the mesenteric glands were enlarged, and scirrhous. The pylorus was thickened and indurated. The duodenum, internally, for almost its whole length, was covered with a thick black mucus, which adhered firmly to it. The uterus was small in size, very hard, and contained, in its cavity, a small quantity of purulent matter.

S E C T. XIX.

*Experiments upon some remedies used in the
Herpes, or Lepra Graecorum.*

There are no diseases which more frequently occur in the hospital than the cu-

taneous, and none less reduced to order. To define and distinguish them properly, would be useful. There is one to be met with often, which may be called the *Lepra Graecorum*, or *Herpes*, where the skin is attacked with crusty or scaly scabs, sometimes dry, sometimes ulcered, and generally disposed in clusters. I find many patients, in the waiting room, affected with this disease. They accuse, as the cause of it, a diet of salted animal food, of fish, salmon and milk, a moist habitation, and exposure to cold when heated; but they never attribute it to infection.

It attacks those mostly in the prime of life; for, of many patients in my report-books, all of them are between fifteen and thirty, excepting one of four, and one of fifty years of age. Of these, two thirds are men. Such a great proportion of men must be considered as a general law in this disease, and must depend on its nature. This fact shows that it arises neither from infection, to which women would be more subject than men, from their softer skin; nor from want of cleanliness, to which both are equally

equally liable; but from greater errors in exercise, food, drink, &c.

Whether the eruption is dry, or humid and ulcerous, makes no distinction in the cure, which in general, is not difficult to be performed by proper internal medicines, except in that species where the colour is very white, which Celsus has long ago remarked. External applications of mercury and of lead will often make it disappear; but then it generally recurs. This seems to prove it to be rather a general, than a topical disease. Let us view some of the remedies used in it.

CANTHARIDES.

Dr. Mead recommends the tincture of cantharides so strongly, that it was proper to give it a trial.

EXPER. I. May 26, 1770. Elspeth Robinson, 32, nursing her child, was affected, ten years ago, with a dry and scaly eruption, which has gradually increased, and now covers the greatest part of her skin, excepting that of her face. The parts formerly affected are now sound. She

never infected her husband, children, or even the child at present at her breast, though that part has its equal share of the eruption. She took first half a drachm, and then a drachm of the powder of crude antimony, four times a day, for sixteen days, without advantage. She then used the hot bath; the decoction of sarsaparilla which increased her urine; and afterwards she got mercurius dulcis with sulphur antimonii praecipitatum, and issues, by which her disease was much diminished; but it still continued on her legs and arms. Aug. 3d, Cap. tinct. canthar. gtt. v. bis in die, ex aq. font. unc. ii. 14th, Cap. gtt. viii. &c. Her urine is increased, and is sometimes made with difficulty. Cap. gtt. xii. &c. 17th, Cap. gtt. xv. 18th, The eruption on her arms is better. She has frequent strangury, and pain in the small of her back. Rep. haust. add. mucil. gum Arab. unc. i. 20th, She has no strangury. Rep. haust. ter in die. 24th, Her urine is increased. R. Tinct. canth. gtt. xviii. &c. Sept. 5th, The eruption is much better. 6th, R. Tinct. canth. gtt. xxii. &c. 8th, She was dismissed almost cured.

EXPER.

EXPER. II. Isabel Stevens, 24, an out-patient, has had a dry clustered eruption for three years. It had disappeared after the use of mercury; but recurred. Cap. tinct. canth. gtt. xxviii. ter in die. This quantity proved diuretic. She continued it for some weeks; the eruption diminished; but she was not cured.

EXPER. III. Jan. 2, 1775. William Scarlet, 50, affected for six months, with a red scaly eruption, sometimes dry, sometimes wet, on his hips, and back part of his thighs, began with fifteen drops of the tincture, thrice a day, mixed with half an ounce of the mucilage of gum Arabic. On the 6th, the dose was increased to twenty drops. 15th, His urine is much increased. The eruption is diminished and drier. But he was obliged to give it up, as he had complained of severe gripes for several days..

EXPER. IV. Feb. 9, 1778. Thomas Livingstone, 15, affected, for four years, with a white dry clustered scabby eruption, chiefly on his legs and arms, took mercurius dulcis and the sulphur antimonii praecipitatum, the hot bath, and the decoction

coction of *sarsaparilla*; and the *unguentum saturninum*, *nutritum*, and *mercuriale* were applied, without success. 24th, R. Tinct. canth. gtt. xx. mucil. gum. Arab. drach. ii. aq. font. unc. fs. M. Cap. quater in die. He took it for eight days, during which, each dose of the tincture was increased to thirty-five drops. It produced no visible effects, nor any change upon the disease.

Hence we may conclude, 1. That this medicine alleviates the disease considerably; but in none of the cases did it perform a complete cure, though it was continued for many weeks. This difference in the operation of medicines ought always to be made, though it is seldom done. In the incurable diseases, it is of great moment to mitigate the symptoms; in the curable, it is of little use, as those medicines which cure will always be preferred. I have given it in the *psora* without any success. 2. That it acts by its diuretic power. In the three first cases, where the eruption was lessened, this effect was produced. In the fourth, where it did no service, the urine was not affected. I have

have often observed this disease retire with a natural or artificial increase of urine. As this excretion carries off the superabundant salts and oils, it is not improbable that the disease arises from too great an accumulation of them in the vascular system; and that these, endeavouring to find their way, by the similar excretion of the skin, irritate and ulcerate that part.

3. That the cantharides are apt to irritate and produce gripes in the intestinal canal, and that half an ounce of the mucilage of gum Arabic, mixed with twenty drops of the tincture of cantharides, is not always capable of correcting that quality.

4. That tincture of cantharides even in very small doses, affects the urinary passages, and produces strangury; but that the mucilage of gum Arabic, prevents this effect.

CORTEX INTERIOR ULMAE.

Dr. Lysons has recommended the inner bark of the elm, as a powerful medicine in all cutaneous diseases.

EXPER.

EXPER. V. March 30, 1774. Ann Hiccenbottom, 17, was seized ten days ago with an eruption over her face, from which a thin fluid is separated. Pulse 100. R. Cort. inter. ulm. unc. iv. coq. ex aq. fontam. lib. iv. ad lib. ii. col. & cap. unc. iii. quater in die. 2d, Eruption drying. 8th, The decoction had no sensible effect. The eruption is much drier. 20th, Dismissed cured. It may be doubted, whether the cure is to be attributed to the medicine, as it had no visible effects, as it failed in all the following cases, and as the disease was so recent.

EXPER. VI. December 17. Robert Stewart, 17, a baker, was affected, about five weeks ago, with an eruption, first on his hands, now on his inferior extremities and belly. It is scaly and white in most places. R. Cort. inter. ulm. unc. iii. coq. in aq. font. lib. iii. ad lib. ii. Cap. unc. iii. quater in die. 31st, The old scabs have disappeared, but new ones appear. His urine seems increased. His body is more bound. Cap. unc. iv. pro dos. which was afterwards increased to five ounces. 14th, A fresh eruption appears. The decoction

decoction was now given up, as it had had a fair trial for near a month.

