of the side of a guinea-pig. In two minutes the animal fell on the side struggling, but without appearing to be convulsed, there being no rigidity of the muscles. In four minutes it ceased to breathe, and showed no outward sign of life, except a slight quivering of the lower lip.

On examination in five minutes from the commencement of the experiment there was no muscular rigidity. The heart was found filled with blood, and pulsating with a quick, feeble motion, chiefly perceptible in the auricle, as if struggling to get rid of its contents. This kind of movement lasted above two hours, and then could be renewed for a short time by some mechanical application. The blood in the heart, when examined the next day, was found to be coagulated. The bowels manifested a considerable degree of vigour in their peristaltic action. A part of the small intestine where the movement was most lively being selected, a drop of the poison remaining from the previous operation was applied, and spread itself over a space of about an inch in length. This portion quickly grew narrower in its diameter, and ceased to move continuously with the rest of the bowel, exhibiting instead a succession of smaller contractions backwards and forwards, which ended in its remaining quiet, and presenting a cord-like appearance as compared with the adjoining portions of the bowel. There was no subsequent bulging as occurs after conia and nicotina, but which I have seen to be produced by any other substance.

From this example I should infer that the primary action of woorara is exciting, however speedily it may be followed by depression or paralysis.

4. Its action does not depend upon strychnia.

The convulsions produced by strychnia are so remarkable and characteristic, that they could hardly fail to be particularly dwelt upon in the various accounts of the effects of woorara, if they were at all a constant phenomenon during the operation of the latter poison. In the experiment on the ox, mentioned by Professor Taylor, they were no doubt very decided, but nevertheless this is an exceptional case compared with the very numerous instances we have of an opposite nature. The occasional occurrence of convulsions in opposition to what seems to be the rule, is exemplified in the history of many other poisons, such as opium, carbonic acid, the poison of serpents, etc. But in directly comparing the effects of woorara with those of strychnia, we obtain some exceedingly well marked differences. Woorara produces extreme relaxation of the muscular system, strychnia a state of extreme rigidity. The former, as we have just seen, occasions local paralysis; the latter has no such effect. In numerous trials which I formerly made with strychnia on the hind legs of frogs, in order to ascertain whether any local effect would be produced, I fancied once or twice that I perceived evidence of increased local excitement, but never witnessed anything approaching to paralysis. On these grounds, it seems unnecessary to lengthen out the argument by entering into further details of experiments.

It was said in commencing, that the desire to obtain some woorara for experiments was occasioned by the statement of Messrs. Morgan and Addison on the effect of the poison when locally applied to the bowels; and also by a wish to ascertain whether it would cause local paralysis. Both these points have been inquired into; and further, an attempt has been made to clear up the obscurity which exists with regard to the name of the poison, its action as compared with strychnia, and the question, whether it can be swallowed with impunity. As to what is here called the primary effect of the sedative poisons, or that brief stage of excitement which precedes their specific action, the point is one of considerable importance in connexion with the general theory of the operation of medicines. In proof of this, we may remark, that the chief remaining argument in favour of the almost exploded "doctrine of sympathy", so called, is founded on the extreme rapidity with which hydrocyanic acid and conia begin to act. Pure hydrocyanic acid, for instance, dropped into the eye is said to prostrate

the animal within a few seconds. But as thus applied, Pereira says that it causes opacity and whiteness of the cornea, with a copious flow of tears; and Dr. Glover informs me, that the vapour of the common medicinal acid held to the eye produces instant redness, disappearing with equal rapidity. These are sufficient proofs to show that its primary action is stimulating, and hence it becomes a question, whether the suddenly fatal effects we find described from applying the acid to the eye do not merely partake of the general nature of a shock. In a communication formerly brought before this Society, I adduced some experimental and other evidence to prove that the specific action of this poison is exerted in the larynx and trachea. Again, Professor Christison, though he admits that conia is a local irritant, nevertheless attaches much importance to an experiment of his own, as proving the doctrine of sympathetic action, in which this alkaloid, injected in the form of muriate into the femoral vein of a dog, produced immediate death. But is not this sufficiently explained as resulting from a sudden violent contraction of the heart, produced by the stimulus applied to it, and the consequent stoppage of the circulation, rather than from any specific action of the poison? Some remarks by the author on this subject will be found in a paper on "the Active Properties of Hemlock" in the *ASSOCIATION JOURNAL* for 1853 (p. 559).

