six or eight days, and sometimes more. G. Cuvier fixed even at fifteen days the duration of the flow in a female mandrill which he made the subject of repeated observations."

Cuvier observed menstruation in carnivora, among others, in the genets; and Lesson and Garnot recognised it in the flying-fox (pteropus), which Saint-Hilaire says is periodical. Haller quotes many authors who thought monkeys, cows, deer and bitches offered evident traces of menstruation. Numann and Rainard made similar observations, while Pouchet had himself observed it in bitches, sows, cats, rabbits, and guinea-pigs, especially in the first. (Mr. Bartlett, the able superintendent of the Zoological Gardens, tells me that the discharge may be abundant in the bitch, and that the heat is sometimes long sustained in the carnivora). The wild pigeon produces only once or twice a year, while the varieties which it has given us through care, breed ten times a year, as Aristotle, Buffon, and Blumenbach have observed. Kuhleemann says sheep come to heat every fortnight; sows every fifteen to eighteen days. Kahleis and Numann, that cows come every month or three weeks; Greve, that mares come monthly; and Cuvier, that buffaloes, zebras, and monkeys, come also monthly. Courty also recognised the graduated relation of menstruation in the zoological series.

From his observations on sows, Pouchet concludes that the menstrual phenomena ordinarily precede the rupture of the Graafian follicles. (P. 262 :) "During menstruation the vagina of the sow offers a rosy tint, and the mucous fluid which it contains is slightly abundant. Microscopical examination showed me that the latter is composed of fragments of epithelium, cylindrical and pavement; mucus-globules, and blood-corpuscles in small number. . . . The womb, before its bifurcation, is reddened, and its capillaries are highly injected with blood. . . . The cornua are excessively injected with blood. Their mucosa is considerably thickened and spongy, and of a deep red, and, in certain parts, the abundance of blood wherewith it is engorged gives it even a violet coloration. . . . Thus, then, menstruation in the sow is a demonstrated fact. As in the human species, there is an emission of blood; but if this is not abundant, it is because this fluid is found in great part poured out in the immense extent of the internal generative apparatus." During the intermenstrual period, the vaginal and uterine mucous membranes are pale. Pouchet says that the appearances are absolutely similar in the rabbit, but that there is even more blood; and his observations upon bitches, cats, and other mammalia were equally confirmatory.

At p. 266, Pouchet says:—"In a work on the physical and moral system of woman, Roussel (*Système Physique et Moral de la Femme*, Paris, 1813, also edited by Cerise, 1860, Paris) pretends that menstruation is due to civilisation. We have expressed nearly the same opinion; only we think that the social state has not determined the essence of the phenomenon, but that it has only considerably augmented its frequency in rendering it nearly menstrual."

Auber also attributes the existence of the function to social advancement (Raciborski, p. 18). "Velpeau (*Tr. Comp. de l'Art des Accouch.*, t. I, p. 126) says that, in Lapland and Greenland, women are not more often regular than every three months; and Gardien (*Tr. d'Accouch. et de Mal. des Femmes*, t. I, p. 233) pretends that in women in Polar countries the menstrual flow takes place only twice or thrice a year." Pouchet, therefore, ably argues the physiological identity of the function in all the mammalian series, including woman; he says (p. 227):—"Menstruation consists in the appearance of a periodic and temporary excitement in the genital apparatus of woman. This function is declared by an afflux of blood in all the organs that share in it, and by the flow externally of a certain quantity of this fluid. Then it is essentially and ordinarily characterised by a swelling and maturation of one of the Graafian vesicles, and by the emission of the ovule which this latter contains."