EXPER. VII. March 14, 1776. James Brown, 28, a sailor, affected for eight years with a dry scaly eruption on his extremities, and some parts of his trunk, has used, without success, in different hospitals, mercurials, antimonials, salts, seawater, Harrowgate water, and sulphur, which last rendered the disease worse. He tried the hot bath, and the powder of crude antimony, to the quantity of an ounce a day, without advantage. 28th, He got the above medicine in the same manner, as mentioned before. It produced no visible effect, except making his body more costive. This course was interrupted for four days, by a feverish state. April 16th, The eruption, though drier, still continues.

EXPER. VIII. Thomas Livingstone, Exp. IV. took it for six days in the same manner. But the eruption appeared rather to be worse on the last day.

Hence, its want of success in the three last patients appears certain, and its success in the first seems dubious. Even allowing

lowing it success in that case, one cure out of four patients, is too small a proportion to entitle it to much merit. It will seldom, therefore, be used, when we can always diminish, and, generally, cure the disease by other medicines.

V I P E R A.

Vipers were much used and esteemed by the ancients, in all cutaneous diseases. Morgagni, Mead, and De Haen, are of their opinion. Hoffman denies their effects in this way. I was very desirous to be able to form some certain judgment in this disputed point. But so little are they used here, that it was long before any could be procured in the shops, and then in small quantity only.

EXPER. IX. Robert Stewart, Exp. VI. tried the decoction of the bark of the elm, mercurius dulcis and the sulphur antimonii praecipitatum, and lime water internally and externally, which diminished the eruption over his body, but left that on his hands as bad as ever. January 30th,
℞ Viperam unam. coq. in aq. font. lib. i.
fs.

fs. ad lib. i. & cola. Cap. unc. iv. quater in die. R. Carnem viperae post coctionem, contunde cum sacch. alb. q. s. ut fiat elect. Cap. in die partitis vicibus. February 14th, after taking in this way twelve vipers, which were all I could procure, he was better, but was not cured.

EXPER. X. Feb. 10, 1778. Christy Aikin, 22, was affected with scaly scabs on many parts of her body, which discharged matter, and were attended with considerable swelling of the parts below. She was besides affected with the scrophula. I prescribed her the viper broth and electuary, as above, which she continued for fourteen days, and was, at the end of that time, almost cured of the eruption; but the swellings, which seemed to be symptoms of the scrophula, still continued. Hearing by accident of the nature of her medicine, she would take no more of it. Broth of snails was substituted in their place, for some days; but it did not answer so well.

EXPER. XI. November 24, 1778. Ann Strayton, 15, covered since her infancy with a dry scaly eruption, got the decoc-
tion

tion of one viper, and the electuary, for fourteen days; and, at the end of that time, she was dismissed cured.

From these three cases it appears, that vipers have good effects in this disease; and that, in Exper. IX. and X. the cure was proceeding, as fast as could be expected, when the experiment was stopped, from a deficiency of vipers in the former, and a disgust in the latter at the medicine. Though the cure in both these was brought near to a termination, we cannot assert that that would actually have happened, especially as in the latter case, I afterwards learned that the disease recurred, though *mercurius dulcis* and the *fulphur antimonii praecipitatum* seemed to have completed the cure when she was dismissed. They appear, however, not to be so insignificant a remedy, as Hoffman, and most modern physicians, especially in this country, seem to think. I imagined that oysters and snails would have supplied their place. But the effects of the latter are not so powerful, as we learn from Exp. X.

S A R S A P A R I L L A.

As sarsaparilla is diaphoretic, and supposed to be demulcent, it was tried.

EXPER. XII. May 9, 1769. James Knight, 22, was affected with a dry eruption a year ago on his head, then on his body, and for some months past on his extremities. His legs are swelled. Pulse 68, and weak. Cap. dec. sarsap. lib. ii. in die. Fiant fonticuli duo, unus in brachio, alter in crure. 24th, His urine has been much increased for some days; and, for these two days, he has felt it hot and painful. The eruption is better; and the swelling of his legs is less. June 19th, His urine is always in great quantity. The eruption is almost gone. 27th, His skin is quite clean. The issues may claim a share in the cure.

EXPER. XIII. May 12. Agnus M'Donald, 16, affected with a dry scabby eruption for two years, took gum guajac, crude antimony, and had an issue, without effect. He was ordered a bottle a day of the decoction of sarsaparilla, for twelve

F f

days,

days, without any alteration in his complaints. He was afterwards cured by mercurius dulcis and sulphur antimonii praecipitatum.

EXPER. XIV. Thomas Livingstone, Exp. IV. took it for six days, without any good effect.

I have often tried it, along with other medicines, which failed; so that its powers are not much to be depended upon.

MERCURIUS DULCIS AND SULPHUR ANTIMONII PRAECIPITATUM.

This composition was first proposed in the Medical Essays by the late Dr. Plummer, and has been much used since that time in all cutaneous defoedations.

EXPER. XV. Agnus M'Donald, Exper. XIII. after the decoction of sarsaparilla had failed, on June 17th, took the above medicines in the following formula;
℞. Merc. dulc. sulph. antim. praec. \overline{aa}
scrup. i. mic. pan. q. s. fiat mass. divid.
in pil. No. x. Cap. pil. ii. mane & vesper.
21st, The eruption is better. He sweats,
and his body is loose. Cap. pil. iii. mane
&

& vesp. July 1st, The medicine purges, but does not sweat him. The eruption is drying fast. 15th, His urine is much increased of late. Dismissed cured.

EXPER. XVI. July 15, 1770. William Johnstone, 36, has had a similar cutaneous eruption for three years. R. Merc. dulc. sulph. ant. praec. aa gr. iv. conf. ros. q. f. fiat bol. cap. h. f. 30th, It produced nausea, sweat, and a little spitting. 6th, His bolus was suspended for some nights, and then increased to six grains of each, and given morning and evening. He used the hot bath along with it. These great doses of this medicine sweated him, and kept his body open. On the 14th, he began to be thirsty and restless, his tongue was white, and his pulse 104. Thus large doses, though they do not salivate, are capable of producing a feverish state.

EXPER. XVII. Nov. 29, 1774. Mary Scot, 24, labouring under a dry eruption for a month, took two grains of each, morning and evening, for three weeks. They produced nausea and a gentle moisture of her skin, and cured her.

EXPER. XVIII. Robert Stewart, Exp. VI. before he took the viper-broth, had been under a course, for twelve days, of this medicine. It brought on a salivation; but it did not carry off the eruption.

EXPER. XIX. Dec. 27, 1776. James Arbunkle, 19, has had, for five weeks, an eruption of pustules, with white scabby heads. He took two grains of each, morning and evening, along with the hot bath. He sweated each night, and his body was open. He was cured in seventeen days.