The following general conclusions may be given as a summary of the contents of the paper.

I. The term "woorara" appears to have been longer distinctly employed to designate the Indian arrow poison than any of the other names, except, perhaps, "curare", with the origin of which the author is not acquainted.

II. Woorara has a generic meaning like opium, sarsaparilla, etc., while Ticunas is only the proper name of one of the native tribes which prepare the poison. Ticunas, however, in common with Macusi and other Indian names, may be used specifically to distinguish particular manufactures, according to the practice with other drugs.

III. The physiological action of woorara is opposed to the view that it owes its chief ingredient to a plant of the genus *Strychnos*.

IV. In order to determine the point as to whether or not the poison is derived from the *Strychnos toxifera*, it is necessary to obtain authentic specimens of the bark and wood in sufficient quantity to allow the question to be thoroughly investigated.

V. Woorara is a poison when swallowed, contrary to what is commonly believed on that subject.

VI. It acts primarily as a stimulant.

VII. It acts secondarily, or, as it may be termed, specifically, as a sedative, paralysing the functions of the nervous system; and this both locally where it is immediately applied to the body, and constitutionally after it enters the circulation.

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NOTES ON THE ADMINISTRATION OF GALLIC ACID, ESPECIALLY IN HÆMOPTYSIS AND IN ALBUMINURIA.

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Royal Infirmary.

[Read to the Medico-Chirurgical Society of Edinburgh,
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THE following observations may possibly have for the Medico-Chirurgical Society such an amount of interest as belongs to all facts bearing on the action of remedies whose place in the list of our therapeutic resources is as yet undetermined. I scarcely venture to hope that they will be considered conclusive upon any point of great practical utility; but if they succeed in attracting the attention of the members so far as to lead to further experiments, or to decisive statements of experience already acquired in the course of

practice, they will have fulfilled the purpose for which I bring them forward on this occasion.

Gallic acid has, since its introduction to the notice of medical practitioners, been applied to a considerable number of uses, and apparently with very various success. As an astringent in almost every kind of internal hæmorrhage; as an alterative and astringent in many chronic mucous discharges, particularly in those of the urinary organs, in diarrhoea, and even in dysentery; as a corrective of the profuse sweating of phthisis; as a tonic in the same disease, and in various forms of constitutional disorder; as more or less of a specific in purpura, cholera, pyrosis, and albuminuria; and as an anthelmintic in tapeworm,—it has occurred to me to see accounts of trials made with this remedy. Among these alleged therapeutic effects, the virtues of the remedy in hæmoptysis and in albuminuria seem particularly deserving of attention, not only on account of the weight of testimony which has been adduced in their favour, but also because there are few conditions over which drugs have less of direct and demonstrable influence than over the chronic secretion of albumen in the urine, and the obstinate tendency to internal hæmorrhage. While I have not neglected the use of gallic acid in other circumstances, it is in these affections that I have chiefly had occasion to employ it; and it is to these that I shall for the most part confine my present remarks. A few words will serve to indicate the character of my experience of this remedy in other forms of disease.

In the sweating of phthisis, I have made repeated trials of gallic acid, as of almost all the other empirical remedies; and while, in a few instances, good results appeared to follow, I am bound to confess that, on the whole, I entertain the gravest doubts as to the existence of any remedy which will not as often disappoint the practitioner as it will fulfil his expectations, if this single symptom be made, as such, the object of treatment. So strongly is this impressed upon me by the use of the ordinary astringents in such cases, that I have been very little tempted to diverge from the general plan of the treatment I habitually pursue in phthisis by the announcement of such novelties as the gallic acid and the oxide of zinc (recommended by Dr. Theophilus Thompson). Nevertheless, I have given each of these remedies in a few cases, and think myself entitled to say that their success was certainly not above the average. I may here incidentally remark, that, in many cases of obstinate hectic, no single drug has appeared to me to have so much power over the fever, and the sweating which is its consequence, as opium. So much is this the case, that I have repeatedly seen the night paroxysms both of fever and sweating averted, and the strength of the patient sustained in an extraordinary manner, by the administration at bed-time of a full dose of Dover's powder—a treatment first recommended to me by my friend Dr. McCullough, as being in use in some of the Irish hospitals. Nor has the use of opium in these cases appeared to me to be followed by any subsequent bad effects, provided care be taken to reserve the drug for emergencies, and not to permit that abuse of it into which patients, guided by their sensations, are too apt to fall.

