its point to the depth of about 1 millimeter into a metallic cube full of powdered gas coke, and fixed upon the horizontal plate, which, forming the foot of the apparatus, supports the stem of the frame fitted with the diaphragm. One of the poles of the battery (a Leclanché of four elements) is connected with the metallic cone, and the other with the cube containing the coke dust. The slightest vibrations imparted to the membrane by sound waves suffice to modify the pressure of the cone in the coke dust, thus determining variations in the intensity of the current.

THE RINGS OF SATURN.

THE most wonderful body belonging to our planetary system is undoubtedly Saturn with its rings and satellites. During the last two years Saturn has passed through a period of its journey around the sun, during which it presented itself to us in its most interesting positions. The rings were repeatedly nearly hidden from view, and, as this takes place only every fifteen years, the planet was watched with attention by astronomers at all suitable points.

The following, containing a partial description of the different phases as observed at Paris by Camille Flammarion, we take from *L'Illustration* (No. 1860, October, 1878):

The rings of Saturn have now for some time been exposed to our view, and, by means of a telescope of moderate power, we can now gradually see them disappear again.

When we examine this planet for the first time through an astronomical telescope, we are struck with astonishment and can hardly believe our eyes. Of all the observations I made when beginning to study astronomy, three will never pass from my memory; they are those of the rings of Saturn, of the moon, and of the triple star (orange, green, and blue) of Andromeda.

FIG. 1.—CHANGES IN THE ASPECT OF THE RINGS OF SATURN AS SEEN FROM THE EARTH.

Truly Saturn presents a unique appearance. The globe or planet proper is at a certain distance surrounded by a flat round ring. As from our position we only obtain an oblique view of the same, it does not show itself in its true circular form, but as an eclipse, the small diameter of which is of variable length.

As seen from the earth, one part of the ring seems to pass through the planet, while the opposite side seems to pass behind it. Near to where the ring projects itself on the planet its shadow may be observed in form of a dark zone. The planet is itself not a source of light, but receives it, like all others, from the sun.

The ring does not seem to consist of one single piece, but is divided into two concentric parts, the separating line being apparently situated nearer to the outer than the inner edge; it is probable, that there are a greater number of rings, as very powerful instruments have shown indications of further subdivisions. One part of the ring is also more luminous than the other, while the latter is a little more transparent.

This is the only instance known of a celestial body with partially plane surface, and this is not less than 71,000 miles (French) in diameter and 11,800 Fr. miles in width, but is only from 60 to 78 kilometers thick. Both sides are flat and alternately exposed to view, just according to the different positions in which Saturn and earth are placed to each other in course of their journeys. Probably these rings consist of an enormous number of distinct particles, traveling around the planet at different rates of velocity, according to their respective distances from the same.

FIG. 2.—ACTUAL VIEW OF SATURN DURING THE OBSERVATIONS OF M. FLAMMARION IN SEPTEMBER, 1878.

According to my calculations, the particles forming the more transparent part of the ring must revolve around the planet in from five hours and fifty minutes to seven hours and eleven minutes, according to their distance from the common center of gravity, the zone, being nearest, traveling fastest; the particles forming the luminous part of the ring must revolve in from seven hours and eleven minutes to eleven hours and nine minutes. A point on the extreme outer edge would consume twelve hours and five minutes in accomplishing one revolution around the central globe. The interior edge moves at a velocity of 425 French miles per minute, or 25,500 miles per hour. The eight satellites accompanying Saturn at a greater distance may, however, produce deviations from the results as thus calculated. To their influence perturbations may be ascribed, causing the

present unstable equilibrium, to which the preservation of the rings in their present form is probably due. It seems as if shocks, collisions, and other causes would continually endanger the existence of this strange structure, if it relied not to some extent on an exterior support. Let me here remark, that one of the most curious properties of Saturn is his lightness. Imagine a globe 864 times as large as the earth, but weighing only 92 times as much! The density of its constituents is seven times lower than the material composing our globe. Saturn would float on an ocean like a huge cork, and its inhabitants must be ethereal beings, swimming about in its atmosphere.

