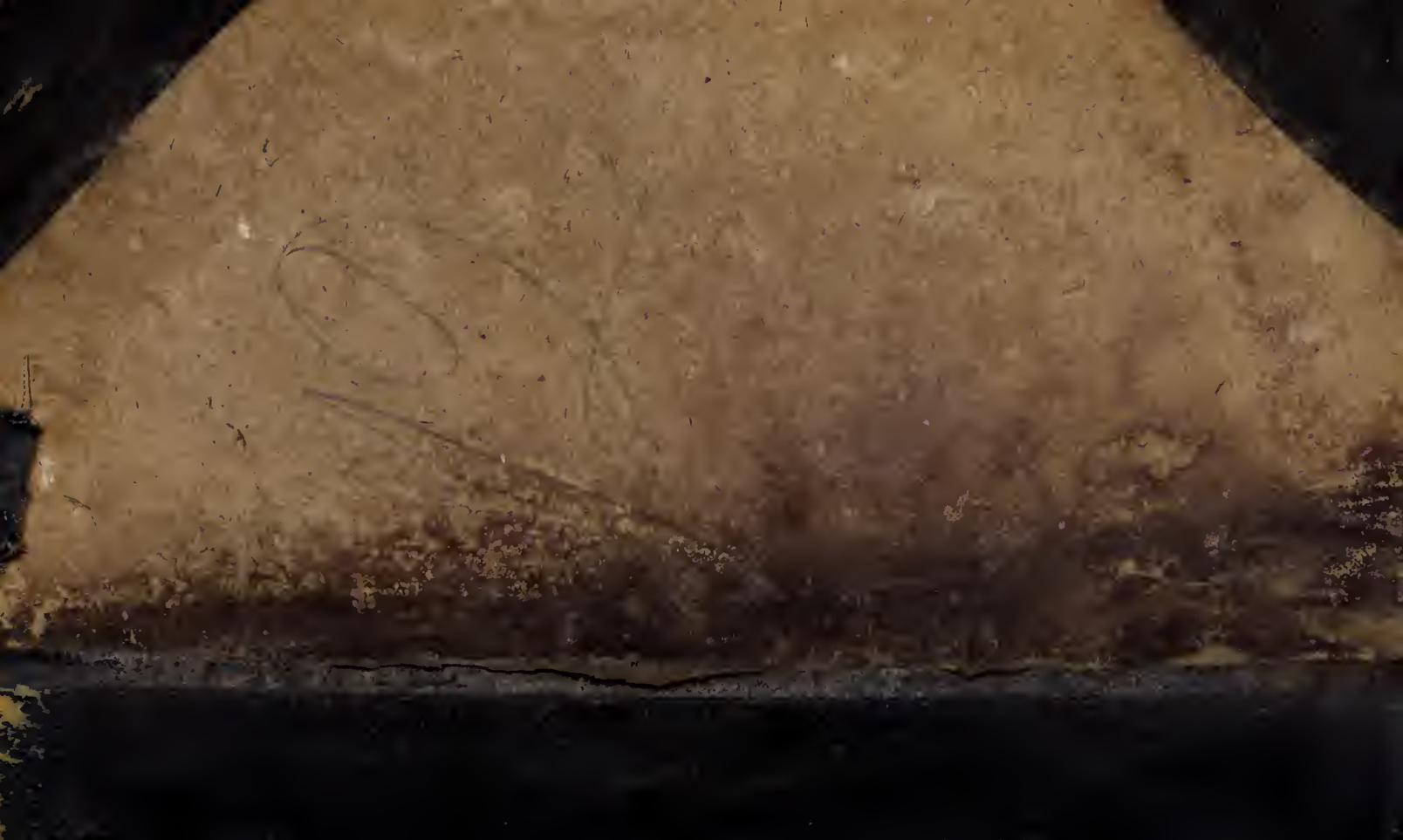


THE

NEW YORK

MEDICAL JOURNAL.

EDITOR:

EDWARD S. DUNSTER, M. D.

VOLUME XII.

NEW YORK:
D APPLETON AND COMPANY,
90, 92 & 94 GRAND STREET.
1870.

INDEX.

NEW YORK

MEDICAL JOURNAL.

A MONTHLY RECORD OF

MEDICINE AND THE COLLATERAL SCIENCES.

VOL. XII.] AUGUST, 1870. [No. 1.

Original Communications.

ART. I.—*Physiological Action of Nitrous Oxide, as shown by Experiments on Man and Lower Animals.*[1] By R. AMORY, M. D., Longwood, Brookline, Mass.

ANÆSTHESIA.

The term Anæsthesia, strictly speaking, means the absence of all sensation.

This state may be general or local, and may arise from cessation of the functional activity of any part of the nervous apparatus, concerned in the reception of sensory impressions; and this may be owing to causes acting upon the periphery of the sensitive nerves, or on the centres which originate the sensation, or by an interruption of the chain of communication between these extremes.

Now, it is evident that the peripheral extremities may cease their activity from three reasons, viz.:

1. Paralysis or temporary death of the nerve-substance;
2. Deprivation of the vitalizing power of the blood;
3. Or from both of these causes.

[1] Read before the Boston Society for the Promotion of the Sciences connected with Medicine. April 5, 1870.

The first of these causes may be brought about by the local contact of some drug which interferes with the vitality of the nerve. Such a drug Dr. Richardson supposes ether.

The second cause is often seen in persons, in a limb in which the circulation of blood has been prevented, accidentally or from disease. Such, for instance, when the tourniquet has been applied for some time for the benefit of an aneurism, or when the artery has been occluded by embolism.

Anæsthesia may be, also, caused by a stagnation[1] in the capillary circulation.

Cold, or refrigeration, may cause anæsthesia by producing stagnation of the blood in the small vessels, or by depriving the capillaries of blood. This is the explanation of muscular stiffness, caused by bathing in very cold water; on the contrary, when there are increased capillary circulation and enlargement of the blood-vessels, we obtain "pain, heat, redness, and swelling" of the so-called inflammation. I think it not at all improbable that reflex paralysis, caused by exposure to cold, is due to a partial obstruction to capillary circulation; and death by exposure to extreme cold causes loss of sensation, sleep, coma, and death.

Ligature, or severance of a nerve of sensation, destroys its function below the point of contact. Yet the lower portion will conduct a stimulus to the muscular tissue, and sensation, if the recurrent sensory fibres are intact. It is easy to understand that a tumor may so press upon a nerve as to prevent that nerve from conveying nervous impressions.

Cl. Bernard[2] has shown in some lectures, delivered a year ago, on the Physiological Action of Chloroform, that though a nerve appears to die from periphery to its centre, yet that the death occurs in the nervous centres, and from the trunk extends to the periphery. This he attempted to prove by preventing one portion of the body of frogs from communication except by lumbar nerves, and by tying the aorta high up, leaving the communication of the lower and upper half of the body merely by the nerves. Then the immersion of the lower or the upper half in chloroform and water ($\frac{1}{100}$) showed that

[1] *Vide* Todd's Cyclopædia of Anat. and Physiology. Anæsthesia.

[2] Gazette Hebdomadaire, 1869, p. 167 et seq.

the nervous centres had lost their functions, when the trunks could respond to a stimulus, while subsequently the peripheral branches would respond when the trunks could not perform their duties.

Bromide of potassium causes, by its influence upon the vaso-motor nerves, a diminution in the size of the capillaries, thus depriving the tissue of its proper supply of blood. In this way sensation is somewhat diminished, and as this occurs as well in the nervous centres, their functions are impaired to so great a degree as to cause sleep.[1] For a further proof that this is the effect of this drug, I would refer those interested to a paper[2] containing some experiments on this subject by myself a short time ago. It can easily be understood why this diminution of calibre in the capillary vessels may retard the circulation, so as to impair reflex action and sensibility.