EXPER. XX. Thomas Livingstone, Exper. VIII. took the above quantity for ten days, without any benefit. It purged him.

EXPER. XXI. March 3, 1778. Malcolm M'Culloch, 26, has his forehead and cheeks covered with an elevated yellow scab. He took the same dose for three weeks. It produced a gentle salivation. At the end of this time, his disease seemed to be cured; and he was dismissed. But it returned in a fortnight, and was again removed by a seton in his neck, sulphur antimonii praecipitatum, to the quantity
of

of seven grains, at bed-time, and mercurial ointment was applied to the affected parts.

EXPER. XXII. Feb. 9. David Simpson, 27, with a dry hard eruption on his hands, was cured by this medicine in eighteen days. It produced a moisture on his skin.

EXPER. XXIII. Christy Aitkin, Exp. X. had the remaining eruption carried off by this medicine. But I was told that the disease afterwards recurred.

From the above experiments, the following conclusions may be drawn :

1. This combination appears to be a very powerful remedy, as it cured seven out of nine patients, which is a very respectable proportion of those cured, to which few medicines can attain. Besides, many of them had been ill for years. The good effects are not only owing to the mercury alone, but to the sulphur of antimony ; as in Exp. XXI. when the former was used alone it seemed to be of considerable use.

2. This medicine rarely produces nausea. It opened the body in nearly the half of the patients, and was attended with a moisture of the skin each night, in a great

number; and it was often accompanied with an increase of both these evacuations. A gentle spitting was excited in two, and a salivation in a third. It may seem surprising that such a dose of mercurius dulcis does not always salivate. But this is owing to the peculiar property of sulphur, when combined with mercury; as the former not only prevents salivation, but puts a sudden stop to it when already begun. If the two are well rubbed together, this effect of sulphur will be more certainly promoted.

3. This composition produces the good effects mentioned. 1. By its diaphoretic powers. The sulphur of antimony directs the mercury more to the skin, and the preceding nausea, when it happens, makes this effect yet more powerful. Hence, in the two cases not cured, the skin was not affected, though in one there was a looseness, and in the other a salivation produced. Its diaphoretic effects seem most powerful. 2. By the specific and antacid powers of mercury. The evacuation, in some of the cases, seemed too gentle to be supposed alone to cure the disease.

4. I think that this medicine is more properly exhibited in the form of a bolus, as we can alter the proportion at pleasure, than in that of pills, the form in which I first gave it, and in which it stands, at present, in the Edinburgh Dispensatory.

5. The hot bath assists the operation of this medicine much, as it softens and opens the skin, and gives a freer passage to the mercury. A great quantity of scales always came off after bathing. Whether the hot bath will cure this disease of itself, I cannot say.

6. Issues are properly conjoined with it, as they give the speediest vent to all cuticular acrimony. If its seat is in the cellular membrane, it has an easy egress by them. I have found them excellent cures in all defoedations of the skin. As they do not alter its texture, this is a further proof that the disease is owing to acrimony subsisting in the fluids.

ACIDUM VITRIOLICUM.

The vitriolic acid has been much extolled in Germany for some time, in the cure

of all cutaneous defoedations, and especially in such as the present disease. It was, therefore, proper to try its powers.

EXPER. XXIV. Nov. 23, 1778. David Bontrom, 23, has been, for three years, affected with a cutaneous eruption of this sort. It is dry on his arms, but discharges a thin foetid matter on his belly. He had some degree of fever with it. He took eighty drops of the spiritus vitrioli tenuis mixed with the mucilage of gum Arabic, in the day, which generally produced two loose stools. He continued it for eighteen days. During its use, the eruption became somewhat drier; but he was not cured by it. He was afterwards cured by the preceding medicine, and by the decoction of the sarsaparilla.

EXPER. XXV. Nov. 24. Anne Strayton, Exper. XI. was ordered the same medicine, in the same form and quantity, for eleven days. It seemed, at first, to make her skin softer; but the eruption was not better. She was cured by vipers.

In both these cases, this medicine had a fair trial; and it was exhibited in greater doses than could have been done without the

the mucilage of gum Arabic ; and yet the disease was not cured by it, while it was removed by other internal medicines. Its effects do not, therefore, appear to be very powerful. When it does cure, I suspect it is as a laxative, which it always proves in great, or in often repeated doses.

S E C T. XX.

*Experiments upon the Vermifuge Effects
of the Spigelia Marylandica.*

There is no disease which is accompanied with a greater variety of symptoms than that occasioned by worms in the intestinal canal ; and in none do we stand more in need of a certain diagnostic. The symptoms of worms, hitherto relied on, are common to a multitude of diseases. Loss of appetite, acidity, and acid eructations, pains in the abdomen, alternate bound and loose body, slimy and putrid stools, grinding of the teeth, and the erratic fever, arise from an increased quantity of mucus in the intestines. The dull pain and swelling of the belly, purging, atrophy, hectic fever, pale colour,
5 and

and foetid stools, are occasioned by scirrhous or serophulous tumors of the mesenteric glands. This appears from Lieutaud's dissections*. The dry cough, purging, flushing of the face, fever, &c. belong to dentition. But what is strange, the hydrocephalus, though in its cause and seat so very different, resembles this disease the most. In the former, the cheeks are red, sudden calls of hunger are felt, and there are frequent startings. So near do they approach, that the hydrocephalus is even accompanied with pains of the belly and joints, grinding of the teeth, and picking of the nose. In five or six of my patients, in whom the hydrocephalus was ascertained by dissection, there was a constant grinding of the teeth, and picking of the nose. Dr. White was among the first who marked these symptoms in the hydrocephalus. They are also to be found in Lieutaud's dissections. I saw them in a hemiplegia, which arose from an effusion of two ounces of blood on the

* Vid. in *Læſionibus Abdominis*, obs. 124. 226. 527. 529. 537.

medulla oblongata. So like are these two diseases, that the hydrocephalus is every day mistaken for worms, though the slow pulse, and dilated pupil, attending the advanced state of the former disease, ought to remove all uncertainty. Nor do I agree with some, in directing all our intentions to the destroying of worms, as by that method we never shall discover a cure for the hydrocephalus.

A certain diagnostic symptom of worms, therefore, has hitherto been a desideratum in practical medicine. Such a one I discovered, about sixteen years ago, which was not mentioned by any author; it is, an oedematous swelling of the alae narium, upper lip, and often of the contiguous parts of the cheeks; and the apertures of the nostrils are diminished, and at last they are not half their natural size. This diagnostic is certain, as I have trusted chiefly to it since that time, and it has faithfully served me. It is useful, as the patient is not always able, from infancy, to tell his complaints. For, from long habit, I can discover them, and point out the disease to the gentlemen in the waiting-room,

room, without asking a question. It is not the first symptom that appears; but it is always seen soon enough for the cure.

The *Spigelia Marylandica*, or Indian Pink, in a former edition of Linnaeus's works, called *Lonicera Marylandica*, was discovered, about the year 1740, to the Europeans, by the Indians, as a vermifuge medicine. It is the root of a plant that grows in the low grounds of South Carolina. As no experiments have yet been published here on this medicine, I will collect those which have, for some years, been made in the clinical ward.