From time to time the ring disappears from our view in consequence of the compound movement of earth and Saturn, as may be easily explained. Supposing our position to be on a straight line, forming a continuation of the axis of rotation of Saturn, or, which is the same, as being directly overhead of one of its poles, we would see the ring in its true circular form. Supposing, on the contrary, ourselves placed in a plane laid through the equator of Saturn, we would see the ring only as a line crossing Saturn and protruding over its disk on both sides. Between these two extreme positions the ring presents itself in a more or less oval form, just according as we view it more or less obliquely. We never, however, come near enough to the direction of the axis of Saturn to see the ring show a short diameter of over half of the longer one.

Fig. 1 shows the rings as seen by the terrestrial observer according to the different positions of our globe. It will be seen that, at two points diametrically opposed to each other, only the edge of the ring is visible, and owing to the thinness of the ring, noticeable only by the most powerful instruments, as a fine, white, straight line.

This was the case, for the first time since 1862, in June, 1877, when the rings disappeared nearly altogether on account of the peculiar constellation of both planets, and again shortly afterward on account of being partially eclipsed. The following table shows the variation of length of the small diameter of the ovals formed by the ring since January, 1877:

		Seconds.
January 10, 1877	.....	4.74
February 19, "	.....	3.22
March 11, "	.....	2.63
April 20, "	.....	1.41
May 10, "	.....	0.94
June 19, "	.....	0.45
July 9, "	.....	0.50
August 1, "	.....	0.89
September 7, "	.....	1.73
October 17, "	.....	2.58
November 6, "	.....	2.81
December 16, "	.....	2.34
January 5, 1878	.....	1.83
February 14, "	.....	0.54
March 6, "	.....	0.17
" 26, "	.....	0.88
April 14, "	.....	1.57
May 5, "	.....	2.20
June 14, "	.....	3.19
July 5, "	.....	3.52
August 13, "	.....	3.35
September 2, "	.....	2.96
" 22, "	.....	2.44
October 12, "	.....	1.87

These numbers show how the length of the small diameter of the perspective view of the rings balances between certain limits. In June, 1877, the ring disappeared; subsequently the earth rose to some distance above the equatorial plane of Saturn, so that one side of the rings became visible again, reaching their maximum diameter in November. In March, 1878, we last saw the northern face of the ring, which had been visible since 1862, and the rings disappeared for a second time. At present, the 12th of October, we see the southern face to a limited extent yet; on the 24th of July, the earth was elevated 4°52' above the southern surface of the rings; since then it has steadily approached again the equatorial plane of Saturn, being to-day at an elevation of 2°29' above the same. This elevation will continue to decrease till the rings disappear for a third time. After that we will see their small diameter increase again, passing from the position indicated on the right, of 1878 (Fig. 1), to that on the left, exposing their southern surface to our view till 1885. In that year the small diameter will again be at its maximum, as in 1855, the position of the rings to us being symmetrical to that of 1869. Fig. 2 presents the actual appearance of Saturn during the month of September last.

The ambition of Saturn was not contented with the annular system we just admired. As stated above, it is supplied with a body guard of satellites, which, as far as our knowledge goes, has not its equal within the solar system. Eight moons accompany Saturn on its journey through the universe, representing an empire of millions of miles in area.

Hesiod thought he expressed sufficiently the dimensions of the universe when he said that the anvil of Vulcan was under way nine days and nine minutes to fall from heaven to earth, and just as long to fall from earth to hell. The distance indicated by this fall, although greater than the lunar orbit, would not equal that of the Saturnian system. The precise measures of astronomy are incomparably more poetical than the fictions of poets of the boldest imagination. The system of Saturn, so distant from us that the head of a pin held at arm's length is sufficiently large to hide it from our view, is not unlike a solar system on a small scale; we must say comparatively on a small scale, as the minute disk of the smallest satellite, as seen by us with the most powerful telescope, represents an area of millions of miles. There is nothing absolutely large or absolutely small in creation, and, worthy of our attention as this system is, it constitutes for its inhabitants really a universe for itself.