In two cases of hæmaturia, of a very obstinate character, I have tried gallic acid: in neither was it of the slightest service. It is right, however, to state that one of these cases had resisted in like manner a great variety of other remedies; and that I had reason to believe the patient affected with malignant disease of the bladder.

In simple diarrhoea, I have not found gallic acid to be at all comparable to the ordinary astringents. In dysentery and cholera, I have had no occasion to use this drug.

In hæmoptysis, I had long been in the habit of employing gallic acid, alternately with or along with other remedies. The accidental and temporary nature of the symptom, the rapidity with which it disappears in some cases, and the obstinacy with which it persists in others, render the appreciation of the effects of remedies unusually difficult. I continued, therefore, in most of the cases of hæmorrhage from the lungs which came under my care for some years,

to administer gallic acid at one time or other after the usual routine, in doses of from five to eight grains, repeated two or three times a day, such as have been in use in Edinburgh Infirmary during the last ten years. The success of this practice was undoubtedly not very striking, and yet its failure was not so evident as to lead me to alter it. I was struck, however, on many occasions, with the exceedingly small physiological effects of a drug which was vaunted as possessing astringent properties so marked. In very few cases did it constipate the bowels; and in no other secretion could I trace any marked effect which could reasonably be attributed to it. When, therefore, in the spring of 1854, two or three cases of obstinate hæmoptysis occurred, I raised the daily dose, first to half a drachm, then to two scruples, and ultimately to one drachm. Finding that there was still no physiological effect, and that the drug was not to be detected, at least constantly, in the urine, I employed both alcoholic and aqueous solutions, and, in some cases, solutions in a weak alkaline medium. In the summer of 1854, I began to observe two distinct phenomena as indications of the saturation of the system with gallic acid. One of these had been previously noticed by Dr. Bayes of Brighton, and was mentioned by him in a paper (ASSOCIATION JOURNAL, June 9th, 1854, p. 506) which fell into my hands soon after I had begun to employ the large doses of gallic acid. This was the conversion of the blood-stained sputum to a colour like that of ink—a condition which Dr. Bayes presumes to be coincident with the cure of the hæmoptysis, and indicating “a complete saturation with the acid, which may then be given at much longer intervals, and after a few days be discontinued.”

A short period of observation enabled me to ascertain that Dr. Bayes was mistaken in his interpretation of this state of the expectoration. In one case, hæmoptysis repeatedly occurred to a small amount after the sputum had become inky; and it was evident that the inky tinge was not due to an alteration of the blood, but of the mucus of expectoration. In several other cases, I assured myself that the inky tinge remained in the sputum long after blood had ceased to be expectorated. This was particularly evident in one patient, a butcher, of very intemperate habits and unhealthy appearance, who was brought into the hospital by the officers of police, after the discharge of an enormous quantity of blood from the lungs, which had almost ceased on admission. I ordered him gallic acid, and, fortified by the experience of Dr. Bayes, employed it in half-hourly doses of five grains. Next day, the sputum was very black, and there was no blood. Improvement went on, and the case became one of ordinary chronic tubercle; the gallic acid being gradually dropped. Finding, however, some days afterwards, that he had repeatedly passed portions of tape-worm, I determined to try the effect of gallic acid upon this parasite; and it was accordingly given once more in gradually increasing doses, till at last he took the apparently enormous quantity of half an ounce daily. The expectoration almost immediately responded, by the appearance of a perfectly inky and uniformly diffused tint, unaccompanied by any trace of blood. About the same time, another case of this kind presented itself; and, shortly afterwards, more than one instance of inky sputum without hæmoptysis was observed under gallic acid.

It is worth while to notice that the *tænia* in the above case appeared totally unaffected by the gallic acid: the extract of male shield-fern, however, was afterwards employed, without bringing away any of it; and it is possible that the whole worm may have been detached spontaneously previous to either experiment.