EXPER. I. May 15, 1770. Alexander M'Leod, 5, has had a severe looseness for four months, with slimy stools, tumefaction and pain in his belly, head-ach, flushing of his cheeks, picking of his nose, grinding of his teeth, swelling of his upper lip and nostrils, thirst, and white tongue. He has also had the chin-cough for three weeks. R. Pulv. rhei gr. xii. merc. dulc. gr. i. M. cap. h. f. R. Pulv. spigel. Maryl. gr. x. cap. mane & vespere. 19th, He passed a round worm. 23d, The purging still continues. The rhu-
barb

barb was repeated, 28th, The worm complaints are better; but the purging still continues. Rep. pulv. rhei. June 3d, The worm complaints are gone, so the spigelia was given up. The bark carried off the remaining chin-cough and looseness.

EXPER. II. May 16. Christian M'A-laster, 27, labouring under a tertian, has passed several worms, within these five months, and at present has pains in her belly, swelling of the upper lip and nostrils, grinding of her teeth, and picking of her nose. She had a dose of rhubarb and mercury. After which, on the 22d, she took half a drachm of the Indian pink, thrice a day. It kept her body constantly loose. 25th, She passed a round worm. The powder was repeated four times a day. 29th, She passed two worms, and the symptoms are much diminished. The lip and nose are less swelled. The Spigelia was increased to two scruples each dose. June 2d, All the worm complaints are gone, excepting a pain in the belly, of which there is no farther mention, after giving up the medicine.

EXPER.

EXPER. III. July 31. Susan M'Intosh, 5, has been affected for two years with pains in her belly, feverish fits, nausea, sickness, purging, grinding of the teeth, picking of the nose, and thirst. The nostrils are swelled, and sore when pressed. She took a vomit. Cap. pulv. Spigel. Maryl. gr. x. mane & vesp. 6th, Appetite better. 11th, She has no complaints. 14th, Her body is always loose. Dismissed cured.

EXPER. IV. Aug. 29. James Crichton, 20, has passed some worms, and is affected with pain of his belly, and uneasy gnawing in his stomach in the morning. He took half a drachm of this medicine, four times a day. It did not open his belly, so he got some laxative pills. September 5th, The pains of his belly are gone.

Exper. V. March 21, 1774. Robert Christie, 5, picks his nose, grinds his teeth, and has a pain and swelling of his belly, craving for food in the morning, and his lip and nostrils are swelled. Pulse 130. He began with four grains of it each night, which were gradually augmented

mented to eight grains. It purged him twice or thrice each day. April 4th, All his complaints are gone.

EXPER. VI. January 12, 1775. Katharine Millar, 6, affected with severe cough for three weeks, and a hard and painful swelling of her belly; but she neither grinds her teeth, nor picks her nose. Pulse 138. Her upper lip is rather swelled. After a dose of rhubarb and calomel, she began to take eight grains of this medicine, first once, then twice a day. Her belly was always loose. 25th, Dismissed cured.

EXPER. VII. Feb. 17, 1776. David Gordon, 7, of a scrophulous habit, has, for three weeks, been affected with head-ach, pain, and swelling of his belly, difficulty in walking, remarkable swelling of his upper lip, alae narium, and parts around, which appeared eight days ago. He passed three worms after a dose of senna taken some days before this. Pulse 108. Cap. pulv. Spigel. Maryl. gr. vii. bis in die. 21st, His body is bound. Rep. pulv. spigel. add. pulv. rhei. gr. iv. This kept the belly loose, and brought off many scybalae. 24th, The swelling of his face
and

and belly is much less. He passed, last night, stools very foetid, with apparent pieces of worms. 26th, The swelling of his upper lip is gone; and he passed three worms.

EXPER. VIII. Nov. 25, 1776. Margaret Telfour, 10, not scrupulous, affected with severe pains of the abdomen at different times of the day, gnawing at her stomach, flushing of her face, and swelling of the alae narium and upper lip; which symptoms have continued for a year. She picks her nose sometimes, but never grinds her teeth. She has passed several worms. Cap. pulv. Spigel. Mar. gr. x. bis in die. December 1st, Her complaints are gone. The medicine always purged her.

From the above experiments, it appears;

1. That this is an effectual and valuable vermifuge medicine, and that, in eight cases, in which it was given, it always carried off the symptoms occasioned by worms.

2. That worms came away in three of the cases, but none in the other five, though

though the symptoms equally retreated in the latter. These animals must often be dissolved by putrefaction, along with the faeces in the large intestines.

3. That it takes sometimes six, sometimes eighteen days, to remove the symptoms produced by worms.

4. That, in all the cases, two excepted, its exhibition was attended with looseness and gripes. But that, in none, not even in those cases where the body was bound, did it produce vertigo, dimness of sight, or convulsions, as we have been told; nor did it, though given in considerable doses, excite any of the effects of narcotic poisons. Perhaps these effects may attend it when recent, and they may be corrected by keeping.

5. That children of eight years of age may take ten grains, twice a day; and adults may go the length of half a drachm, four times a day, with safety.

6. That it is safe and useful in the worm fever, as that was the state of some of the above patients.

7. That the swelling of the nostrils and upper lip, is a more constant worm symp-

tom than any of the rest ; that it accompanies the disease, where there is no suspicion of scrophula, and retires, with the worm symptoms, when they arise in such a habit, as in Exper. VII ; and that, where this symptom, which is often not to be observed, appears in the scrophula, it probably arises then from worms, which frequently accompany this disease, as in the above experiment.

S E C T. XXI.

Experiments upon the Deobstruent Effects of Mezereon.

The Mezereon is classed among the plants of an acrimonious, caustic, and poisonous nature. The bark of the root has been most used ; but, at present, the woody part of it is preferred by some. Its bark seems, however, more acrimonious to the taste.

The effects of a decoction of its root, in curing venereal nodes, have been long established. These seldom disappear under the mercurial course which cures the venereal disease. If they arise from a swelling

ling of the bone, no medicine, perhaps, can resolve them. But, when they proceed from a thickening and tumor of the periosteum, mezereon has been found to succeed. My report-book for the summer 1769, contains some cases of this kind. As the deobstruent effects of this root seemed, from these cases, so powerful, I soon conceived hopes of carrying them farther, and of finding it as efficacious a medicine in other obstructions remaining after the cure of the venereal disease.

EXPER. I. July 1, 1769. -----
18, who never menstruated, was seized, about three months ago, with pain in the throat, which has continued ever since, attended with considerable swelling, inflammation, and ulceration of the amygdalae of the right side. She has a running from the vagina, and flicae about the anus. She took the mercurius praecipitatus cineritius, which made her spit a little, till the 17th of August, when all the venereal symptoms had, for some time, disappeared. But still the amygdalae were as much swelled as ever. R. Rad. mezer. drach. ii. coq. in aq. font. lib. iii. ad lib. ii.