What are, finally, the conditions under which this republic of celestial bodies could be inhabitable? What similarities and what differences does it present compared with the earth? In what form could organic life exist on that star and its accessories?

The inhabitants of such a body must certainly differ widely from terrestrial beings. The light specific gravity of Saturn and the density of the atmosphere would necessarily imply a development of vital organization in unimaginable forms. To suppose, as it is probable, that there be nothing solid, that the planet itself were not a solid but a liquid body, that the living beings were of a soft, gelatinous material, would extend beyond the limits of scientific reasoning.

Nevertheless, there are more reasons speaking in favor of such a theory regarding Saturn than in reference to any other body belonging to our solar system. Its conditions of

gravity are not only peculiar in general, but they vary even between one and the other latitude.

If we could penetrate into all of Nature's mysteries, we might perhaps find that the Saturnians have transparent bodies, through which the circulation of life might be observed; that they never feel the weight of matter; that they fly without wings in midst of a nutritious atmosphere; that they do not, like us, depend on a coarse, crude alimentation and its ridiculous consequences; that they are gifted with a nervous system incomparably more sensitive than ours, by which, so to speak, science is infused into them, while they study in a state of perpetual happiness the mysteries of creation, and live in an angelic state a life thirty times longer than ours.

No matter to what extent and by what forms of life Saturn may be inhabited, we need not doubt that nature has succeeded in utilizing all given conditions in a similar manner to, as it has done it with, our moderate terrestrial facilities.

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PEROXIDE OF HYDROGEN IN THE BLOOD.

AN ATTEMPT TO EXPLAIN THE CURATIVE ACTION OF CERTAIN REMEDIES IN GENERAL USE.

By JOHN DAY, M.D.*

ALTHOUGH medicine has not yet attained the rank of an exact science, we are, fortunately, often enabled to call to our aid chemistry and other exact sciences for the purpose of demonstrating the correctness of our views regarding the nature and treatment of disease; and I shall endeavor this evening, by a few simple and easily repeated experiments, to show you that an approach, at least, toward a scientific explanation, may be offered for the use of a rather large number of our most favorite remedies. I have selected for this purpose the following well-known therapeutical agents, viz.: Cod-liver oil and other fixed oils and fats, oils of turpentine and other essential oils, common resin, the resin of guaiacum, myrrh, and ether. We have now before us a fair array of medicines in general use, and it will be my aim to show you that, although most of them differ widely in their general characteristics, they all possess one property in common, viz., the power of absorbing atmospheric oxygen and converting it into peroxide of hydrogen—a substance possessed of many curious and interesting properties, some of which are at present but little understood. It is composed of two atoms of hydrogen and two atoms of oxygen, hence its symbol is H_2O_2 , and its combining weight 34. This compound is remarkable for the ease with which it parts with its second atom of oxygen, which is held in very loose combination; and also for the readiness with which, under certain conditions, it is resolvable into water and oxygen. Now, this decomposition may be effected in a variety of ways, but the rapidity with which it occurs when peroxide of hydrogen is brought into contact with the coloring matter of blood, with fibrin, or with pus, is a property which renders this substance highly interesting in a physiological point of view.