In the case above detailed, and in several others about the same time or shortly afterwards, I noticed a second sign of saturation of the system by gallic acid, to which no medical writer has hitherto (so far as I know) directed attention. This is, a very peculiar darkening of the colour of the urine, which, from its natural clear amber tint, comes to resemble those specimens of Cairngorm stone called by the jewellers “smoke-tinted”. The colour is very like that produced by mixing a very minute proportion of

ink, or rather of sepia, with the urine. It is sometimes quite distinct and striking; at others, so slightly altered from the normal as only to be appreciated by an eye familiar with it. As the result of numerous observations, I find that it is not constantly present when the sputum is altered in colour; nor, *vice versa*, does the latter change invariably accompany the former. The smoke-tinted urine, however, generally shews gallic acid on being tested by iron; while urine free from this hue, scarcely, if at all, gives traces of the presence of the acid. So that I apprehend the presence of this tint ought to be regarded as one of the best tests we have of the presence of gallic acid in the secretions, the more so, as very small quantities appear to be indicated in this way when the urine is originally of good colour.

As regards the cause of the peculiar tint, whether of the urine or of the expectoration, I am not prepared to offer any very satisfactory theory. I at first supposed that the iron of the blood might be the source of both colours; more especially as this substance is known to exist in the normal urinary colouring matter, and was proved likewise to exist in appreciable quantity in a small quantity of inky expectoration, analysed for me by Dr. George Wilson and Dr. Stevenson Macadam. I believe, however, that the conditions of the reaction must be sought in phenomena more complex than this; because gallic acid added to bronchitic sputa and normal urine, artificially, has uniformly failed to produce any tint comparable to that described, even after the lapse of several hours. The tint of expectoration appears to be destroyed by long keeping, and begins to fade as soon as decomposition commences; on the other hand, I have reason to believe that it is often developed and deepened in certain portions of the sputum by the first few hours of free exposure to the air. My friend Mr. Murray, the senior President of the Royal Medical Society, has pointed out to me the fact, that in the presence of alkalies a solution of gallic acid rapidly becomes dark, even when no iron is present; but the colour thus produced is not comparable to that of the inky expectoration; nor is the inky sputum always, or even generally, decidedly alkaline.

To return to the subject of the use of gallic acid in hæmoptysis, I wish I could give a more positive opinion as to its good effects than that which I shall lay before the Society. The subject is one of no small difficulty. The transitory character of most pulmonary hæmorrhages, under every treatment, their recurrence when least expected, and the frequency with which they cease before the action of remedies can be clearly manifested, are sufficient reasons for great caution in forming any conclusion. Before commencing the use of the large doses which I have indicated in this paper, I was more than once startled by the obstinate persistence of hæmorrhage under what I believed to be full doses of the remedy. In one case, indeed, death occurred directly from hæmoptysis in a patient who had been for a good many days under the influence of moderate doses of the drug. I am happy to admit that no similar instance has occurred to me since the use of the larger doses. At the same time, I must state that small and continuous bleedings have sometimes appeared to me to be but little checked, even after the characteristic inky colour has appeared in the mucous portion of the sputum. I am far, therefore, from sharing in the confident expectation of Dr. Bayes, that in internal hæmorrhages gallic acid "will disappoint no reasonable expectation in its curative powers;" and I cannot help thinking that that gentleman, in common probably with others, has underrated the tendency of pulmonary hæmorrhages to spontaneous arrest by a process as sudden as that of their accession. The only proof in which I should now be inclined to rely in estimating the therapeutic value of this agent is the *disappearance of the hæmorrhage as nearly as possible in coincidence with the appearance of the inky sputum*. This fact Dr. Bayes has undoubtedly observed in some of his cases. In several of mine I have been disappointed in this expectation, partly because bleeding has sometimes recurred, though certainly in small quantities, after the full effect of the gallic acid

had been produced; partly because, in other cases, the hæmorrhage has ceased before the characteristic colour had been eliminated, and occasionally, when (for reasons unknown to me) the inky tint has never been produced at all. Thus, in a young lady at present under treatment, hæmoptysis continued in greater or less amount for a fortnight, then disappeared, but even now continues to recur to a slight extent occasionally, although during the period of the hæmorrhage she took regularly from a drachm to a drachm and a half of gallic acid per day, a quantity usually amply sufficient to tinge the sputum, but which in her case has never done so. I confidently anticipate in this case continued improvement under general treatment, but I shall scarcely ascribe this result in any considerable measure to the gallic acid.

On the whole, then, though disposed to believe that gallic acid, in producing the extremely marked effect which it does in some cases on the sputum, may exercise some astringent power over the pulmonary capillaries, and though inclined to give it a farther trial with this view, as a remedy perfectly safe and not improbably useful, I consider that the confident statements as to its good effects, particularly by those who have used it only in ordinary doses, have been based upon insufficient grounds. Dr. Bayes has done a good service in directing attention to a fact indicative of the presence of gallic acid in the expectoration, and in demanding the use of larger doses than those in common use, with a view to the production of the inky colour of the sputum. Whether his high opinion of gallic acid as a remedy be justified by future experience or not, I trust practitioners will not now lose sight of a fact so important to the correct appreciation of its therapeutical and physiological action.