G g 2

Cap.

Cap. partitis vicibus in die. Sept. 7th, The swelling is almost gone, and she was dismissed. Here the decoction reduced a scirrhus swelling, which mercury could not do.

EXPER. II. July 14. Ninian Cowan, 23, has been affected for a year with gonorrhoea, chancres, ulcers of the throat, and a swelling of his testicle, which had appeared at first, had gone off, and returned about six weeks ago. All his symptoms were cured in five weeks, by the mercurius praecipitatus cineritius, except the tumor of his testicle, which still remained. He was put on a course of decoction of mezereon. In three weeks the swelled testicle was as small as the other.

Thus this root appeared to be a powerful deobstruent in all venereal tumors, of the scirrhus kind, where mercury had failed. These facts naturally led me to conjecture, that its powers might be extended, beyond the curing of venereal scirrhus tumors, to that of other obstructions, where medicines had hitherto failed,

failed, as mercury is the most powerful deobstruent yet known.

EXPER. III. June 8, 1769. Agnus M'Kay, 39, after he was cured of a sciatic, discovered a hard scirrhus tumor in the right pectoral muscle, which had appeared two weeks ago. He was ordered two pints of the decoction of the mezereon, a day. It made him very sick, took away his appetite, and increased his urine; but it neither affected his body, nor produced any moisture on his skin. In four days the tumor was much less; and in eight days, it was entirely gone.

EXPER. IV. August 9. Margaret Anderson, 41, about ten weeks ago perceived below the thyroid cartilage, on both sides of the trachea, a tumor, which has gradually increased to the size of an egg, is moveable, and hath affected her breathing for some time. Her pulse and menses are regular. She has no appetite; and she sleeps ill. She was put on a course of this medicine; and a poultice made of the decoction and of meal was applied to the tumor externally. 30th, It was

reduced to half its size, and she was dismissed.

EXPER. V. June 22. Peggy Todd, 19, was an out patient, and came to the ward at stated times. She had, for a year, on the right and back part of her neck, a large moveable tumor, which she thought was occasioned by carrying a child on that part. It appeared in the course of the cucullaris muscle; and, though we had no certainty whether it was glandular or muscular, yet the latter appeared more probable. It had gradually increased without pain; and was six inches long, three broad, and about two high. She was otherwise in good health. Internal medicines were deemed insufficient for the cure, and an operation alone was thought admissible. It appeared, however, a proper case for trying the powers of this medicine. She was, therefore, ordered the decoction as above; and a fomentation, and poultice made of it, were applied externally. 30th, The tumor is less. The decoction has no sensible effect. July 6th, The tumor is diminished in all its dimensions. 22d, It is still hard; but is much fallen, especially

cially in height. She continued the remedy without any peculiar effects on the rest of the body, till the 20th of October, when the tumor was no bigger than a chesnut. Thinking herself almost cured, she gave over the medicine.

EXPER. VI. June 9, 1770. John Goodbrand, 28, perceived, about 6 months ago, a swelling of the right parotid gland, and, two months after, another of the left. The right is about two inches long, and an inch broad; the left is about an inch and a half long, and an inch broad. They are both painful, and the left alone is moveable. His saliva is considerably diminished in quantity; but his deglutition is not affected. His pulse is natural. He was put on a course of the mezeron. July 1st, The swelling of the right side is less and softer. The decoction sometimes produces a nausea. 26th, Swelling of the right side much less; that of the left continues the same. Dismissed.

EXPER. VII. February 21, 1776. James Nielson has had a scirrhus swelling of the right parotid gland, for some days. After taking some medicines for a purging, he

began the decoction of the mezereon. It kept his body open, and sweated him. March 1st, The swelling gone.

Thus the mezereon appears to possess deobstruent powers, stronger than any body yet known, as it reduced scirrhus swellings, which had appeared incurable; and as it cured many of them after a course of mercury had failed. This is a discovery of the greatest moment in medicine, as a body possessed of such effects was rather to be wished for than expected.

In this field its limits must, however, be very narrow; as many of the vessels, especially in the centre of the tumor, will soon coalesce, be effaced, and thus rendered incapable of being restored to their natural state. Hence, its operation often goes a certain length only; and often it can do nothing towards the cure. Its effects are most conspicuous in the recent; perhaps, too, in the muscular tumors. I have tried it in one case of scrophulous swellings; but without success.

It seems to act by a general stimulus, as its taste is acrid, as it is of the acriminous class of bodies, and as it excites nausea,

nausea, and sometimes sweating and purging. Although it does not quicken the pulse, yet it may stimulate the smaller vessels into quicker action, by which power alone the obstruction can be removed.

We found that two drachms of it to the bottle of water is a sufficient dose. When half a drachm more was added, it produced too great sickness.

S E C T XXII.

Experiments upon the Effects of the Verbas- cum in Diarrhoea.

Botanists differ about the species of this plant that is to be used. Some recommend the yellow, others the white mullein. The white, or Cows Lungwort, is the one generally preferred, and which was used in the following experiments. Its taste is a little rough, though it is not astringent. It has been for some years, much used abroad, especially in Italy, as a pectoral, in decoction, under the name of *Bouillon blanc*, which name it gets from an addition of some white meat, as the de-
coction

coction of it differs not in colour from that of other vegetables. As Schroder recommends it in diseases of the breast, I tried it in consumptive cases in the year 1774, in vain. It was again tried in 1778, in two cases of phthisis; but without success. So that, whatever effect it may have in simple coughs, it did not seem to abate the cough, or symptoms in the ulcered lungs, though in one of these the ulcer appeared to be open.

As it had, long before that time, been recommended to me as a medicine useful in confirmed diarrhoeas, by a gentleman who had taken it himself in such a situation; and as it is mentioned by Schroder, as of advantage in pains of the belly, I thought it worthy of a trial.

EXPER. I. May 13, 1769. Joseph Banbrook, 26, had been seized with an ague three years ago. It continued two years, and then stopped. He soon felt a fulness and pain under the short ribs of the right side, stretching to the left; and about six weeks afterwards, he was seized with a flux, which has continued ever since, attended with about nine watery stools a day, without

out gripes. He has had a cough for some weeks, with much gross, yellow, and saltish tasted expectoration, but without pain, cold fits, or nocturnal sweats. His breathing is difficult, especially during exercise. The white of his eyes and his skin are yellow. His belly is a little swelled; but no fluctuation can be felt in it. He lies easiest on his right side. He has no pain in his right shoulder. Pulse from 112 to 120. Cap. pulv. rhei torrefact. drach. ss. h. f. R. Fol. verbasc. unc. ii. coq. in aq. font. lib. iii. ad lib. ii. & cola. Cap. unc. iv. 3tia quaque hora. 20th, He was seized with a natural vomiting, for which he took a vomit. 20th, The diarrhoea abated; and the pain and swelling about the liver is less. After this the purging gradually diminished, the pain and fulness of the side went off, the swelling of his belly diminished, and on the 5th of June his purging disappeared, though his intestines continued weak, and easily irritated by medicines, even of the tonic kind.