Trousseau (*Clin. Med.*, p. 598), speaking of signs exhibited by the lower animals while breeding, says:—"Need I add that, during the period of rut in most female animals, the congestion of the genitals manifests itself by a flow of blood, and by an increase in the secretion of the glands, which are annexed to those organs?" Both Tarnier and Chantreuil (*Tr. d'Accouch.*), and Cazin, in his memoir on "Varices in Pregnancy and Parturition" (*Arch. de Zool.* 1880), quote Raimond as stating that "In the females of animals the vagina is coloured red at the epoch of heat; it takes a violet or brownish tinge during pregnancy, and the mucous membrane seems to thicken." Cazeaux says:—"In the rabbit it is tumefaction and almost varicose injection of the vessels of the vulva. To this colouring and tumefaction is added, in the bitch, an odorous secretion, which allures the males and puts them upon the track of the

females. Finally, in monkeys a more or less abundant hæmorrhage occurs, which, in the case of the macaques and the cynocephalus, coincides with so monstrous a swelling of the vulva, that, in certain cases, the surrounding parts are infiltrated, as though inflamed in consequence of the sting of bees."

Raciborski (*Traité de la Menstruation*, p. 43) remarks on the resemblance between the rut and menstruation in the matter of periodicity, and states that sows have symptoms every fortnight to eighteen days, heifers every twenty-one days, sheep every fortnight. Quoting from a friend having choice cattle, he says that the higher breeds require the male more often than inferior breeds; on which he exclaims, "*En voilà un singulier privilège de l'aristocratie dans la race bovine!*"

Generally, in most animals, there is swelling of the external genitals, and a discharge which is often sanguinolent, especially in the heifer, bitch, sow, and rabbit; while in monkeys, particularly in the great species, it often takes the proportion of a hæmorrhage.

[To be continued.]

THE TREATMENT OF SYPHILIS.

By J. MARION SIMS, M.D.

MORE than forty years ago, I practised medicine in Montgomery County, Alabama, near the Creek nation of Indians. Syphilis was then very prevalent among them, and their medicine-men had the reputation of speedily curing it. Their remedies were, of course, decoctions of native herbs. It was generally known that queen's delight (*Stillingia sylvatica*) was one of their principal agents. I had supposed that, when this tribe were removed west of the Mississippi in 1837, their secret of curing syphilis had gone with them; but, when I was in Alabama last year, I learned from my brother-in-law, Dr. B. Rush Jones of Montgomery, the following facts touching this question.

There were, he said, seven or eight years before our civil war, several obstinate cases of secondary syphilis in and around Montgomery, which resisted the usual remedies in the hands of our best physicians. They went the round of the doctors, and could not be cured. At last, one of these was advised to consult a coloured man, Lawson, belonging to Mr. N. D. Barnett, a cotton-planter residing in Montgomery County. In a state of despair, he went to see Lawson, put himself under his treatment, and in a few weeks he was perfectly cured. He returned to town rejoicing at his recovery, and soon others of his fellow-sufferers followed his example, went to consult the coloured man, Lawson, and were likewise cured. These cures by an obscure negro man, a slave, when the highest representatives of science had failed, were much spoken of in both town and country, and attracted the attention of Dr. George W. McDade, a very intelligent and accomplished physician, whom I have known since his early boyhood. Dr. McDade, feeling the greatest interest in the subject, went to see Lawson, who had made these marvellous cures, and obtained from him the formula he had been using so successfully.

Soon after this, Dr. McDade happened to meet Dr. James Freeny, who gave him the following history of the so-called Indian method of treating syphilis. Horace King, a mulatto slave, resided among the Creek Indians for several years before they were removed west of the Mississippi river (1837), and had learned from them their method of treating syphilis. While Horace was engaged in building a bridge at Tallassee, about twenty-five miles from Montgomery, in 1852, he heard that there were many cases of syphilis on Mr. Gipson's plantation near by, and that Drs. Freeny and Banks were the attending physicians; and he called on Dr. Freeny, and told him that he had learned a method of treating syphilis from the Creek Indians, which was universally successful, and that he would like to show it to him. And for this purpose he proposed to take the worst cases on the Gipson plantation for the experiment. Drs. Freeny and Banks selected a certain number of very bad cases, and turned them over to Horace; and they watched from day to day his method, while they continued their own plan with the other cases.

Horace's selected bad cases recovered more rapidly than Dr. Freeny's milder ones, and then Dr. Freeny adopted the Indian method in the other cases on the Gipson plantation, and has not pursued any other plan since.