It is now generally believed that oxygen, as it exists in the blood, is in a more active state than ordinary atmospheric oxygen. Carpenter says: "As regards the oxygen contained in the blood, there is every reason to believe that it is chemically combined with the hæmoglobin of the red corpuscles in which it exists in the active or ozonized condition." Schönbein was the first to clearly show that oxygen is capable of existing in two different states of activity, each state having its own special affinities; and he supposed that ordinary oxygen was a perfectly neutral gas, and incapable of producing any oxidations until it had been chemically polarized and split up into ozone and antiozone. He considered that the oxygen absorbed during respiration was thus acted on by the coloring matter of the blood; and the views I am about to submit for your consideration are to some extent a modification of those entertained by him. Instead, however, of believing, as Schönbein did, that the first change which occurs in the inspired oxygen is produced by the coloring matter of the blood, I hold that the first change is produced by the fat, which exists in the blood in considerable quantities, more particularly in the corpuscles; and I assume that this fat, which is in a state of extensively fine subdivision, is incessantly engaged in acting on the inspired oxygen contained in the red corpuscles, and converting it into peroxide of hydrogen—a substance which is instantly transformed by the coloring matter of the blood into water and oxygen—a gas which at the moment of its liberation is possessed of many of the characteristics of ozone, and is known to chemists as nascent oxygen; and I am inclined to believe that it is oxygen in this state, although perhaps not always liberated from peroxide of hydrogen, which gives rise to all the different oxidations that occur within the animal body during life.

INTERESTING CHEMICAL EXPERIMENTS.

I will endeavor to demonstrate the correctness of this theory by a chemical experiment. Oxygen in a nascent state, like ozone, is capable of oxidizing and turning blue the resin of guaiacum, but neither the oxygen contained in peroxide of hydrogen nor atmospheric oxygen is capable of effecting this change. Now, here is some human fat, which, like all animal fats that have been deprived of blood and freely exposed to the air, contains spontaneously generated peroxide of hydrogen. I will first place a little of it on a piece of white blotting paper, and then pour over it some alcoholic solution of guaiacum—a process which will not, you will find, be followed by any change of color in the guaiacum, the oxygen of peroxide of hydrogen being incapable of oxidizing and turning it blue; but, on the addition of a small quantity of the coloring matter of blood, you will perceive that a bright blue reaction will quickly ensue, thus showing that oxidation of the guaiacum has occurred.

FATS, OILS, AND OTHER SUBSTANCES THAT PRODUCE PEROXIDE OF HYDROGEN.

This result has been brought about by the coloring matter of the blood having transformed the peroxide of hydrogen contained in the fat into water and nascent oxygen. To make this illustration complete, I must now show you that the coloring matter of blood alone is incapable of oxidizing and turning blue the resin of guaiacum.

In stating to you just now that all animal fats which have been deprived of blood and exposed to the air contain peroxide of hydrogen, I did not intend to imply that fats containing blood were incapable of generating peroxide of hydrogen, but simply that, so long as any of the coloring matter of blood remained within them, the peroxide of hydrogen would be decomposed as rapidly as it was generated.

* A paper read before the Medical Society of Victoria, December 5th, 1877.

I cannot, of course, show you that fat, as it exists in the living body, is capable of converting the inspired oxygen into peroxide of hydrogen; nor can I show you that, during life, the fibrin and the coloring matter of the blood are capable of decomposing peroxide of hydrogen and resolving it into water and oxygen; but I can clearly show you that animal fats, out of the body, possess the property of generating peroxide of hydrogen, and of concentrating and storing it up, until they are brought into contact with blood, pus, or other substances which are capable of reducing it and liberating its oxygen.

I have already shown you that spontaneously generated peroxide of hydrogen exists in human fats, and I will now, by means of the same test, which is perfectly reliable, offer you proof of its existence in the fats of mutton and beef, in lard, butter, and cod-liver oil. You will find them all capable of oxidizing guaiacum resin in the presence of blood. I will then proceed to show that the same principle exists in almond, olive, and linseed oils; in the essential oils of turpentine, juniper, lavender, peppermint, and caraway; in common resin, the resin of guaiacum, myrrh, and ether.

It has been stated by Professor Roscoe and other modern writers on chemistry that peroxide of hydrogen does not occur in nature, and I may here venture to state that I claim to have been the first to show the presence of this physiologically interesting principle, not only in fats and oils, but also in a very large number of substances, many of which rank among our most valuable remedial and prophylactic agents.