This was a bad case, as the diarrhoea had lasted for twelve months, had weak-

ened the intestines much, and had reduced him to extreme emaciation. Besides, there was an affection of the liver, from the pain and fulness of the right side extending to the left, from the jaundice, and from his lying easier on the right side, as the ligaments of the liver are too much stretched when the patient lies on the left. It appeared rather to be an obstruction than suppuration of that viscus, as he had no sweating, nor cold fits, and the pulse was less quick at night than in the morning. The cough, though attended with gross expectoration, seemed to arise mostly from the swelled liver, as he had no pains in his breast, or other hectic symptoms. The verbasum was ordered for the purging and cough, both which it removed.

EXPER. II. July 11. Daniel Duncan, 19, had been affected, for four weeks, with severe purging, gripes, and tenesmus, and passed some blood for the first week. He sweats every night. Pulse 108, and of natural strength. He was bled, took a dose of rhubarb, and the decoction of verbasum as above. 18th, The purging is almost gone; and he was dismissed.

But,

But, in a fortnight, he relapsed, and returned. There was no more verbasicum in the house, a little only being provided for my use; and none of it could be procured in the shops, as it was not then a dispensatory medicine.

EXPER. III. Dec. 16, 1774. Elizabeth Mills, 43, has been affected with a diarrhoea for a fortnight, attended with severe pains. Pulse 98. After a vomit, I ordered the decoction of this plant, with an ounce of it only, to the two pound of water. In two or three days, the purging disappeared; but the pains continued for several days, and were removed by the castor oil.

EXPER. IV. Jan. 16, 1776. Robert Taylor 60, had had a purging for three weeks, attended with severe pains. He took a vomit, ipecacuanha in small doses, and colombo root; but the diarrhoea continued. 29th, He was prescribed two pounds of the decoction of this plant each day. The stools became natural, the pains went off, and on Feb. 4th, he was dismissed cured.

From

From these experiments, it appears, that a decoction of this plant is useful in diminishing or stopping diarrhoeas of an old standing, and often in easing the pains of the intestines. These acquire a great degree of irritability; and the ordinary irritating causes, aliment, bile, distension from air, keep up a quicker peristaltic motion. This is obviated by the emollient, and perhaps gentle astringent qualities of this plant.

But, besides these, it seems to have some anodyne quality. It eases the pains of the intestines; is injected in a tenesmus into the rectum with advantage; and is often of benefit when applied externally to the piles. Linnaeus says, that, when made into a paste with flour, and thrown into the water, it stupifies fishes, so that they may be taken with the hand. If anodyne, it may act chiefly by that quality.

Though, from the scarcity of the plant in the house, an ounce only of it to the two pounds of water was, in these experiments, generally used; yet I think that that proportion is too little, and would rather recommend two ounces.

S E C T. XXIII.

Experiments upon the Antihemorrhagic Effects of the Cucurbitulae sine ferro, or Dry Cupping.

This application was much used by the ancients; and, though ordered, at present, in pains of the head and breast, is less in practice than it ought to be in many diseases, especially in the hemorrhagic. Hippocrates recommends it much in the menorrhagia, and orders the application to be made to the breasts. “Mulieris menses
“cohibere si velis cucurbitam quam maximam mammis appone.” This observation appeared to me, on several accounts, to carry probability with it; so I tried that application.

EXPER. I. Dec. 3, 1774. Sarah Black, 42, has been subject, for a year, to a discharge of blood from the uterus and to fluor albus, which alternate. She tried gum olibanum and gum mastic in pills, the elixir of vitriol, the tincture of roses, cold water with a little vinegar injected into the
uterus,

uterus, balsam of capaiba, salt of steel, opiates, and lime water, without advantage. Jan. 6th. She has lost, since last night, two pounds of blood. The cupping glasses were applied to each mamma at noon; and the discharge stopped in the evening. She continued well for three days, and then began to take lime-water and gum Kino. She used the cold bath. A little blood appeared again on the 30th, and on February 7th. On the 14th, she was dismissed cured.

EXPER. II. Jan. 3, 1776. Margaret Taylor, 18, has been affected with menorrhagia for three weeks, attended with pains of the belly and back. She took the tincture of roses, opiates, and the Peruvian bark, which last stopped the haemorrhagy for two nights; but it returned on the 15th. The glasses were applied to both mammae at 5 P. M. and the discharge stopped in the night-time. The application was continued for two days, twice a day. Though the blood stopped, the pains of the belly remained, and she was attacked with aguish fits. 28th, After some severe labour, the menorrhagia returned.

turned. The glasses were again applied to the mammae, and an hour afterwards the hemorrhagy stopped. After this, she got ten grains of the gum Kino, twice a day. 31st, Dismissed cured.

EXPER. III. Marion Adamson, 36, came in with a fever; and, after recovery, January 10th, she was seized with a flooding, at the distance of fourteen days only from the last period of menstruation. She had the tincture of roses, opiates, nitre, and an application of cold water to the belly, by which the discharge was a little lessened. 15th, The cupping glasses were applied to both breasts; and the discharge soon afterwards diminished. 16th, The application was repeated, and the hemorrhage disappeared this afternoon, and returned no more; but the pains continued for some days.

Thus cupping glasses, applied to the mammae, seem to have a sudden and powerful effect in stopping hemorrhagies from the uterus. Women in childbed often die of a flooding. This remedy must, then, not only be powerful, but of quick operation. It will certainly be of use on both

H h

these

these accounts. The glasses were ordered to be applied generally twice a day, and to be continued for a quarter of an hour. No reason occurs why they may not continue longer.

A multitude of facts point out a strong communication betwixt the uterus and mammae. But, whether the famous anastomosis betwixt the hypogastric and mammary arteries, a nervous sympathy and communication, or some general law of nature useful to the body, occasion this, is of less moment to us to ascertain, than a knowledge of the fact.

This application is also useful in other hemorrhagies.

EXPER. IV. March 16. Janet Burn, 21, laboured under a haematemesis, and various other complaints. Many medicines were tried in vain. Amongst the rest, cupping glasses were applied to the stomach, for an hour, twice a day. In two or three days, the blood disappeared, and was afterwards little seen.

I have found, likewise, that it stopped a simple vomiting attending a dyspepsia. It, therefore, appears to be a powerful remedy,

remedy, and capable of doing more service than is commonly thought.

S E C T. XXIV.

Experiments upon some Lithontriptics.

C A U S T I C L I E.

Uncommon attention has been paid, by physicians, for these thirty years, to such medicines as were supposed to possess a power of dissolving the stone. Mrs. Stephens's remedies were soon found to be too bulky and inefficacious; nor could all the attempts to simplify them support their reputation. Lime-water next appeared, and underwent the same fate. Caustic lie was discovered, by Dr. Hales, to dissolve urinary calculi, and has been much used ever since Dr. Jurin published an account of his own cure by it. Chittick's medicine is now ascertained to be caustic alkali. Some experiments are, therefore, necessary, to fix the value of that remedy.