So thoroughly convinced was Dr. Freeny of the superiority of the Indian remedy, that he wrote to Dr. Warren Stone, Professor of

Surgery in the University of Louisiana, urging him to give it a trial in the wards of the great Charity Hospital of that city.

Dr. Freeny failed to enlist the interest of Professor Warren Stone in the matter, and he made no further effort to bring it before the profession, except by speaking of it to his brethren in his immediate neighbourhood.

After Horace's success on the plantation of Mr. Gipson, and the adoption of his method by the two well known physicians Drs. Freeny and Banks, Mr. Nicholas D. Barnett, a large cotton-planter, sent his servant Lawson, a very intelligent man (before alluded to), to Horace King to learn his remedies, and the method of preparing and using them. Horace readily imparted the desired information, and Lawson returned home, and put the treatment to the test among the negroes on his master's plantation. It was as successful in the hands of Lawson as it had been in those of Horace King.

After a while, other planters in Mr. Barnett's neighbourhood followed his example, and set apart confidential servants to take charge of syphilitic cases, and treat them with the Indian decoction. And thus several adjoining plantations had each its negro doctor, all using the same method with equal success.

This was in a rich section of Montgomery County, where there were many large cotton-plantations in juxtaposition; some of one thousand acres, some of two thousand and more, having from one to two or three hundred slaves on each, while there were others of less size with fewer slaves.

On some plantations—notably, on Mr. Barnett's—the syphilitic cases, male and female, were sent to a hospital specially set apart for the purpose, and there quarantined till they were cured. They were, during the period of treatment, wholly cut off from all communication with the other negroes on the plantation. This was in the time of slavery, when the intelligent and humane master had the right to protect his people against infectious diseases of all sorts. Syphilis was thus controlled, and small-pox effectually stamped out, because the sanitary state of the plantation was intrusted to medical men of the highest intelligence, who were authorised by the master to do all that was necessary for the health of the community.

Dr. McDade says: "It is very remarkable how few cases of secondary syphilis, scrofula, and consumption, existed in those days among the slaves, compared with what we now find. The two latter were then almost unknown among the negroes; but since emancipation they are very common."

"Is secondary syphilis the parent of scrofula and consumption? Certainly, these were rarely seen among the negroes while in slavery; whereas they are now encountered every day. Secondary syphilis was then less frequent among them than now, because their masters took every precaution for their early treatment and cure. But now the negro is free to contract this loathsome disease, and to scatter it as he may. You may ask, Why are they not treated? I answer, Many never apply for treatment; and, when they do, they often disappear before they are cured. And many of them are too poor or too improvident to apply for treatment. Physicians, always the conservators of the public health, never here refuse to treat a case of syphilis because the subject of it is a freed-man, poor and improvident."

Professor Samuel D. Gross read an exhaustive paper on the connection between syphilis and scrofula and consumption, before the American Medical Association in 1875, advocating the view that the two latter were the offspring of syphilis, and it would now appear that the history of these in the negro, in slavery and in freedom, goes far to establish the correctness of the views so forcibly set forth by my distinguished countryman.

Dr. McDade says, "that the remedies used by Lawson on Mr. Barnett's plantation, were the same as those used by Horace King. They consisted of ten or a dozen indigenous roots, a handful of each, with a certain quantity of salt, alum, and iron slugs put into three gallons of water, and boiled down to one gallon. Of this the patient took a half pint three times a day. There was also a decoction of roots for washing the syphilitic sores. After obtaining these prescriptions, it was a long time before I made any trial of their virtues. I was deterred by the fact that it would be difficult for any patient to drink and retain half a pint, three times a day, of such a vile decoction. The horrors of syphilis could alone inspire a man with courage to take it. However, I saw that those who did were invariably relieved, whether in the first, second, or third stage of the disease."