The importance of fat in the animal economy is now more clearly recognized than it formerly was. Dr. Sydney Ringer, in his well-known work on Therapeutics, says: "Fats are necessary foods to the animal body, being both heat-giving, force-supplying, and plastic. Their combustion contributes mainly to the generation of the heat of the body."

Having demonstrated to you the fact that, apart from the conditions of life, all fats and fixed oils possess the property of absorbing atmospheric oxygen and converting it into peroxide of hydrogen—a substance which, as I have said before, is resolved into water and nascent oxygen when brought into contact with the coloring matter of blood, I will now assume that fats in the living body obey the same chemical laws as they do out of the body, and that the oxygen which has been absorbed by the red corpuscles of the blood during respiration is converted by the fat which is always present in the blood, although in varying proportions, into peroxide of hydrogen; and that the peroxide of hydrogen thus formed is resolved by the coloring matter of the blood into water and nascent oxygen.

EFFECTS OF IRON IN THE BLOOD.

I think it possible that the iron in the coloring matter of the blood may be the principle which decomposes the peroxide of hydrogen and liberates its oxygen, and I will show you an experiment which rather favors this view. The experiment I am about to perform will be almost a repetition of our first experiment, in which I showed you that the oxygen of peroxide of hydrogen, as contained in the human fat, could not, by itself, oxidize the resin of guaiacum; but that on the addition of a mere trace of a watery solution of the coloring matter of blood it did so readily. On this occasion the only difference I shall make will be to substitute a watery solution of perfectly pure protosulphate of iron for the solution of the coloring matter of the blood, and we shall find that the guaiacum resin will be oxidized and turned blue, just as it was by the coloring matter of blood. Protosulphate of iron which has become, even in the slightest degree, oxidized, is unfit for this experiment, as it would then contain ozonic oxygen, and would oxidize guaiacum resin and turn it blue without the intervention of peroxide of hydrogen.

When this peculiar, but at present barely recognized property of fats and fixed oils, becomes more generally known, it may lead to a modification of our present views regarding the functions of fat in the animal economy; and also, perhaps, to a clearer knowledge of the therapeutic influence of fats and oils. Cod-liver oil, by common consent, takes the highest place as a remedial agent among the fats. The ease with which it is digested may, perhaps, be its chief recommendation, for we often find that those who have derived the greatest benefit from its use have been unable to digest other fats. Its therapeutic value is universally recognized in the treatment of phthisis, scrofula, and other diseases in which the functions of oxidation and nutrition are imperfectly performed; and I am disposed to attribute some of its curative properties to the power it possesses of readily carrying peroxide of hydrogen into the circulation, and of thus, by supplying nascent oxygen to the blood, promoting the oxidation and removal of effete tissue, and possibly also of strumous and tubercular matter.

SUBSTANCES WHICH GENERATE PEROXIDE OF HYDROGEN IN THE BLOOD.

To this property of spontaneously generating peroxide of hydrogen, coupled with a power of readily entering the blood when administered internally, may, I think, be ascribed the beneficial action of many other therapeutic agents, some of which experience has shown to be of value in the treatment of diabetes, gravel, rheumatism, and gout, all of which rank among the diseases of sub-oxidation.

Many years ago the use of what was called ozonized cod-liver oil was highly recommended by Dr. Symes Thompson and his father. In twenty cases in which it was administered by the latter gentleman the pulse was reduced more than twenty beats in a minute in eleven, and to a less extent in seven of the remainder. Now, this so-called ozonized oil was nothing more than cod-liver oil which had become highly charged with peroxide of hydrogen in consequence of long exposure to the direct rays of the sun. I may observe that the combined influence of warmth and light greatly expedites the formation of peroxide of hydrogen.

During the last few years Dr. Balthazar Foster, of Birmingham, has strongly advocated the use of etherized cod-liver oil in the treatment of phthisis. Now, here again we have cod-liver oil containing a larger proportion of peroxide of hydrogen than it ordinarily contains, and this is due to its admixture with ether, a substance which possesses a much higher power of generating peroxide of hydrogen than is possessed by oils.