EXPER. I. April 1, 1769. Thomas Duggen, 14, was seized, about five years

ago, with a pain in the small of the back, stretching down to the os pubis, along the course of the ureters; and since that time, he has been subject to frequent solicitation to void urine, dysuria, pain at the end of the urethra, tenesmus, purging, and sometimes costiveness, and nausea. His urine often stopped suddenly. He frequently passed sand, and for a year bypast a stone almost every fortnight. After admission into the hospital, he was put on a course of the caustic alkali; and, when admitted into the clinical ward, he was taking fifty drops of it in three gills of veal broth, twice a day. May 14th, Cap. gtt. LX. ter in die. 21st, He passes great quantities of purulent-like matter, that falls to the bottom of the glass. The pains and difficulty of voiding his urine are easier. Rep. ad gtt. LXX. ter in die. June 3d, Augeat. dos. lixivii ad gtt. LXXXV. jusculi ad lib. i. 8th, He thinks that the medicine excites pains in his stomach. 15th, Augeat. dos. ad gtt. xc. He has, for some time, passed his urine involuntarily. July 2d, He had, last night, a nausea, and severe nephritic pain in his left kidney. Being
put

put into the hot bath, he felt the pain gradually descending downwards, and then it disappeared. 14th, Aug. dof. ad gtt. c. 27th, His urine is retained better, and is passed without stopping. Aug. 22d, He has been more uneasy when he voids his urine for some days. Sept. 6th, He was dismissed somewhat relieved, after having taken this medicine for five months, in considerable doses.

EXPER. II. May 2. Robert Yates, 5 years of age, was seized, after a fever, about a year ago, with a constant desire to pass urine, which was frequently bloody, and often stopped suddenly. He had a severe pain in his bladder, tenesmus, and uneasiness about the point of the urethra. He sometimes passed sand and mucus. His pulse was frequent. When sounded, a stone was discovered. He was put on a course of uva ursi; but without procuring any ease. May 9th, He began to take of the caustic lie, fifteen drops, in veal broth, twice a day. 12th, He took twenty drops, thrice a day. 14th, He is much pained. Each dose was increased to twenty-five drops. 21st, He passes more urine than

usual. The dose was increased to thirty drops. 24th, There is some blood and sand at the bottom of his urine. Takes thirty-five drops, in three gills of broth. June 1st, Pains are easier; and he has more urine, which is passed with greater ease. The dose was increased to forty drops. 11th, He has had much difficulty of passing his urine for these five days. The dose of the caustic lie was increased to fifty drops. 25th, His eyes are inflamed; and he has pains of his belly. Sit venæsect. ad unc. iii. Blood rather thick than dissolved. 31st, His urine bloody. July 18th, Takes seventy drops. He has had much pain, and great difficulty of passing his urine, for some days. He was dismissed, after trying it for three months, without having received much relief.

EXPER. III. May 11, 1770. Andrew Murison, 50, was seized, about a year and a half ago, with frequent sollicitation to pass urine, and sudden stoppage while it was passing, with pain about the bladder and point of the penis, tenesmus, and retraction of his left testicle. After severe exercise, his urine was generally bloody.

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On sounding him a stone was felt. Cap. lixiv. caust. gtt. xxx. in juscul. vitulin. ten. ter in die. 19th, Each dose was increased to sixty drops. June 3d, He takes an hundred and twenty drops in each dose, and complains, that from its acrimony, it pained his lips, throat, and stomach. His body is very bound. Cap. flor. sulph. drach. fs. h. f. 23d, He takes now about two hundred drops, thrice a day. July 4th, He is no better. He was therefore remitted to the surgeons, and a granulated stone, weighing above an ounce, was extracted. This patient was near eight weeks under this course, and took, at last, about ten spoonfuls a day, without any sensible advantage.

EXPER. IV. December 2, 1778. John Robertson, 22, has been subject, from his infancy, to symptoms of the stone in the bladder. When sounded, a stone was felt. Cap. lixiv. caust. gtt. xx. in infus. lin. unc. iv. & repet. quater in die. August 6th, Augeat. dos. ad gtt. xl. R. Lixiv. caust. gtt. xl. aq. font. unc. iv. M. & injiciatur in vesicam mane & vespere. The injection was performed by a catheter, and

a bladder affixed to its end. He retained it four hours ; and when passed, it appeared turbid. 9th, He was seized with a shivering fit last night, with a pain in his right kidney ; and with head-ach and delirium during the night. Pulse 116, and strong. His medicines were suspended. He was frequently bled ; and, in a few days, the fever went off. As the fever was so violent, it must have been produced by some other cause than the drops or injection, and increased by fresh nephritic complaints. But, as he seemed in such an irritable state, it was not thought proper to begin the caustic lie again.

The lie was tried in two other cases of stone in the kidney ; but with no better success.

From the preceding experiments, one would be apt to form the most unfavourable opinion of this lithontriptic, as it never cured, and but once mitigated the symptoms, though it was continued for a longer time than to which most patients would be willing to submit, and given to the utmost quantity that the stomach could bear. The symptoms, in some of the
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preceding patients, appeared to be aggravated by it.

But I am still unwilling to pass a severe sentence on this remedy, as the experiments are but few; as some of the above patients were young, which makes the case more unfavourable; as in these patients the calculi might have been of a nature less suited to be acted upon, from their composition or hardness; as in Dr. Jurin's case, and some few others, calculi appear to have been dissolved by it; and, as I found, from the following experiments, that the urine of those taking this medicine was strongly impregnated with the caustic alkali.

It has been objected to this, and to other alkaline lithontriptics, that they must be neutralized by the acid, which they will find in the primae viae, or be much weakened by a conjunction with the oily particles, which they must meet there, or in the fluids. To this it may be answered, that an acid is not always to be found in the primae viae, as it is a morbid, and not a natural product, of these parts; and that oily particles may weaken the
caustic

caustic lie, but cannot altogether destroy its effects. To decide this point, the following experiment was tried.

EXPER. V. June 6. I mixed some of Thomas Duggen's urine, while under the course of caustic alkali, with the syrup of violets, and the colour of it was changed to a light green. The same happened on a mixture of Robert Yates's urine. This experiment was repeated with the urine of one not taking the caustic lie, but without producing the same colour.

EXPER. VI. Spirit of vitriol, diluted with water, was mixed with Duggen's urine; and, on looking through the glass, an evident intestine motion could be perceived in the mixture, a plain proof of alkalescency in the urine. No air bubbles, indeed, arose; but the caustic alkali neither does, nor can afford any.

These two experiments show, that the urine is impregnated with the qualities of the caustic alkali.

My next trials were, to discover whether such urine possesses any lithontriptic powers.