I have not the space sufficient to a further examination into the conditions of the capillary system requisite to produce anæsthesia. I am now engaged in investigating these causes of anæsthesia, and in hopes of obtaining more positive knowledge with regard to them. I simply will call attention to the fact that this point of investigation has been rather neglected by experimenters.

Analgesia is a name given by M. Beau to the effect of insensibility to pain, which may exist without anæsthesia. This may be caused in the state of imperfect etherization or of chloroformization, without the loss of tactile sensation. This author considers that in Saturnine poisoning there is this insensibility to pain and also to tickling. In other words, the lead has so poisoned the nervous system that this will not convey sensory impressions.

We will pass to the consideration of the reflex properties of the nervous system, which is entirely different from muscular contraction and from pain. We may have analgesia, and yet preservation of reflex power. We may have muscular con-

[1] It is to be remembered, however, that wakefulness caused by continued anæmia of the brain would not be benefited by this drug; in fact, the wakefulness would be increased.

[2] Bromide of potassium and of ammonium. Publications of the Mass. Medical Society for 1869.

tractions without necessarily reflex action. Simply stated, it is this:

When an irritation is applied to the periphery of the nervous system in a healthy body, the member irritated will be withdrawn. Sulphate of morphia will deprive an animal of *conscious* sensibility. If the foot be then tickled or pinched, the animal withdraws this member.

When a nerve is laid bare in a living animal, and a mechanical or electrical stimulus is applied to it, we cannot see any visible change in that nerve, as we do in an irritated muscular fibre; but, if this nerve is sensory, we obtain evidence of pain in the animal; if it is motory, we obtain muscular contraction in those muscles supplied by this nerve. If, however, we pass a ligature around this nerve, causing a solution of its continuity, we get no effect, by irritation of the nerve, in the muscles supplied by that portion of the nerve beyond the ligature. Now, if we examine the ordinary method of developing nerve force, we find that it originates in the nerve centre, and is conducted outward to the tissues supplied by the nerve branches. This is true of sensory as well as motory nerves. If we stimulate near its origin the optic nerve, flashes of light are seen. If the auditory nerve is stimulated in like manner, sounds are heard. The same is true with those nerves supplying sensation or motion to certain tissues. It is important to a consideration of this subject, that, wherever the stimulus is applied, to centre, middle, or periphery of the same nerve, the same effects are produced. For instance, a person who has suffered amputation of an arm, often complains of sensations in his fingers. If, however, the nerve has lost its vitality in the trunk as well as periphery, these sensations are not preserved. On the other hand, in certain diseases of the nervous trunks or centres, the limbs have no sensation, and the patient feels as if his limb may be wanting. Such an effect has been experienced when the circulation in my arm has been temporarily suspended, either from laying upon it when asleep, *or by pressure upon the nerves.* During the first confused moments of wakefulness, I have had to feel for that arm with the other hand.

Nervous action may be provoked by mental or physical stimulus.

Sensations are generally caused by peripheral irritation, and thence carried to the sensorium.

Sometimes, however, as in hysteria, the sensation may actually arise in the brain without there being any peripheral irritation. This is not merely imagination, but may be real pain in the part referred to by the patient.

A physical stimulus acts upon the motor nerve always through a sensitive nerve. The actions thus produced are called reflex, because they are in appearance reflected by the sensitive to the motor nerve. A good illustration of this is the closure of the glottis when any thing but air touches its sensitive tissue.

It may be in place here to mention the effects of the galvanic current. When an electric current passes along (not across) a nerve, no matter if it be for a distance less than an inch, the whole extent of this nerve is stimulated, as if by an effort of the will. This is the case, whatever be the course of the current, when from the centre to the extremity, or *vice versa*. The nerves are not merely conductors; for, if a drop of ether be placed upon the nerve, the nervous power is temporarily suspended in that nerve below the place of application; but, if strychnia be used, the action is augmented.

HISTORY.[1]

The following synopsis of what has been advanced in favor of this anæsthetic agent is sufficient to show how slight a knowledge we possess in regard to its physiological action.

Prof. Hermann,[2] from his personal experiments, thinks that nitrous oxide produces dyspnœa (unperceived by the patient on account of anæsthesia). He thinks that its use is very dangerous, because asphyxia may be produced. If mixed with oxygen, the anæsthesia as well as the danger is diminished.

Dr. Krishaber agrees with this statement, and states further, that it can only be respired for four minutes; and that its mode of action is capricious, some patients sinking unexpectedly without asphyxia.

[1] A *thorough* investigation in regard to the use of this agent has not been attempted.

[2] Abstract from the Med. Times and Gazette, in the Boston Med. and Surg. Journal, vol. lxxvi., p. 294.

Mr. A. W. Sprague considers it a "reliable anæsthetic and valuable therapeutic." He counsels its use by physicians, and deprecates the use of an impure gas.

Dr. H. J. Bigelow [1] comments on the lividity and muscular rigidity attending the use of this gas, and reports the first surgical operation, the excision of a breast in April, 1848, under complete anæsthesia from sixty quarts, the inspired gas being exhaled by a valve. He thinks the lungs cannot procure sufficient oxygen where the latter, as here, is chemically combined, and that the bulk of this gas will practically prohibit its use except for short operations.

Dr. F. A. Ashford [2] mentions a case of hemiplegia following administration of the gas. The woman had had suppression of the menses. She recovered under the use of the triple phosphates.

Dr. Evans [3] says in a note to the French Academy, that the liquid nitrous oxyde has a stronger effect than the gas, and can be used for inhalation, or for local anæsthesia.

M. Preterre [4] presented through M. Cloquet, to the Academy of Sciences, some results with regard to the action of this gas. One or two moments suffice to produce anæsthesia. There is no nausea or other inconvenience on awaking. M. Dumas spoke of the danger of using impure gas for inhalation, and of the uncertainty of its liquid preparation.

Prof. Hermann,[5] from a note to M. Chevreul, considers that this gas cannot take the place of oxygen for the support of animal life. Unless mixed with oxygen, it is dangerous to life. This inference he drew from experiments upon himself, in which asphyxia was produced.

On the 7th of December, 1869, Dr. Jeannel read a paper [6] before the French Academy of Medicine, on the protoxide of nitrogen as an anæsthetic agent. He reports some personal experiments in a very detailed account, giving his experience at the end of each inspiration. He states that there is no record of a fatal case from the use of this drug, notwithstanding its frequent application. I translate a few of his

[1] Boston Medical and Surgical Journal, N. S., vol. i., p. 17.

[2] American Journal of Medical Sciences.

[3] Gaz. Hebdomadaire, Sept. 14, 1868, p. 584. [4] Ibid., Jan., 1867, p. 10.

[5] Ibid., 1867, p. 103 (Feb. 15). [6] Ibid., 1869, p. 786.

words: "The extreme rapidity with which the peculiar proto-azotized condition (*engourdissement protoazotique*) disappears to allow the proper exercise of the natural functions, the resistance relative to life in animals plunged into an atmosphere of protoxide of nitrogen, as well as the results of M. Limouzin's experiments, authorize the presumption that this gas is an anæsthetic, less dangerous than ether or chloroform. Whatever may be its nature, anæsthesia is an enterprise against the vital functions."

I have not, as yet, been able to find how the peculiar effects of this so-called anæsthetic agent are explained, nor has any one *directly* stated that the action may be explained by an accumulation of carbonic acid in the blood. A direct proof of this supposition it would be a difficult matter to give. An approximate idea I have attempted to show by a few experiments.

METHOD OF PURIFYING THE GAS.[1]

I put some ammonia nitrate (C. P.) in a generating flask, so as to fill it about half full. Into a rubber stopper fitting into the mouth of this flask I fitted a glass tube and a thermometer with a scale running from 54° Fahr. to 600°. I connected this bent glass tube with a wash-bottle containing some crystals of proto-sulphate of iron C. P. (green vitriol). This was then connected with another wash-bottle, containing powdered pumice-stone, saturated with potassa; from these two the gas was passed through two other wash-bottles, containing water, into a gasometer holding about forty-five gallons. The thermometer was never allowed to rise above 400° Fahr. The gas made after this fashion was used in the following experiments.