"Instead of adopting the so-called Indian remedy as I found it, I began by eliminating the alum, salt, iron nails, and slugs, and all the roots and herbs that I knew must be absolutely inert. I selected the few among them known to possess medicinal properties; and,

instead of making a decoction as had been done before, and which had to be made in large quantities every day or two, I had them prepared in the form of fluid extracts, which places the remedy on a scientific basis, and insures uniformity of action. The following is the formula that I and my medical friends have been using for many years."

"Fluid extract of *Smilax sarsaparilla*, fluid extract of *Stillingia sylvatica* (queen's delight), fluid extract of *Lappa minor* (burdock), fluid extract of *Phytolacca decandra* (poke root), aa 5ij, tincture of *Xanthoxylum carolinianum* (prickly ash), 5j. Take a teaspoonful in water three times a day before meals, and gradually increase to tablespoonful doses.

"In making the fluid extracts, there is some risk of getting a remedy less efficient than the original Indian decoction, because the manufacturer may use roots that have been kept too long, and lost some of their active principles, while the decoction used on the plantations was always made of fresh roots just gathered from the woods. In making the fluid extracts, we should therefore be careful to have them made from roots recently gathered." While Dr. McDade makes fluid extracts of four of his ingredients, he makes a tincture of the fifth. I do not understand why he did not order a fluid extract of that also. I simply give the prescription as it was given to me by Dr. McDade and Dr. Rush Jones.

Stillingia sylvatica has long been used in the Southern States as an antisyphilitic remedy by both the profession and the laity. Professor Thomas Y. Simons of Charleston was the first to call our attention to it (*American Medical Recorder*, 1828). His favourable report was subsequently confirmed by Professor Henry R. Frost, of Charleston, and by Dr. A. Lopez, of Mobile, Alabama (*New Orleans Med. and Surg. Journal*, 1846). Dr. Frost thinks the active principle of the *Stillingia* is somewhat volatile, and says that the root loses much of its activity when kept long. I know that the odour of the recent root is much stronger than the dried. I presume the *Stillingia sylvatica* and the *Smilax sarsaparilla* are the efficient agents in McDade's compound fluid extract. Dr. McDade says: "I could detail many cases illustrating the wonderful antisyphilitic powers of this remedy; but I will give you only two. 1. A young negroess contracted syphilis from her husband, who resided on a neighbouring plantation, and visited his wife generally about twice a week. This was long before the war (1861). They were both treated by the late Dr. Alfred McDonald, and they were apparently cured. But they had several children subsequently, and in rapid succession, all of whom died of syphilis soon after birth. The husband and wife were then treated by the Indian decoction, and were permanently cured, as shown by the fact that they had several healthy children afterwards at full term, who grew to manhood and to womanhood. None of them ever showed any signs of syphilis, nor have any of their children. Those of them who have died, died of other diseases of a climatic character."

"2. A negro girl, twenty years old, belonging to Mr. Cobb, had syphilitic iritis. This case had resisted all treatment by the best physicians of the country. She was nearly blind. She was taken in charge by Mr. Barnett's coloured man, Lawson, who gave her the Indian remedy, and she was perfectly and permanently cured, as she never afterwards showed any symptom of the disease. These cases occurred more than twenty-five years ago; and have been under my observation ever since; so you will see that the cures are permanent."

"Mr. Barnett has pursued the same method on his plantation since emancipation that he did during slavery. His man Lawson uses the same compound decoction now that he did in olden times, and cures many cases every year on Mr. Barnett's plantation, and on those adjoining."

Dr. McDade has used his compound as an alternative with great success in scrofula, and he thinks it would be worth trying in some forms of cancer.

Dr. Rush Jones, residing in the city of Montgomery, has a larger field of observation than Dr. McDade, residing in the country, and has really had a larger experience with McDade's antisyphilitic fluid extract than anyone else; and he speaks most favourably of it. He has been treating syphilis for more than forty years, and he says he now has but little dread of undertaking the worst cases, since he has adopted the use of McDade's formula. He repudiates mercury and the iodide of potassium entirely, and says they are unnecessary when McDade's formula is used.

Dr. Rush Jones says: "It is a remarkable fact that I do not see more than one case of syphilis in women to fifty cases in the male. I have inquired of a number of physicians in regard to this fact,

and their experience coincides with mine. How can this be accounted for?"