Myrrh is a substance which, in common with the majority of hydrocarbons and oxyhydrocarbons, possesses the property of absorbing atmospheric oxygen and converting it into peroxide of hydrogen; and this property, coupled with the decomposition and liberation of nascent oxygen, which takes place when peroxide of hydrogen is brought into contact with either blood or pus, affords, I think, a tolerably rational explanation of the beneficial action of tincture of myrrh in the treatment of bleeding and spongy gums, and of certain forms of sore throat. It is worthy of remark that pus liberates the oxygen from peroxide of hydrogen much more rapidly than

it is liberated by blood. The purifying and stimulating action of common resin, when applied to bleeding or suppurating surfaces, admits of a similar explanation.

Guaiacum resin, once a famous remedy for chronic rheumatism, is still recommended by Dr. Garrod and some other practitioners of eminence in the treatment of this disease. It is, however, rather uncertain in its action, and this may possibly be due to the fact that while some specimens of the resin will generate peroxide of hydrogen pretty readily, other specimens seem quite incapable of generating it, even under the most favorable circumstances for its production. I need hardly say that, for experimental purposes, the alcoholic solution of guaiacum should always be freshly prepared from pure and unoxidized resin.

Oil of turpentine is the last remedial agent to which I shall refer. It possesses in a higher degree the power of generating peroxide of hydrogen than any other substance with which I am acquainted, and this property may account, in some measure, for its great value in the treatment of typhoid fever and other diseases in which free oxygenation of the blood would seem to be desirable.

In conclusion, I would wish it to be clearly understood that I do not for a moment entertain the absurd idea that the property of imparting active oxygen to the blood is the sole virtue possessed by any of the substances I have brought under your notice; but, at the same time, I cannot help thinking that those substances which, from a chemical point of view, may be supposed capable of aiding nature in oxidizing and carrying off the effete materials of the body are deserving of a high rank among our remedial agents.

DIARRHEA IN CHILDREN.

A NOT altogether new, but good and simple, plan of treating infantile diarrhea is recommended by Dr. Black in a late number of the *Journal de Thérapeutique*.

Whatever be the nature of the diarrhea, its origin, its intensity, or the time elapsed since its inception, the treatment which the author proposes, modified according to the cases, and which has constantly been successful in his hands, is as follows:

1st. Diminution of the nourishment; appropriate injections repeated as required; and the application of poultices to the belly.

2d. Administer each morning, for three, four, or five days in succession, a small teaspoonful of a mixture of equal parts of castor oil and sirup of acacia, simply emulsified by shaking the bottle at the time of giving the medicine.

In order that this medication may produce a curative effect it is necessary to give the mixture in very small doses, and to repeat its employment for several days in succession. Three or four days' running is generally sufficient to modify the nature of the stools and to diminish their number. If after two days' treatment the diarrhea is moderated without disappearing, it should be suspended for a day, and then the same dose should be resumed, but after a day's interval.

THE TREATMENT OF ULCERS WITH A SATURATED SOLUTION OF CHLORATE OF POTASSIUM.

By T. M. ROCHESTER, M.D.

I WISH to call attention to the treatment of ulcers, ulcerations, and suppurating wounds and sores in general, by the use of a saturated solution of chlorate of potassium. I have said suppurating sores in general, and so it will be found beneficial in all of these, but it is especially useful in that particular class of old, unhealthy, indolent ulcers which are one of the opprobria of our art. Let me describe briefly my plan of treatment in one of these cases.

Suppose, for example, a patient comes with an old, indolent ulcer on the leg, which is the most frequent situation. The sore is foul, unhealthy in appearance, and ill-smelling. The limb is usually much swollen, granulation is at a standstill, the ulcer may even be phagedenic, and the discharge is thin, sanious, and offensive. As a rule, the patient has the sore covered with some salve or ointment, and the limb is either bandaged tightly or strapped with adhesive plaster.