I could not take one full inspiration of this gas without producing dizziness, and I could not *count* after the sixth inspiration. I shall commence an account of my experiments with this gas with those relating to the elimination of carbonic acid by the lungs. I am led to do so from the fact that my preliminary experiments induced me first to study the phenomena

[1] Gaz. Heb., Dec. 10, 1869, p. 788. Article by M. le Dr. Jeannel, sur le Protoxide de Nitrogen.

connected with respiration, and because it was by so doing that I arrived at a satisfactory explanation of the action of this agent.

DESCRIPTION OF MUZZLE USED IN EXPERIMENTS.

It was after great difficulty that I devised the muzzle used in these experiments. I had made tin or copper funnels, shaped so as to fit conveniently over a dog's nose; then a rubber hood fitting tightly to this muzzle and then passing over and around the head, being securely fastened around the neck. This muzzle had two tubes soldered to it, covering each a rubber valve, one for the inlet and the other for the outlet of the gas. It was absolutely necessary to shut off every particle of atmospheric air, or the experiment would fail.

In those experiments where observations were made upon the cerebral circulation, the rubber covering was made to fit tightly over the nose and under the chin, so as to leave exposed the portion of the skull trephined.

After a careful examination of the phenomena induced by the inhalation of this gas, I was led to believe that they were in most part due to some disturbance of the respiratory functions.

What showed this to my mind most conclusively was the fact, that the approach and departure of unconsciousness were so rapid, and that no general disturbance was permanent after a few inspirations of air. Therefore, supposing these effects might be explained by an accumulation of carbonic acid in the blood, I instituted the following experiments. The results of a larger portion are reported, because I am perfectly aware that the elimination of carbonic acid varies very much in the same animal at different times. Therefore, I have endeavored, so far as practicable, to merely make comparative experiments, at the same time, determining the amount of gas given off in natural and in the unnatural conditions of the body. Even these results must be taken with much reserve, on account of the extreme difficulty in drying the carbonic acid gas before its combination with the potassa or soda. This difficulty was much enhanced by the fact that impeding the expiratory function seemed to cause great embarrassment in the inspiratory function.

Experiment No. I, A.—The muzzle was arranged tightly over a dog's head, and the expired gases conducted through a U-tube containing dry soda-lime.

This tube, empty, weighed	42.000	grms.
Amount of soda used	11.483	"
Actual weight of tube filled with soda	53.483	"
After 100 expirations this tube was disconnected and weight ascertained	54.182	"
Previous weight	53.483	"
Gain in weight	.699	"

The soda was observed to have gathered moisture during the experiment.

B. Now the muzzle was connected by rubber tubing with gasometer containing nitrous-oxide gas. After 30 or 40 inspirations, the dog having shown signs of anæsthesia, the outlet tube was connected with another U-tube containing soda-lime.

Weight of this tube empty	29.708	grms.
Amount of soda used	6.315	"
Actual weight of tube with soda	36.023	"

After 100 expirations (5 galls. of gas) through the apparatus, the tube was disconnected.

Weight of this tube	36.498	grms.
Previous weight	36.023	"
Gain in weight	.475	"
Now 5 galls. of the nitrous-oxide gas was passed through a similar apparatus and the weight of soda and the U-tube (previous to experiment) ascertained,	36.430	"
Gain in weight by absorption and moisture	.320	"
Actual weight (after the experiment)	36.750	"

Experiment No. II.—In this experiment I attempted to dry the expired gases by means of a tube containing fragments of chloride of calcium (Ca. Cl.) C. P. The gas was afterward received into a U-tube, containing, as before, soda-lime. Yet the soda gathered moisture in spite of this precaution.

(1.) The U-tube containing soda-lime weighed	35.958	grms.
This same tube, after the reception of 5 galls. of gas from the gasometer,		
(2.) Weighed	36.161	grms.
(3.) After 100 inspirations of gas by a dog	36.675	"
Increase in weight after second experiment	.203	"
" " " third "	.514	"

From the leg of the U-tube into which the gas was passed, some of the fragments of soda were removed and dissolved in distilled water.

Hydrochloric acid was slowly added in excess, but no effervescence ensued. From the leg of the U-tube into which the expired gases from the dog were passed, some soda was removed and dissolved in water. Hydrochloric acid was here added in excess, and a violent effervescence occurred, showing that some of the increase in weight was due to the absorption of carbonic acid. A lighted match burned with brilliancy at the free outlet of the gas from the U-tube during the experiment.

Experiment No. III.—Muscular relaxation was caused by 22 inspirations of nitrous oxide gas in a dog who had been subjected to a series of experiments like those detailed above.

Then 50 more inspirations of the gas were taken, and the expired gases conducted through a drying jar containing a large quantity of small fragments of chloride of calcium, and into a U-tube filled with white caustic potassa.

This U-tube weighed with the potassa.	32.448	grms.
" " " without potassa	24.255	"
Amount of potassa used	8.193	"
After the inspiration of 5 galls. of gas and of 50 expirations, the U tube had gained	.022	"

Experiment No. IV.—Twenty minutes after the preceding experiment the same dog was subjected to a similar experiment with the gas.

The U tube with potassa weighs	32.129	grms.
The weight of this tube empty	24.255	"
Amount of potassa used	7.874	"
Twenty-four inspirations of the gas cause muscular relaxation. The next 50 expirations, the dog all the time inspiring the gas, give a gain in weight of	.011	"
Actual weight of the tube at termination of experiment	32.140	"

In both these experiments the soda was quite dry, and the solution after the experiment gave, on the addition of hydrochloric acid, the effervescence of carbonic acid. A lighted match also burned brilliantly at the free extremity of leg of U-tube during the experiment, thus showing that nitrous oxide or oxygen passed out from the lungs. It was most probably the former.

It will be needless to detail all the experiments of this elimination of carbonic acid, and I will here present a table of the results of all the experiments, giving the amount of carbonic gas exhaled by the lungs. In each case the potassa or soda was carefully examined to detect the amount of moisture ab-

Table of Elimination of Carbonic Acid by the Lungs.

ANIMAL.	No. of Experiment.	Muscular Condition.	Amount of Soda or Potassa used.	Gain from inspiring Air.	Gain from respiring Nitrous Oxide Gas.	No. of Inspirations.	No. of Galls. used.	REMARKS.	Increase in weight in 1 gramme and 50 respirations.
Bitch (17 lbs.)	I.	Natural	11.483 grs.	.699	.....	100	..	Gas not dried	.03045
Dog (19 lbs.)	XIX.	"	8.150 "	.043	.....	50	5	Soda dry after experiment	.00528
" "	XXII. (B)	"	10.488 "	.119	.....	50	..	Potassa dry after experiment	.0113
Myself	XXIII. (B)	"	16.458 "	.052*	.....	23	..	Ten minutes after sensation was restored	.0063
"	XXIV.	"	14.475 "	249	.....	23	..	Potassa dry after experiment	.034
Dog (19 lbs.)	XXVIII.	"	14.841 "	.135	.....	50	..	" " "	.0091
Bitch	I.	Relaxed	6.313 "	.....	.475	100	5	Gas not dried	.0376
"	II.	"	6.435 "	.....	.514	100	5	Soda absorbed moisture	.03995
Dog (19 lbs.)	XV.	"	12.661 "	.....	.049	25	3	Some moisture absorbed	.0078
" "	XVII.	"	17.240 "	.....	.027	50	5	" " "	.0157
" "	XVIII.	"	14.228 "	.....	.321	50	5	Soda absorbed moisture	.0225
" "	III.	"	8.193 "	.....	.022	50	5	Soda dry twenty minutes after recovery	.00269
" "	IV.	"	7.874 "	.....	.011*	50	5	Potassa dry	.00140
" "	XXII. (A)	"	11.254 "	.....	.090	50	5	" "	.008
" "	XXII. (C)	"	13.164 "	.....	.048	50	5	Potassa quite dry	.0036
" "	XXVIII.	Partially relaxed.	20.865 "	.....	.080	...	6	" " "	.00383
Myself	XXIII. (A)	Relaxed	16.298 "	.....	.160	23	6		.0196

* These were taken immediately after recovery from the effects of the gas.