I am not familiar with the literature of syphilis, and do not know if the fact alluded to by Dr. Rush Jones has been observed in other parts of the world. If so, it seems to me to have an important bearing on the practical application of the Contagious Diseases Acts. And so would the complete history of the working of the quarantine and isolation of infected negroes on the several cotton plantations in Montgomery County, Alabama, during the time of slavery and since emancipation, if we could obtain minute and reliable reports on the subject.

I am no authority on the subject of syphilis; and, if any apology were necessary for this communication, it is this:

I was at the meeting of the London Medical Society on November 26th last, and heard the discussion on the papers of Dr. Drysdale and Dr. Routh on syphilis. From this, it appeared that we now differ as widely on the subject of its treatment, as we did fifty years ago. And this gave me the idea of writing to Dr. Rush Jones and Dr. McDade for the facts which I now lay before the profession.

I have known Dr. Rush Jones all my life, and I have known Dr. McDade, and Dr. Freeny, and Mr. Barnett, for more than forty years, and have perfect confidence in any statement they might make, or I would never have said a word on this subject. I think great credit is due to Dr. Freeny and Dr. Banks for giving the coloured man Horace King an opportunity to demonstrate the value of the Indian decoction in the treatment of syphilis on the plantation of Mr. Gipson. For its success there brought it, with their endorsement, prominently before the community, and extended its use to the plantations of Mr. Barnett and his neighbours.

Too much credit cannot be given to Dr. McDade for investigating the subject, and giving us a formula at once scientific and efficient; for it has proven efficient in the hands of Dr. Rush Jones, Dr. McDade, and many other physicians who have been using it for several years past.

I should be pleased to see the name of McDade used by the profession hereafter to designate the formula and the method of treatment herein set forth. The remedy will doubtless be extensively used, at least for a while; and I sincerely hope it may prove as efficient here as it has in the hands of my friends in Montgomery, Alabama.

PRACTICAL PATHOLOGICAL WORK.

By H. A. REEVES, F.R.C.S.E.,

Surgeon to the Hospital for Women, to the Royal Orthopaedic Hospital, and Assistant-Surgeon and Teacher of Practical Surgery at the London Hospital, etc.

How to fix Aniline Dyes.—I feel sure that all working histologists will be thankful for the discovery of a simple and effectual mode of setting the various beautiful aniline colours which have been much used of late years, but which do not stand the immersion in spirit and alcohol necessary to prepare them for mounting in Canada Balsam, dammar, or turpentine. It is pretty well known that these dyes are valuable on account of their selective power when properly used. I say properly, because, if employed in the ordinary way, only a general and diffused stain results, and they then are inferior to such a differentiating agent as hæmatoxylin. In all sciences, the discovery of good methods of research has very considerably aided in advancing the progress of discovery, and anything which tends in that direction must be of permanent value. Sections of fresh tissues, or of those hardened in alcohol, Müller's fluid, chromic acid, or chromic and spirit mixture, will answer for several of the methods to be described; but it is better to wash chromic hardened sections in water, and soak them for not less than about half an hour in methylated spirit, before proceeding to dye them. Then it will be found that normal and pathological structures take on distinct double, triple, or multiple staining. I have repeatedly tried the methods described by Heneage Gibbs, Stirling, and some German writers, and have but very rarely indeed succeeded; so that these modes are most uncertain and disheartening, and an easy and efficient substitute will be a great boon. I succeeded in double staining the cord, skin, etc., with the aniline in 1873; and showed some of the preparations to my pupils, among whom was Dr. Nears, the present lecturer on anatomy at Newcastle; also some other preparations of pathological interest which I did not then entirely comprehend; but in 1878 I examined these specimens again with immersion lenses, and found that what I had supposed to be peculiar cells and nuclei, proper to the tumours, and differentiating them

from others, was nothing other than the karyokinesis which Auerbach and Strasburger had not long before described as occurring in growing normal vegetable and animal cells. At least half a dozen times since that date I have found karyokinetic cells in rapidly growing tumours, and shall speak more fully of them in my forthcoming work on Diseases of the Breast.