EXPER. VII. August 6. A calculus, of a soft texture, was broken into pieces
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of a similar shape. Four of these pieces were reduced to the weight of twenty-six grains each; and each of them was infused in six ounces of the four following liquors: common water; Duggen's medicine, which was in the proportion of an hundred drops of the caustic lie to a pound of veal broth; Duggen's urine; and Yates's urine. August 10th, The different pieces of calculi were taken out of the liquors, and dried. The next day, the calculi in the water, and in the broth, were found of the same weight as when they had been put in. But that in Duggen's urine had lost one grain; and that in Yates's had lost two grains

EXPER. VIII. August 16. I repeated the same trial, and allowed the calculi to remain for seven days in the different liquors. After the pieces were dried, I found, that those in the water and broth had lost each a grain and an half; that, in Duggen's urine had lost three grains; that, in Yates's urine, had lost four grains. From these two experiments it appears, that caustic lie, mixed with broth, in the proportion mentioned above, has no more effect

effect on the stone than water has ; but, when it is secreted along with the urine, it regains its solvent power. This is owing to the gelatinous and oily nature of the broth, destroying the action of the lie, and, from that property, becoming fit to protect the primae viae. But the broth is, afterwards, converted into nourishment, and the caustic lie is separated along with the urine, in which state it regains some share of its activity.

EXPER. IX. I got a stone, which had been lately extracted, and infused it in water for several days, to remove all loose matter from it. After it was dried, it weighed ten drachms and six grains. This stone was put into six ounces of Yates's urine, changed daily, for twenty days. It was then taken out ; and, when dried, was found to have lost forty-two grains.

It appears, therefore, from these three last experiments, that the urine of patients taking the caustic lie enjoys some power of dissolving stones, and that we cannot altogether deny the lithontriptic power of this medicine, to which opinion our preceding trials would otherwise have naturally

rally led us. Do calculi consist of such different, and often opposite, component principles, that a solvent which affects one will not act on another? This opinion is not yet sufficiently ascertained by experiment, without which it appears to be rather improbable; and seems to be refuted by Exp. XIII. Is the softness and porosity of the calculi sufficient to account for the different effects of the lie? I should think it sufficient; as in calculi of such a texture, the menstruum will gain easier access; as this has been observed as a cause of the difference of solubility of calculi in all experiments on lithontriptics out of the body; and as the calculi, in two of the above experiments, were but pieces broken off from a larger stone.

MEPHITIC AIR.

Hales found, that the steams of fermenting bodies dissolved calculi. Hence Mephitic Air or water impregnated with it, have lately laid claim to a place among lithontriptics. Dr. Percival, to whose experimental genius medicine is much indebted,

debted, has found it to be a very general solvent of calculi out of the body. Dr. Saunders has drawn the same conclusion from his experiments. Dr. Percival likewise found, that the urine of a young man, while drinking mephitic water, was impregnated with it, and that his urine possessed a lithontriptic power. Its known quality of dissolving magnesia, precipitated lime, and iron, entitles it to our attention in this way. It has the additional advantage of being agreeable to the taste, salutary to the body, and may be taken in any quantity.

On the other hand, it may be replied, that the inhabitants about Pyrmont, Spaw, Seltzer, and over all the higher Germany, where there are few villages without a *sour water*, as they call it, are as subject to the stone as those of other countries; that these waters never dissolved a confirmed stone, though they are allowed to have sometimes relieved the symptoms, and they are certainly more fully saturated with it than the artificial water is; and that lime-water and caustic lie, act by loosening and attracting the fixed air of
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the calculus; but that the mephitic air, so far from favouring the escape of what is there, must accumulate more, and add to its size and weight. Experiments alone on calculous patients can decide this question; and I know of none yet published, from which a decisive conclusion can be drawn.

EXPER. X. John Robertson, Exp. IV. after the retreat of the feverish symptoms, appeared to be a favourable patient for the exhibition of this medicine, as it would, at least, fit him, by its tonic powers, for lithotomy, if it did no service as a lithon-
triptic. He was accordingly ordered to drink two pints of mephitic water a day, and to have four ounces of it injected into his bladder every morning, and as much every evening. He generally kept the injection for four hours; felt it hotter than the natural evacuation when it was passing; and it appeared of a deeper colour, and had less of a white mucus sediment than his urine. He continued in this course for twenty-six days, without any alleviation of his symptoms, or any appearance of the stone being dissolved. He
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was afterwards cut, and a large stone was taken from him. It was honey-combed, and friable; but that is the nature of many calculi, where no medicines have been given. In this case, mephitic water seemed to be attended with no success. It would be unfair, from a single experiment, to draw any general conclusion. We must, therefore, await the issue of further trials.

To discover whether the urine was impregnated with any solvent power.

EXPER. XI. I filled two glasses with some of Robertson's urine, six hours after the mephitic injection was passed, and changed the urine every day. Into one glass, was put an entire calculus, weighing an ounce and two grains; into the other, a fragment of a soft calculus, weighing twenty-two grains. In three days, the large calculus lost five grains, and the small gained half a grain. From this experiment no certain conclusion can be drawn.

To discover whether his urine was impregnated with mephitic air.

EXPER.

EXPER. XII. His urine, seven hours after he had passed the mephitic injection, was filtrated, and lime-water was dropped gradually into it, through a filtrating paper. A cloud, which was thick, and floated on the top, was by degrees formed. On agitation, it was diffused; and the whole liquor was full of flocculi, became turbid, and continued so. The same trial being made with common urine, it became slightly turbid, and soon cleared itself. The urine, therefore, appears, from this experiment, to be, in some degree, impregnated with mephitic air.

From the preceding trials, I was naturally led to doubt of the original lithontriptic powers of this fluid; so got the following experiment to be performed by Mr. Kerr, Apothecary to the Royal Infirmary, who was then in the daily practice of making the mephitic water.

EXPER. XIII. He infused the two calculi, mentioned before, in two glasses of mephitic water, which was renewed every day. After being kept three days in it, the calculi were dried, for fifteen hours, before the fire. The larger, which was an

entire calculus, gained thirteen grains and a half; the smaller, which was a fragment, lost two grains. This difference in the operation of mephitic water on the two calculi, cannot be attributed to a difference in their component parts, as the same large calculus, infused in Robertson's urine, had formerly lost five grains; and the same small one had formerly acquired half a grain. Such uncertainty in the result of experiments, accurately made, must throw much doubt on the lithontriptic powers of mephitic air.

Dr. Lamphiers experiments, related in his thesis, printed in the year 1778, afford the same conclusion as the preceding; for, on exposing a calculus to mephitic air, he found that it gained an addition of weight; and, in two experiments where calculi were infused in mephitic water, the calculus became heavier in one, and lighter in the other. In Dr. Plunket's experiments, published last autumn in his inaugural dissertation, neither mephitic air, which had no communication with the external air, nor his own urine,

urine, while drinking four pounds and a half of mephitic water a day, had the least power of dissolving a calculus, though the urine, from discovering some weak antiseptic powers, appeared to be slightly impregnated with mephitic air.

F I N I S.