Leaving out doubtful experiments, in which the soda had acquired a large amount of moisture. { .0101 Average gain from inspiring air. .0061 Average gain from inspiring gas.

sorbed from the wet gases, and in every case hydrochloric acid was added to the solution of the alkali after the experiment, and the intensity of effervescence accorded with the determined weight, or, in other words, where the gain in weight was slight, the effervescence was less than where the gain was greater. In the last column the amount of carbonic acid is estimated for *one* gramme, and considering that the animal had taken fifty inspirations of the gas. These results must of course be compared with each other; and, generally, the amount of carbonic acid exhaled in the natural condition was taken on the same afternoon as when the animal was subjected to the action of the gas, and *always* before inspiring the gas, with the two exceptions which are noted in the table; these exceptions were accidental, and my surprise at the result was at first rather great; until, after further experiments, I thought that I had discovered the cause of this diminished quantity of carbonic acid exhaled. (See table, p. 11.)

Now, if we examine this table carefully, we should merely compare the figures in the last column with each other, as also the effects produced by this agent upon the same animal. If we do so, we shall find that the gas diminishes the amount of carbonic acid exhaled by almost one-half. This then would lead us to suppose that the effects produced by inhaling this gas may be due to the accumulation of carbonic acid in the blood; but a plausible explanation is that the oxygenation of the blood is prevented, and carbonic acid, the result of combustion, is withheld. I was not satisfied with this theory from various reasons. In other cases where carbonic acid is withheld, the effects are by no means so rapid as when this agent is inhaled. Again, I do not yet quite accept a theory, which supposes that an accumulation of carbonic acid in the blood will cause asphyxia and death in twenty minutes. Therefore, the cause of anæsthesia cannot be attributed merely to its accumulation in the blood. This may be the effect of the anæsthetic agent, but not the cause. To show how death may be produced by this gas: I will describe the following experiments:

Experiment No. V.—*Pigeon in a bell glass containing nitrous oxide.* Pigeon confined in the receiver; the gas let in through an opening at

top, into which is fitted a rubber stopper with a glass tube extending two-thirds of the way into the jar, while another escape-cock at the top of the jar is left open to let off the atmospheric air. As the sp. gr. of this gas is 1.52, compared with air, the gas would fall to the bottom of the jar and force out the atmospheric air, that is, if the pressure is sufficient to prevent the admixture of air. As soon as a match will burn brilliantly at the escape-cock, this is closed and the animal left to breathe the gas.

4′. The pupils are contracted.

7′. Asleep (eyes closed); more gas let in.

9′. Opens her eyes, if there is any noise in the room.

13′. Eyes are kept closed when there is no noise or movement.

16′. Suddenly awakes and pecks at her tail-feathers; pupils still more contracted; more gas let in.

17′. Eyes closed.

19′. Awakes on rapping the jar. Respiration quiet.

22′. A cart passing along the street awakens her, after which she relapses into sleep.

26′. Repetition of same phenomena from same cause. More gas let in. She opens her eyes, showing the pupil still more contracted. Quiet respiration.

40′. A lighted taper is now introduced into the jar, to see if there may be any great amount of carbonic acid at the bottom. This burns with great brilliancy, when suddenly some loose feathers lying round take fire, and the receiver is filled with dense fumes. The bird is immediately removed, and after one or two gasps dies.

57′. *Autopsy.* No marks of burning on the body; the tail feathers slighly scorched. An examination of heart and lungs shows death by asphyxia. The blood coagulates on exposure to the air.

Experiment VI.—A pigeon, confined in a smaller jar containing atmospheric air, both openings closed, lives 1 hour and 24 minutes.

5′. Mouth open, eyes closed.

9′. Still standing in half crouching attitude.

11′. Pupils dilated. Eyes closed unless the jar is shaken.

14′. In a half-comatose condition. Can with great difficulty stand.

17′. Lies on breast-bone, wings hanging down. Is made to sit up by turning the jar, but soon falls over backward, resting on feet and tail.

20′. Distressed respiration. Great muscular trembling.

22′. Comatose.

27′. Lies in any position in which she is placed.

29′. Now is on her back (by laying the jar on its side.) Constrained respiration. Pupils still dilated.

34′. Expiratory movements more rapidly performed.

44′. Respiration almost imperceptible.

1.4′. The receiver is now submerged in a pneumatic trough, to avoid any possibility of the entrance of air.

1.12′. Convulsive movements.

1.24′. Dead.

1.47′. *Autopsy.* Rigor mortis commencing, muscular tissue very dark-colored. Lungs collapsed, will float on water; they present the marbriform appearance always seen in asphyxia. Heart flaccid and containing fluid blood in right side. Brain pale.

(This pigeon had been subjected, 3 days previous, to the *inhalation* of the gas.)

Experiment No. VII.—Pigeon confined in the receiver of an air-pump, from which the air is rapidly exhausted.

1′. Dead after violent convulsive movements. No change in condition of pupils observed.

4′. Removed from the receiver.

39′. *Autopsy.* Rigor mortis. Heart firmly contracted, and containing blood.

Experiment No. VIII.—A pigeon lives in a tight receiver, containing nitrous-oxide gas, but 32 minutes. This pigeon was placed in the same receiver as in Experiment No. V., over an air-pump. A few strokes were first made to rarefy the air; immediately the gas was let in, the bird showing signs of distressed respiration. Some excitement ensued, which was succeeded by quiet and regular respiratory movements.

3′. Eyes are closed, and the bird is apparently fast asleep in a sitting posture.

17′. On rapping the jar, she stands up, but immediately relapses into her former posture and condition.

19′. Repetition of same phenomena.

20′. On exhaustion of a portion of the contained gases, she awakes; and, when the jar is again filled with the gas, she relapses into a sleep. If, on the contrary, the gas is allowed to enter as fast as it is exhausted, she remains asleep.

23′. Again the gases are partially exhausted, and she opens her eyes. Pupils are contracted. As soon as the respiration becomes distressing, the gas is let in.

25′. Respiratory movements become more rapid. She sinks down with eyes half closed.

28′. Respiration spasmodic. Eyes wide open.

30′. One or two respiratory gasps, with mouth wide open.

31′. Respiration imperceptible.

32′. Removed from the receiver. Dead.

50′. *Autopsy.*—Rigor mortis. Muscular tissue dark colored. On opening the thorax only a few drops of blood could be found, though there was an abundance in the muscular tissue. Heart very flaccid, and will not contract by stimulation. When the heart is removed, very little blood in the thoracic cavity. Lungs marbriform, and float on water. The skull being opened, let out a small quantity of serous fluid, and the brain was very white, and of the same color throughout all portions. No blood in vessels at base of skull. (This pigeon had been subjected to the inhalation of the gas a few days previous.)

Experiment IX.—Rabbit in the same receiver; escape-cock open; lives only 53 minutes.

3′. Veins in ears swollen.

4′. Match burns brilliantly at escape-cock, showing that the jar is full of nitrous oxide. Supply is shut off.

6′. Ears pale; veins not much distended. More gas let in (five gallons in all). Supply shut off.

9′. Cannot stand on her feet. Eyes have remained open up to this time.

11′. Ears livid.

24′. Lying flat on bottom of the jar. Difficult respiration; eyes closed. Is not aroused by tapping on the jar. No abnormal congestion of veins in ears. More gas let in; ears livid; veins dark colored; very anxious respiration. Eyes open; pupil greatly contracted.

26′. More gas let in.