I have frequently found, in attempting double staining with the anilines, that one colour either extracts the other, or blends with it, without differentiation, and that the sections must be mounted in glycerine, or acetate of potash, or a mixture of the two; that even then they are apt to fade, or soak out in the mounting medium. How long the colours will last by the methods to be described I cannot yet say, but see no reason to doubt a vitality enough for all practical and scientific purposes. For teaching, such preparations are of the greatest value, as some stains pick out one structure and some another, with great clearness and beauty.

For the last eighteen months I have been again experimenting, with a view of finding some mordant for these dyes, and have tried a legion of chemicals, in varying strength, singly and combined. I did not undertake this work hap-hazard, but after studying several modern works on chemistry, and on the art of dyeing. The latter did not help me much, as spirit or alcohol is not used in the ordinary dyeing processes, and, moreover, most of these dyers' becks are worked while the dye is hot. As the modes of fixing in calico, wool, leather, or silk dyeing would destroy, or seriously damage animal tissues, it was necessary to find a mordant which would not in any way deteriorate the structures, but this was no easy matter; and it was only by plodding systematically through the selected series, and making numerous variations in the modes of application, that the proper articles were found out. As, in the first instance, these were generally combinations, I had to find out the ingredients, and work with each separately, in varying strengths, before I could be sure which was the real and the best mordant. The purchase of oil immersion objectives, Abbé's achromatic condenser, and numerous chemicals and apparatus being necessary, and as my colleagues and the committee, and our excellent secretary, Mr. Cannon, at the Hospital for Women, all liberally fell in with my views, and fitted up and furnished the laboratory according to my desire, I have very much pleasure in rendering them my sincere thanks. I am also much obliged to Dr. Oliver, the house physician, for having cut sections for me when I have not been able to spare the time.

Before describing the process, I will draw attention to two or three new and beautiful dyes, and also to others which have not been used before, and to others but little known. The new dyes are Phloxine, and Erythrosine. I do not yet know their exact composition, but feel almost sure they are obtained from resorcin, as in many physical and chemical respects they resemble rosine. They stain rapidly and deeply, in weak aqueous solutions, and stand spirit well. Connective substances and the protoplasm of cells are, in rapid staining, preferred by them to nuclei, which, however, stand out on the stained ground-work very clearly. Phloxine is the more beautiful and pleasant colour to work with. Both are soluble in water or spirit, and weak solutions stain quickly. If sections be placed in weak solutions for several hours, the nuclei often take on the stain. Phloxine, and Erythrosine, as supplied to me, are darkish red powders by reflected light, the former having a faint purplish-crimson colour, and the colour of the solutions in a test tube, i.e. in transmitted light, will vary according to the strength. Any of the dyes herein mentioned may be obtained direct from the agent of the Badesche Anilin Fabrik, 22, Bush Lane, E.C., or from Messrs. Wright, Layman, and Umney, or in small quantities from Mr. Cooper, chemist, Oxford street, W. Messrs. Brooks, Simpson and Spiller, Broad street, E.C., also keep several of them.

Murexide, has—so far as I have been able to find—not yet been used in microscopy. It is given up by the dyers in favour of rosanilin, and is consequently not in demand, and therefore not easily procured. It is a brownish red powder, and very slightly soluble in cold water, not soluble in spirit, but readily soluble in boiling water. On cooling and filtering, the sections are immersed for five or ten minutes, when it will be found to furnish a good ground stain for double dyeing. With acetate of zinc, murexide gives a yellow stain.

Maroon, phosphine, cerise, and mauve, are all useful and unused colours; phosphine yielding a good ground stain of a rich golden yellow, and may be used with advantage in double staining. The rest resemble most of the other anilines in picking out the nuclei, but they also stain the other structures. Dilute aqueous or alcoholic solutions, stain rapidly, and may be fixed by one of the processes presently to be described, though phosphine holds very well of itself.