Since these observations were made, my attention has been directed to a passage in Dr. Walshe's work on *Diseases of the Heart and Lungs*, from which it appears that he also, as well as Dr. Bayes, has been in the habit of using large doses of gallic acid—twenty to thirty grains, at first every half-hour, when the hæmorrhage is severe, with gradually diminishing doses less frequently repeated. "I have seen no ill effect," says Dr. Walshe, "from these large doses." Dr. Walshe also remarks, as might be expected, the altered tint of the expectoration; but, like Dr. Bayes, ascribes it erroneously to an effect of the remedy on the *blood* expectorated. As regards the result, he says, "my recent experience leads me to place greater trust in gallic acid than in any other agent of the class (astringents)."^{*}

In *albuminuria*, my experiments with gallic acid in Bright's disease have been fewer in number than those above referred to in hæmoptysis. They were nearly all made with the larger doses of one, two or three drachms daily, and were continued over a period varying from weeks to months, the medicine being occasionally intermitted, to observe by contrast its effects on the albumen. I have now made what I consider a fair trial of this remedy in six or seven cases, in each of which it was pushed to the doses mentioned, maintained for a considerable time, and gave proof, either by the colour of the expectoration or by that of the urine, that it had been received in considerable quantity into the system.

The first case in which I so employed it was that of an old man, I believe upwards of seventy years of age, and presenting all the marks of senile decay and decrepitude. He was emaciated, anæmic, feeble both in mind and body, afflicted with cough, and occasionally with slight dropsy of the legs. The urine contained a very large quantity of albumen, and was deficient both in urea and salts. This man after a course of treatment by tincture of muriate of iron and other remedies, by which his general health was considerably improved, was detained in the hospital nearly two months, in order to be subjected to the treatment by gallic acid. The ordinary amount of albumen had been previously ascertained by repeated examinations (though not by chemical analysis) to be subject to few fluctuations.

^{*} Disease of Lungs and Heart. Second edition, p. 474.

The patient was much pleased with the remedy, which was administered in a little whiskey, and persisted in asserting throughout that it did him much good, though no very apparent improvement took place further than what had been previously observed. At the end of the experiment, the albumen was in no degree diminished, nor had its fluctuations in the least degree corresponded to the amount of the remedy taken. The dark colour of the urine was frequently observed.

It would be tedious to detail the particulars of the remaining cases, as in none of them was any other result observed than in this. I shall only mention enough of their details to shew that they were fair subjects for the experiment, having indeed been chosen with the view of giving the remedy the fairest possible trial.

In one case of chronic Bright's disease, with chronic bronchitis (almost certainly tubercular), the patient has been placed under the full influence of gallic acid on repeated occasions during the present winter. Throughout this period, his disease has remained nearly stationary, as indeed it has for upwards of a year, during which the case has been occasionally under my observation. The most remarkable feature in this case is the fact, that with urine in quantity and specific gravity not far from normal (indeed, the specific gravity is frequently rather high), and with a large daily discharge of albumen, this man continues, though somewhat emaciated, to maintain his ground against the affection, both of the lung and the kidney; which are, to all appearance, not advanced from the time when I first saw him. The urine, it is proper to mention, is always clear, and has very rarely more than the normal mucous sediment. It is, therefore, an instance of what is often called non-desquamative disease; although I believe that in this, as in all other instances of chronic renal disease, with albuminous urine, fibrinous casts and epithelium are occasionally thrown off. If gallic acid is ever useful, by its astringent effect, in arresting the albuminous secretion, it ought certainly, I think, to show its power in such a case as this.

In several other cases of chronic Bright's disease resembling this one, I have looked carefully for the evidences of diminished albuminous secretion under gallic acid. In all of them the result has been a total failure. In some of the experiments in question, I had the assistance of Dr. McCullough and Mr. Slight; and in the whole of the more recent and conclusive ones, my present assistant in the hospital, Dr. Inglis has given unremitting attention to their progress, which has also been observed by many other visitors to my wards during the present winter.