31′. Ears and skin quite livid. Remains quiet for twenty minutes, during which time breathes very slowly. Cries at length, and makes a few feeble movements.

53′. Respiration imperceptible.

1.4′. Autopsy made and now completed. Ventricular contractions occur only when stimulated by movement of the air, or by touching the heart. No electricity used. Right auricle contracts feebly and irregularly for one hour and seven minutes, when I was obliged (it was midnight) to leave off my observations. I kept a wet sponge upon the heart, but the next morning there was no contraction visible. Peristaltis of the bowels continued for half an hour after the body was opened. These last two effects occurred in a few other cases.

Experiment No. X.—Death by nitrous-oxide inhalation.

A small black-tan bitch (about fifteen pounds). Healthy, and very well nourished.

This dog was muzzled and allowed to respire the pure gas (at first, the air came in under the hood) until she died.

As in all the previous experiments, when muscular relaxation occurred, there was a discharge of soft fæces from the bowels, and of urine from the bladder. After the expiration of about three-quarters of an hour, and fifteen minutes from the time muscular relaxation was observed, the respiration grew more and more feeble, then became more and more imperfectly performed; finally, after three or four convulsive efforts, it ceased. After waiting for a minute or two, the muzzle was removed, and artificial respiration slowly and carefully maintained for ten minutes, by compressing the thorax and drawing forward the tongue; also, by alternately forcing into the lungs pure air, by means of Dr. Richardson's artificial respirator, and by drawing out the air about eighteen times to the minute. The thorax was then opened, and the heart and lungs examined. Both ventricles and the right auricle were relaxed and distended with blood of a dark fluid color. The blood in the thorax was dark colored. The lungs were of a

marbriform appearance, and there appeared a number of small air-bubbles (we had used artificial respiration). No more extended examination was made. There was no rigor mortis for one hour after death.

Two or three times it has happened to me, when I had thought an animal dead from asphyxia, after the inhalation of this drug, to be surprised by voluntary respiration recurring, after I had removed the muzzle. In fact, I have now two dogs alive, who have not respired for one whole minute several times when undergoing an experiment. Never has an animal died unexpectedly, and it was always very difficult for me to cause asphyxia, if the smallest modicum of air passed into the lungs.

Experiment XI.—A rabbit was forced to inhale, by means of a muzzle, fifteen gallons of nitrous oxide, and for three-quarters of an hour, with an occasional inspiration of pure air. When respiration ceased, the muzzle was removed, and the animal placed on the table, apparently lifeless, though cardiac pulsation continued. The trachea was opened and artificial respiration, by Gréhant's apparatus, instituted; but, instead of air, I attempted to force gas into the lungs. The bellows, however, were not air-tight, and air passed into the lungs. Voluntary respiration recommenced after the first blast of air; but finally I succeeded in forcing enough gas to destroy the rabbit, and I then opened the thorax, and the heart pulsated for half an hour after the cessation of respiration. As the apparatus had broken, I could not continue my experiment, as I at first intended.

The object of this experiment was to see if the heart would pulsate after artificial respiration with nitrous oxide was maintained.

These experiments all show that death is caused by asphyxia, and not by paralysis of the central organ of circulation, nor probably by venous congestion. So far I was satisfied; but I was determined to discover, if possible, the cause of anæsthesia.

In reverting to the various causes of anæsthesia, I reasoned that it could not be caused by paralysis of the nerves of sensation from the contact of a noxious agent, for I could not see how it was possible that so inert a substance in the blood could paralyze these nerves. It is very easy to understand why the contact of ether or chloroform may do so. However, to eliminate this cause, I tried the following experiment:

Experiment No. XII.—February 15, 1870.—Black puppy.—Experiment to try power of crural nerve.—The puppy inhaled four gallons of the nitrous oxide, and air was occasionally let in through the muzzle afterward. The skin was incised over right ham, and the muscles divided. The crural (?) nerve was brought out through the cut, and isolated on a glass rod. Occasionally the dog cried hard and kicked slightly, but when the nerve was touched the muscular movements were more violent. The induced current caused several contractions of the limb, and the animal did not express signs of pain. The wound was closed, and the animal set at liberty. An examination of the gasometer showed that twelve gallons of the gas had been used during the whole experiment, which lasted fifteen to twenty minutes. In a moment or two the dog seemed as well as before. Very little blood was lost in the experiment, and from a small artery cut, the blood oozed in a very small jet, but was not thrown with much force. It was easily closed with the tooth forceps, as were two or three little veins which had also been cut. The blood was dark-colored, but the muscles were rather pale. No signs of asphyxia were noticed.

I was satisfied from this experiment that the nerves could conduct, and therefore sought for some other method of investigation.

In order that my readers may understand how I came to think of what seemed to me the probable effect of anæsthesia from inhalation of this agent, I am going to relate my personal experience with its inhalation. It agrees materially with the effects experienced and detailed by Dr. Jeannel, in a paper referred to before this.

I inhaled the gas made as the dentists in Boston make it, and not as I afterward made it. I took twenty inhalations[1] before losing sensation. I could use my hands and was perfectly conscious, for I endeavored to push away from the outlet-valve Dr. N———'s finger, as he was obstructing the passage of expired air. I then held my nose, and, after three expirations more, I felt as if all my members were, what is commonly called, asleep; especially in the right arm, in which the circulation was accidentally impeded. In two more, I could not see, but could hear Dr. N. counting, and was conscious of my respiration being hurried and blowing, but not troubling me. I then lost all sensation and experienced a most singular feeling of elevation (as if I was in rapid motion

[1] I am afraid I allowed air to enter my nostrils at first, thus delaying the effects.

in the air). I could not now control my pharyngeal muscles, so that air passed through my nostrils. I recovered almost instantly, but had trouble in talking, my words coming thick and *throaty*.

I have since taken the gas several times and experienced the same pleasurable sensations, only occurring more rapidly. Two inspirations of the gas (purified) are sufficient to thicken my voice, and cause dizziness. After the sixth or eighth, I know nothing. Three inspirations cause the peculiar sensations in the periphery, which I supposed due to arrest of capillary circulation. It was not due to arrest of arterial circulation, for that only partially produces the same effect, and, while taking the gas, the pulse can be felt. The veins are not congested, as in ether, and in obstructed respiration.

These facts led me to suppose that I should investigate the condition of the capillary circulation. What induced me still more strongly to attribute its effects to this cause was, that its effects are very rapid both of approach and departure, and, as fortunately we can see its mode of action, we can, by inspiring air, almost immediately restore consciousness and the vital functions. But there is a peculiar condition produced by this gas, which, when seen, requires instant relief.

All animals, so long as they *appear* to respire, can be awakened to consciousness almost immediately. But, at a certain stage, animals appear to stop all attempts at respiring, and lie motionless. If not forced to inhale air, they will die. The gas will not then support life. I have experienced this state (but was unconscious at the time). When the tube dropped from my mouth, I sat as in a trance for half a minute, making no respiratory effort, when all of a sudden I was told that I began to smile and to expire the contents of my lungs at the same instant. I was conscious of smiling, but did not notice whether I expired or inspired air after the tube dropped from my hands.

Experiment XIII.—I put some fresh arterial blood in a flask and passed through this one gallon of nitrous-oxide gas, and then agitated the flask; no change of color ensued. I then put some blood from this flask in one test tube and some of the fresh blood in another, and left them to stand for four days, examining from time to time. At the end of this time there

was no difference in their appearance, except that possibly the serum of the blood submitted to the above experiment was a little more tinged with red than the other. I likewise placed some of the blood under the receiver of an air-pump, exhausted the air, and then filled the receiver with the gas. After twenty-four hours there was no change of color. I then experimented after the method pursued by Dr. W. A. Hammond, with a view of determining in what condition the cerebral circulation stood during the inhalation of this gas.