In a case of this kind I immediately remove all bandages and constrictions, and direct that they shall not be again applied. The ulcer is then carefully and gently washed with warm water, after which it is ordered to be gently douched five or six times a day with a saturated solution of chlorate of potassium. My usual prescription is: Take of pot. chloratis, 2 drachms; aquæ puræ, one pint. The best method of doing this is to fill a sponge with the solution, and then slowly press it out, holding it within an inch or two of the sore.

After the ulcer has been quite freely douched, a thin layer of the unguentum zinci oxidi should be spread around the edges. It is then to be completely covered with a piece of oiled lint, kept in place by a bandage applied as loosely as possible. The douching should be repeated at first five or six times daily; the zinc ointment need not be used more than twice in the twenty-four hours. At the end of two or three days the ulcer will begin to assume a healthy appearance, and commence to granulate nicely. When this improvement is noticed, the number of douchings should be decreased, otherwise the granulations will become pale and flabby. As the sore fills up and begins to heal over around the edges, the zinc ointment should be increased, so as to cover the new skin. This serves to protect and strengthen it. So, too, it is well to continue its use for a few days after the ulcer has completely skinned over.

Such, in brief, is my mode of dealing with these cases, and it is with the keenest satisfaction that I have watched case after case of unhealthy, indolent, varicose, or specific ulcerations, which have defied one treatment after another, and worn out the patience of physician and patient alike, take on a healthy appearance after two or three days of this treatment, and thence proceed rapidly to a complete recovery. During the past fifteen months I have seen and treated by this plan between ninety and one hundred cases, and in no single instance have failed to see immediate and continued improvement, and, when they could be kept track of, complete healing in from one to six weeks.

This number of cases embraces not only the ordinary indolent ulcers, but also syphilitic, varicose, and one case which I believe was carcinomatous in its character.

Several of my cases had scraping and skin grafting tried in vain. Where they were syphilitic, constitutional treatment had been and was used alone without effect, but rapid healing immediately took place when the douching with the saturated solution of chlorate of potassium was combined with it.

There is another point that is worth mentioning, and that is, that this douching is entirely painless after a few applications. It may smart a little the first or second time, but

even then it is so slight as not to be taken into consideration. Now to mention a few cases, as it would only be tedious to give them all. The following are fair samples of the whole, as they are taken entirely at random and not selected at all, with the exception of the first, which is a very marked example of the efficacy of this treatment:

CASE.—C. K., male, aged 29, was sent to the hospital to have the leg amputated at the middle third of the thigh, as a last resort. Had an ulcer three inches by one and a half on the external lateral aspect of the leg. The limb was swollen to twice the natural size, and gangrenous in appearance as far as the lower third of the thigh. The discharge from the ulcer was thin, sanious, and very fetid. There was no history of syphilis, either congenital or acquired. Had been getting gradually worse for over a year, although he had tried almost everything, and seen a number of physicians in regard to it. He walked with great pain and difficulty. The solution of chlorate of potassium was used, and by the third day a decided improvement was noticed. The swelling of the leg had decreased, and the ulcer began to granulate nicely. At this time he had an attack of delirium tremens, which lasted four or five days, but notwithstanding this shock to the nervous system, the leg continued to improve visibly from day to day. At the end of four weeks the limb was of the normal size and appearance, the ulcer healthy, and about as large as a three cent piece. The patient could walk without any inconvenience, and insisted on leaving the hospital to fill the position of organist in a Catholic church, although strongly advised not to. He returned after a week or two with the leg slightly swollen, and the ulcer about the size of a silver quarter. The treatment was resumed, and he was discharged cured in ten days.

CASE.—A. G., female, aged 30. Syphilitic. Large deep ulcer on the posterior aspect of leg. Discharge excessively foul and unhealthy. Had tried specific treatment alone in vain. Leg healed nicely in about five weeks under the combined use of constitutional and the chlorate of potassium treatment.