In one case, which I at one time regarded as an instance of acute albuminuria and dropsy, but about which I am now a little doubtful, the result was similar. This is a boy, aged 17 years, at present under my care in the Infirmary. He has had a large, but fluctuating amount of albumen in his urine, which has been, however, generally of pretty fair specific gravity. On his first admission, he was affected with dropsy of the face and legs, the latter accompanied by a good deal of hardness, heat, and apparently somewhat erythematic tension. These symptoms disappeared, though slowly, under muriate of iron and other diuretics, which were given in full doses. The albumen at the same time was much reduced in quantity, the urine remaining permanently increased in quantity to not less than double its normal amount. At last, the albumen entirely disappeared, and remained absent for some weeks. At the end of this time the boy took a feverish attack, which was attended by a renewal of albumen in the urine, and slight dropsy of the lower extremities. Gallic acid was now administered, continued for several weeks, and discontinued only after Dr. Inglis had, as well as myself, become convinced that its exhibition was fruitless. Diuretics were then resumed; and although the albuminuria has been so obstinate as to suggest the idea of a permanent renal affection, it appears now to be again diminishing, and may possibly again disappear.*

* Since the reading of this paper, it has disappeared and reappeared under diuretics.

From these cases, the society will be able to judge of the results of my experience of the administration of gallic acid in hæmoptysis and albuminuria. I regret that it should be so unsatisfactory; but it appears to be of importance that negative as well as positive experience should be stated on subjects of importance, such as this. For my own part, I consider the question of the power of this agent over albuminuria to be almost decided in the negative by the result of these trials, as well as by the still more careful if not so protracted experiments of my friend, Dr. Parkes of London. In hæmoptysis, again, I am still not without hope of deriving benefit from a further trial of this remedy, although I confess that my confidence in it, as derived from the statements of others, is considerably shaken.

On the whole, if we admit that gallic acid possesses some of the astringent power of its congener *tannin*, I believe we must regard it as one of the weakest of all the remedies of this class. The same negative attribute which secures its admission to the general circulation (the absence of the power to coagulate gelatin) unfits it for the office of a local astringent, and as a general remedy its physiological properties appear to be of the feeblest possible order. Nothing has struck me so much in the course of these experiments as the contrast between the actual results of gallic acid given in very large doses, and those effects attributed to it when given in very small daily amount. Thus one observer recommends it in the strongest manner as being, in one or two doses of two grains each, an almost infallible antidote to the premonitory diarrhoea of cholera. Another gives it in doses of from three to five grains against uterine hæmorrhage. Numerous observers employ it in nearly the same doses in desperate cases of hæmoptysis. Dr. Bayes correctly takes his stand against the idea generally current, that gallic acid has a tendency to produce febrile excitement. He ascribes to it, however, as a physiological action coincident with its therapeutical effects in hæmoptysis, "a feeling of constriction in the forehead and eyes, with a buzzing sound in the ears and head." These effects, I am inclined to ascribe to the disease rather than to its remedy. They are familiar to almost every one as the reaction after loss of blood; and under no circumstances are they more apt to present themselves than after tolerably profuse hæmoptysis. I can truly say that I have now observed many persons under the influence of from one to two drachms daily of gallic acid for weeks together without seeing any reason to ascribe to this substance the power of producing any such marked physiological effect. I have repeatedly questioned persons under the full influence of the drug, with the express view of ascertaining any unusual sensations; but except a little feeling of dryness in the throat (not constant), and possibly slight constipation, have altogether failed in procuring any distinct testimony on the subject. In one man, indeed, an impetiginous or herpetic eruption on the chin and lips was developed under the remedy; but this same man took it for weeks before, and has taken it for weeks since, without any renewal of these symptoms; and I never noticed a similar result in any other case. Dr. Inglis has repeatedly attempted in this man, by means of bibulous paper impregnated with iron, to procure evidence of the elimination of gallic acid by the skin: the result, however, has hitherto been negative. In some instances, the tongue has appeared to be somewhat loaded while the remedy was taken; in others, it has remained quite clean, and the appetite unaffected. In one lady, a most susceptible and nervous person, extremely attentive to her own sensations, the catamenia were established as freely as usual under its influence in the large dose; nor was any complaint whatever made of the action of the remedy. I cannot, therefore, conclude these observations without indicating my belief that, in continuing to administer gallic acid on the principle and in the way indicated by some of its advocates, we run some risk of substituting a very feeble, if not inert, remedial agent for other means more deserving of confidence.