Dr. J. C. Warren kindly trephined a dog's skull, and into this opening I screwed a brass plate. Some days after the operation, the animal being in good health and spirits, I screwed into this plate a glass tube, on to the bottom of which was fitted a rubber bag containing a colored fluid. The tube was marked off in inches and tenths of an inch. The rubber bag impinged upon the dura mater, and was turned down until the fluid rose to a given point.

Experiment No. XIV.—This dog, under the effects of ether, was subjected to the following operations:

At 2.30 p. m. a round brass plate was screwed firmly into the hole in his skull made by the trephine ten days ago. The operation was completed at 3 o'clock, and the dog placed in kennel. At 5.15, the cerebrometer was screwed into this plate, and the height of the fluid in the gauge determined ($1\frac{8}{10}$ inch). The cerebral pulsations were carefully noticed, regular and rapid. On sudden movement of the animal the fluid ascended about $\frac{2}{10}$ of an inch, and then remained as at first observed. The gas (N. O.) was now inhaled by the animal, and the first effect noticed was a rise of fluid in the tube ($\frac{5}{10}$ of an inch). Then the cerebral pulsation was less forcible and diminished in rapidity (to one-half number of pulsations). When more gas was inhaled, the muscles relaxed and the fluid mounted $\frac{3}{10}$ of an inch (3 inches $\frac{1}{10}$), and the pulsations imperceptible. Air was then inhaled, and the pulsations came on very rapidly, and the fluid quickly (but gradually) fell to same mark as at first noted (viz., $1\frac{8}{10}$ inch). (See tabular view, next page.)

Experiment No. XV.—9 o'clock a. m.—The gauge of cerebrometer screwed into its place, at a height of $\frac{9}{10}$ of an inch. The pulsations, according to column of fluid in the gauge, were 150 per minute. After twelve or fourteen respirations with the gas, the pulsations were more feeble and beat 120 per minute. After one or two more, which were of an explosive character, the pulsations could not be distinguished, and the fluid rose to a height of $2\frac{2}{10}$ inches.

Duration of experiment, four minutes.

Five minutes after this last experiment, when the fluid appeared to be at a constant point, viz., $\frac{9}{10}$ of an inch, the gas was again applied. The number of pulsations, about 160 per minute. When muscular relaxation was attained, the fluid stood at a height of $2\frac{6}{10}$ inches. (The dog struggled before this state occurred, and it was then the last $\frac{4}{10}$ were attained; when quiet, however, the same height was preserved.) The gas was now taken

off (three minutes), and gradually the pulsations became more distinct and rapid, and the fluid stood as at first, at about one inch.

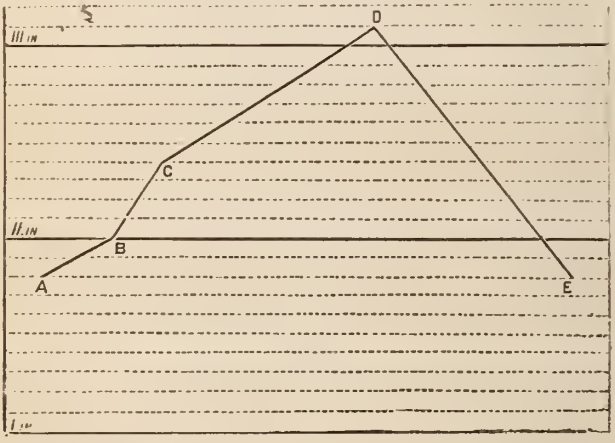
Experiment No. XVI.—*A.* Before inspiring gas, liquid in tube stood at one inch, and pulsations = 152. After ten respirations, liquid mounted two inches, a rise of one inch, and pulsations could not be distinguished. Then, on air being respired for a minute and a quarter, the liquid descended to the one-inch mark, where it stood at first.

Same Dog.—*B.* Before inspiring gas, liquid in tube = one inch, pulsations = 128. After partial anæsthesia, the pulsations = 97.

After twenty inspirations, liquid rose $\frac{1}{10}$ inch, and pulsations could not be distinguished.

Same Dog.—*C.* Respiration interfered with and the liquid rose $\frac{6}{10}$ inch and pulsations became indistinguishable. This interference was accomplished by closing the inlet-tube of the muzzle. The experiment lasted scarcely a minute, and the animal remained quiet.

Tabular View of Experiment No. XVI.



At A. *First Observation.* Respiration of air, normal. Fluid in cerebrometer standing at one and eight-tenths inch.
At B. *Second Observation.* On sudden muscular effort, fluid rose in gauge two-tenths of an inch.
At C. *Third Observation.* Partial anæsthesia. Additional rise of fluid in cerebrometer, of five-tenths of an inch.
At D. *Fourth Observation.* Anæsthesia, with muscular relaxation. Additional rise of fluid, six-tenths of an inch.
At E. *Fifth Observation.* Respiration of air, normal. Equable but abrupt fall of fluid in gauge, thirteen tenths of an inch to the original level.

I administered the gas in this experiment, and my assistant, Mr. J. T. Boutelle, took the observations. Having had experience in astronomical observations, his figures are very reliable.

I am enabled to confirm these results by accompanying sphygmographic traces, which, by the kindness of Dr. Parker, of the Colton Dental Association, were obtained from several

persons who were taking the gas at his rooms. I take this occasion of thanking him for his valuable assistance. I took the precaution of testing the purity of his gas upon myself. It is to be noticed in these traces that during the period of anæsthesia the pulse is hurried, though diminished in power. This, I think, is explained from the fact that the capillary stagnation obstructs the arterial circulation, to compensate which the pulsation must be more rapid; for, while the anæsthesia is passing off, the force is very much increased, and the number of pulsations is diminished, owing to the very free passage of the circulation through the capillary system.

If the congestion were very great and long-continued, the relief to the arterial circulation would not occur so soon after the removal of the gas.

TRACE OF NATURAL PULSE.[1]

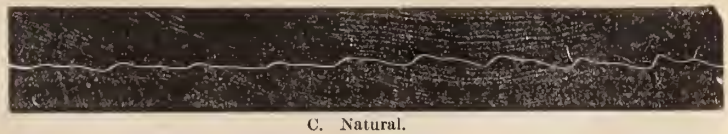
Radial Artery.— March 29th.

A. Natural trace.

A. Natural trace.

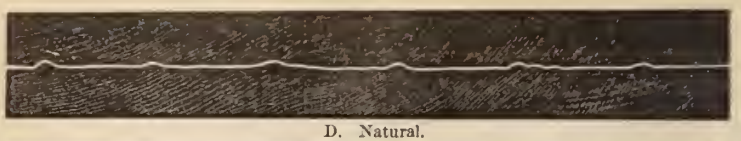
B. Natural.

C. Natural.



C. Natural.

[1] To understand the plates, it is necessary to compare a trace marked with a certain letter (say A) with the same letter (A), as each letter corresponds to the name of a certain person. It may be noticed that each letter occurs three times, at least; the trace having been taken *before*, *during*, and *immediately after*, anæsthesia has occurred.



D. Natural.

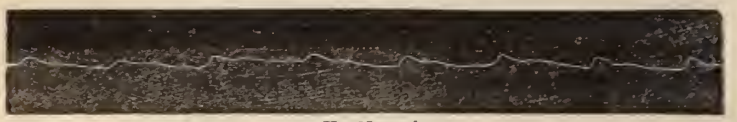
E. Natural.

F. Natural.

F. Natural.

G. Natural, but the instrument was not fairly adjusted on the pulse.

G. Under excitement before inhaling the gas.

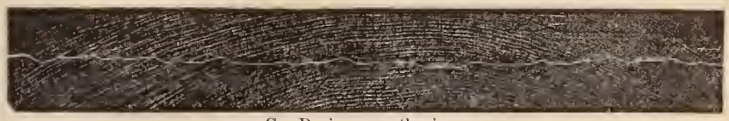


H. Natural.

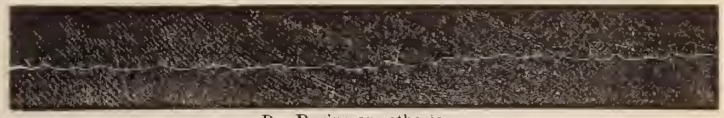
After inhalation of Nitrous Oxide.