CASE.—M. W., female, aged 65. Syphilitic. An extremely large and deep ulcer, covering nearly the whole of the posterior and external lateral aspects of the leg. Discharge excessively fetid. Rapid and continued improvement for several weeks under the combined constitutional and chlorate of potassium treatment. Lost sight of before complete healing took place.

CASE.—J. H., male, aged 66. Several small but troublesome ulcers along the crest of the tibia. Had been troubled for months. Probably due to a previous injury of the knee-joint. Healed completely in ten days by this treatment.

CASE.—P. M., male, aged 38. Varicose ulcer of leg. Had been troubled for over a year. Healed completely in one week.

CASE.—O. H., male, aged 46. Small indolent ulcer of the leg of many months' standing. Healed in one week.

CASE.—C. K., female, aged 40. Large indolent ulcer of the leg of over a year's standing. Rapid and continued improvement for two weeks. Was then lost sight of.

CASE.—P. N., male, aged 38. Troubled with a large varicose ulcer for several years. Healed completely in three weeks.

CASE.—S. T., female, aged 10. Simple but unhealthy-looking ulcer of several weeks' duration. Healed in one week.

CASE.—M. C., female, aged 40. Varicose ulcer of several years' standing. Healed in four weeks.

CASE.—F. F., male, aged 19. Two large, ragged, deep, and unhealthy-looking sores on the right leg, and a similar one on the left. Discharge excessively fetid. Looked as though gangrene had set in. Healed completely in three weeks.

CASE.—M. M., female, aged 40. Large indolent ulcer of the leg of several years' standing. Healed in five weeks.

CASE.—L. C., male, aged 41. Troubled for years with an indolent ulcer of the leg. Had tried almost everything—among other means, skin grafting—but without benefit. Healed in two weeks.

And so I might go on and enumerate case after case, but I think the above are sufficient to prove the efficacy of this plan of treatment. I wish, however, to quote one case, as showing the advantage in the use of the saturated solution of chlorate of potassium in recent injuries when the suppuration is profuse.

CASE.—H. B., male, aged 28, of fine muscular development. Received a penetrating lacerated wound of the arm, which severed the brachial artery. The hemorrhage was controlled by acupressure both above and below the wound. On the removal of the needles a large slough came away, and the suppuration was excessive and very exhausting. The solution of chlorate of potassium was used, the excessive flow of pus was checked, the fetor arising from it allayed, and the patient rapidly convalesced.

One word as regards the mode of operation of chlorate of potash thus used. I do not know that I am right, but my theory is as follows:

1st. Its astringent properties cause it to repress exuberant granulations, or to stimulate their growth when they are absent or ill-formed.

2d. As an antiphlogistic it moderates the inflammatory action.

3d. And this I regard as the most important: as an antiseptic it destroys and prevents the growth of bacteria.

This threefold action I believe meets all the indications for the local treatment of this troublesome class of afflictions. In conclusion, let me say that this use of chlorate of potassium is not my own discovery, but was suggested to me while *interne* at the Monroe Co. Hospital by the attending physician, Dr. Azel Backus, of Rochester, who has used this treatment successfully in his practice for years.—*Proceedings Med. Soc. Kings Co.*

NEW METHOD OF DETECTING ARSENIC.—The substance in question is mixed with a little water, or its solution is poured into a small beaker, and a piece of sodium amalgam as large as a grain of wheat is introduced. The beaker is then covered as rapidly as possible with a piece of white filter paper or a porcelain lid, previously moistened with a weak feebly acid solution of silver nitrate. The presence of arsenic is indicated by a blackening of the paper or of the porcelain. As antimony hydride is not given off—or in mere traces—from strongly alkaline liquids, the solution should be rendered distinctly alkaline. In this manner the confusion of antimony and arsenic is rendered improbable, though not quite excluded. Organic matter does not interfere.—*Archiv Pharm., American Journal of Pharmacy.*

THE *Chemiker Zeitung* reports that the Wessenberg Chicory Works of Berlin were burnt to the ground on the 4th Sept. May every other chicory works follow suit!