B. During anæsthesia.

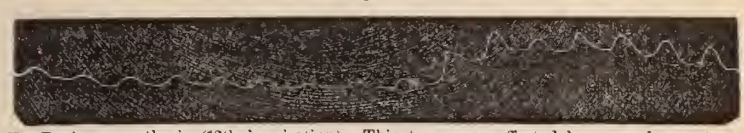
A. During anæsthesia.



C. During anæsthesia.

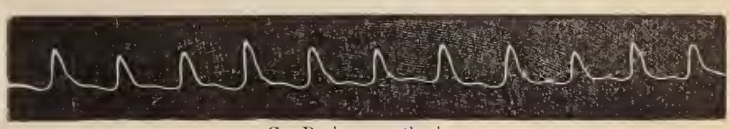


D. During anæsthesia.

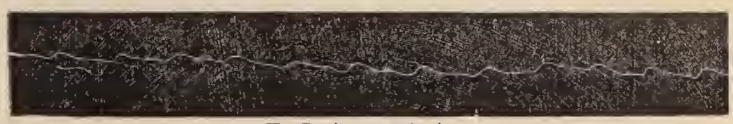


E. During anæsthesia (12th inspiration). This trace was affected by muscular contractions.

F. During anæsthesia.



G. During anæsthesia.

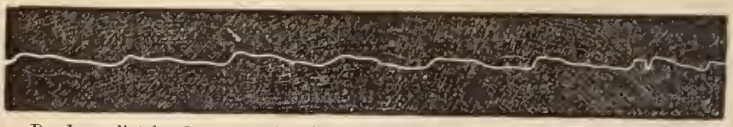


H. During anæsthesia.

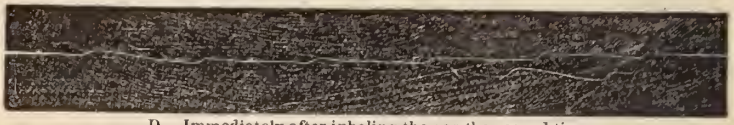
B. After anæsthesia.

B. After waking.

C. Immediately after anæsthesia.

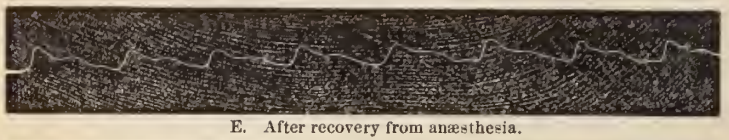


D. Immediately after recovering the first time. Did not get them during anæsthesia.

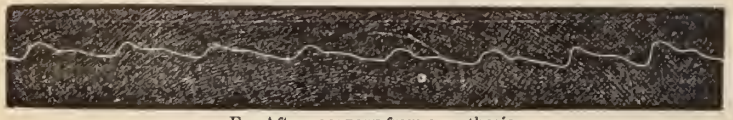


D. Immediately after inhaling the gas the second time.

E. After recovery from anæsthesia.



E. After recovery from anæsthesia.



E. After recovery from anæsthesia.

F. Just after anæsthesia.

G. Just after anæsthesia.

H. Just after anæsthesia.

Do not these experiments point to the mode of action of this agent? I deem it of the highest importance, in viewing experiments, to compare, as far as practicable, several experiments together, and obtain from these the leading phenomena,

and if they are constant there can be no necessity in attempting a very large number of such to prove a certain point. These experiments were very satisfactory, and I could see no use in prolonging the misery of experimenting, not only for the animals, but as well for myself. This was the point which I thought proved by these experiments, that the gas, though perfectly respirable (that is, capable of passing into and out of the lungs), yet would not deliver up its oxygen to the blood, nor cause the elimination of as much carbonic acid from the blood as if atmospheric air or pure oxygen were respired. I should consider this effect upon the capillary system to be caused by the non-aëration of the venous blood in the lungs. This fact, I have since learned, has existed as a theory of the mode of action of nitrous oxide, though I was not aware of this until my investigations were concluded.

The act of respiration in warm-blooded animals consists of an interchange of oxygen and carbonic acid by means of the blood in the lung-tissue. It is also well known that if a gas deficient in oxygen, or which contains oxygen combined with another gas in such proportions as to be with difficulty decomposed, be presented to the pulmonary tissue, oxygenation of the blood is not accomplished, and asphyxia is produced. In the asphyxia caused by protoxide of nitrogen, the process of respiration ceases after inspiration and before expiration. If, now, the heart has not ceased its pulsations, and the thorax be compressed, forcing out the gases contained in the lungs, voluntary respiration, with the act of expiration, will recommence and the vital functions be restored.

I have observed that the cardiac pulsations persist for a long time after the cessation of the respiratory function, and that a rabbit, supposed to be dead fifteen minutes before, was picked up and thrown on to the table before proceeding to an autopsy, and immediately began to respire, and lived several days, until the exigencies of a subsequent experiment demanded the sacrifice of its life.

I do not think that death, following the inhalation of this gas, is due to syncope, though I am well aware that Professor Brown-Séquard states that this condition may be caused by a capillary stasis. The following observations confirm me in

this belief. The capillary stasis is only transient, and seems to depend upon the defective respiration; for, as soon as that is restored, the stasis is relieved, as we should naturally expect in the state of asphyxia. Finally, the motions of the heart are not paralyzed till some time after the cessation of respiration.

The anæsthesia is caused by an insufficient oxidation of the tissues by means of the blood. If, now, the lungs be forced to receive this gas, they inspire it without decomposing the oxygen, and death ensues from asphyxia; or, if air be allowed, the animal revives, quickly regaining its consciousness, sight, hearing, sensation, and muscular powers in the same order. Generally, there is a period of three or four minutes after respiring air, that loss of sensation persists. If the gas be reapplied before the expiration of this period, the loss of sensation may be kept up for a longer time, and so on, as in the administration of ether. Now, in order to show that my explanation in regard to this agent is not only plausible but evidently a true one, notice these facts. When a person faints from breathing an impure air, the respiration is imperfectly performed, the face and skin are remarkably pale, and there is loss of sensation. When a person experiences the partial effect of drowning, the same phenomena as are observed after inhaling this gas are noticed, viz., numbness, buzzing in the ears, and a rather agreeable sensation all over the body, resembling, as near as we can express it, that produced by tickling the whole surface of the body.

I cannot speak from my own personal experience, but I will relate a fact which very strongly impressed my mind at the time. My brother[1] was in a kayak (in which it may be known the body is firmly secured), on Jamaica Pond, when the boat upset, and from its buoyancy, and from the fact that he

[1] I give his letter in reference to the fact; though he does not know for what purpose I desired it, nor what are the effects of this gas upon the system.

"New York, *March* 26, 1870.

"I have yours in reference to 'sensations.' The occurrence was so long ago, that all vivid recollection has gone. About all I do remember is, a greenish appearance of every thing, as I seemed to be quietly and gently sinking away. There was no sensation of effort, no struggling at this time; the sensation not unlike settling down gently upon a perfectly soft and yielding feather-bed, only 'more so.' This is about my recollection of it."

could not extricate himself, his head was partially immersed for ten or fifteen minutes at least; certainly long enough for some of us, standing on the shore, to go seven-eighths of a mile, unloose a boat, and to his assistance. From his constrained position, he was under great embarrassment in respiring air, which he could do only by stretching his head up so as to take in air by the nose, and, as he became wearied by these attempts, he could do so less and less frequently, and had just given up the attempt when he was rescued in an almost exhausted condition. He always possessed the faculty of holding his breath when swimming *under* water, for a much longer time than any of our companions. I remember, at the time, he expressed to me these same sensations, and I have no doubt they can be explained in the same way that we explain the same sensations produced by the protoxide of nitrogen.

The blood, owing to an insufficient supply of respirable oxygen, accumulates the preëxisting amount of carbonic acid in the blood, and in this way causes an arrest of capillary circulation. Having proceeded thus far in my writing, I came across, *accidentally*, a lecture of Prof. George Johnson, in the number of the *Medical Times and Gazette* for April 3, 1869. I am exceedingly surprised to see a confirmation of his theory in regard to the anæsthetic action of nitrous oxide. What he has arrived at by careful reasoning, I have been able to obtain by actual experiment.

For example, he says:

"Nitrous oxide is a rapidly-acting anæsthetic, causing complete unconsciousness in less than a minute. At a high temperature it is an oxidizing agent, but at the temperature of the body it gives up no oxygen, and is exhaled again unchanged. When inhaled in place of atmospheric air, it rapidly replaces the oxygen of the blood, and, this being done, the functions of the brain are completely suspended, and there is a state of profound coma, which quickly passes off when air is again allowed to enter the lungs" . . . "there is no reason[1] to conclude that the inhalation of either nitrous oxide or nitrogen causes an accumulation of carbonic acid in the blood." Before this he says, "to produce oxidation of the

[1] *Vide* Experiments, No. I.–IV., etc.

brain, there must be (1) a free current of blood through the capillaries of the brain; (2) the blood must be duly aërated or oxygenized; (3) the blood must be unmixed with any material which prevents or impedes the giving up of oxygen from the blood to the tissues."

If we accept these three rules for the preservation of the nerve-functions, of course, if one be wanting, the nerve-functions are suspended. Now, the Experiments XIV., XV., and XVI., taken in connection with the accompanying sphygmographic traces, show an increase of capillary tension, with, as we should suppose, increased number of arterial pulsations; but, finally, *arrest* of capillary pulsation in the brain. At this stage anæsthesia occurs. When the pulsation recommences and the tension falls, consciousness sets in. This effect, then, is a violation of Rule 1. Again, the blood having no oxygen to give up in the capillary system, there is a violation of Rule 3.

Now, to prove this in a different way, please recall certain experiments undertaken with a view of determining the variation in the quantity of carbonic acid eliminated in the natural state and during anæsthesia from inhalation of the gas.

A fact at one time inexplicable to my mind is now perfectly comprehensible. I noticed that, during anæsthesia from this agent, the carbonic acid eliminated was two-thirds of that during consciousness, before the inhalation; while, immediately after the inhalation and during consciousness, the carbonic acid eliminated was one-third only of that during the anæsthesia.

Now, it seems to me reasonable to consider that during the anæsthesia the free carbonic acid in the lungs is given off, and, until the stagnation in the capillary circulation is attained, there is only a modification of combustion. When this capillary stasis occurs, there is no combustion, and temporary death to the nerve-substance is effected. On the inspiration of air the combustion is resumed and the product of oxygenation or combustion, viz., carbonic acid, does not *immediately* appear in the expired air. The nitrous oxide must be eliminated first.

The interference with the respiratory functions is previous to the stagnation in the capillary system; and, therefore, this latter effect is due to asphyxia, which, if continued, produces

death. Now, if this state be prolonged beyond the time that the process of oxygenation in the blood can be resumed, you cannot restore the animal to life. Provided, however, the central organ of circulation, viz., the heart, has sufficient power to overcome the inaction in the capillary system and the lungs receive pure air, or still better, oxygen, life can be restored. There is, in other words, no poisonous agent in the blood. There is simply a functional arrest of capillary circulation.

I will add here, in answer to the numerous inquiries as to the preservation of consciousness after decapitation, that it is simply impossible, for the capillary circulation is stagnant, likewise oxygenation of the blood is prevented, on account of which there is a paralysis of the nerves, or death positive.

I am now occupied in some investigations concerning anæsthesia caused by arrest of capillary circulation through mechanical interference. This will be a difficult matter, and will require much patience and time before any satisfactory result is attained.

In an operation requiring but fifteen to twenty minutes I should prefer to use this gas to ether, provided that the pain of the operation is not to be too severe afterward. If the administrator of the gas has had experience, I can see no objection to its use, in any case where an anæsthetic is indicated, for a few moments.

The different stages of etherization can be easily attained with this as with any other anæsthetic, and the life of the patient is entirely under the control of the person administering the gas. I do not speak as an enthusiast. I commenced these investigations feeling that I was concerned with a dangerous anæsthetic, which was too commonly used by dentists and quacks. I believe it to be as innocuous as any anæsthetic, provided it be pure and given by an experienced person.

ART. II.—*Sunstroke and its Theory.* By ELY VAN DE WARKER, M. D., Syracuse, N. Y.

History and Statistics.—A variety of names is used to designate the remarkable series of morbid conditions which form the subject of this paper. From its many synonymes, I prefer the simple, vigorous English of sunstroke or insolation. Although this name implies a condition not always present—exposure to the sun's rays—still the disease is more often the result of solar heat, direct or indirect, than of terrestrial caloric. It is absurd to cling to the French name of *coup de soleil*, which means no more and is not so brief as our own name. Heat-apoplexy is apt to mislead, for it implies a condition not always present, as the disease often consists of purely nervous shock. *Ictus solis* and *erythismus tropicus* are equally defective. This varied nomenclature is the result of the many pathological conditions of the principal organs involved, and is also due to the influence of climate, food, clothing, and circumstances in which the attack occurred. In view of this fact, the name that expresses most simply and clearly the main cause is preferable, as there is a variety of morbid changes no one name can clearly define.

The earliest reference in literature to sunstroke is the death of Manasses in the barley-harvest: "The heat came upon his head, and he fell upon his bed and died in the city of Bethulia." The earliest account, of any value in English medical literature, is that of Mr. Russell, of the Seventy-third line, while in temporary charge of the Sixty-eighth at Madras, in 1834, and presents a marked exception to the usual expression of insolation, the corps being composed of men in robust health. The occasion was the funeral of a general officer, the men being on duty in full uniform—red coats and military stocks—and when the land winds had set in, heated as if from a furnace. After a march of two or three miles, several men fell from the ranks senseless. Three men died, two on the spot and one in hospital. The symptoms were all alike, thirst, sense of faintness, difficulty of breathing, stertor, and coma.[1]

[1] Aitken, vol. ii., p. 381. London, 1864.

The *post-mortem* appearanees were as uniform as the symptoms. This is the elearest reeognition of this disease then eontributed to scienee. A eentury ago M. Campet, in French Gniana, speaks of the disease under the name of *mort subite*, as oeenrring in Europeans addieted to exeesses in eating and drinking, but not as the result of direct solar exposure, being subjeet to attack during sleep under high temperature, espeeially if by closed eurtains the air was rendered deoxygenated. Dr. Diek, of Bengal, in a letter published by Dr. Dunean in his Commentaries in 1785, mentions the disease as prevalent in a detachment of European artillery serving in the Carnatie. In the fatal eases they eomplained of severe headache, vertigo, vomiting of bilious matter, difficulty of breathing, and insensibility; and, in the absenee of prompt treatment, the faee swelled and turned almost black; the pulse, at first full and quiek, sank, and the patient died from apnœa. Valuable statisties and suggestions as to treatment have been furnished by M. Guyon and other Freneh surgeons of the army in Algeria. Mr. T. E. Dunster, an able and experieneed surgeon in the Bengal army, in relating his experienee in the Mooltan division, under Sir William Whish, in 1849, says: "During the first few marehes a number of men fell victims to that fearful disease, and it is here worthy of remark that the fatal seizures usually oeeurred about three o'clock in the morning, and long before the sun was above the horizon." In the march of her Majesty's Thirteenth light infantry from Berhampore to Nudda, a distance of sixty miles, and *conducted in the night*, during the heated term, the white troops suffered from the effects in a remarkably fatal degree.[1] This experience of Mr. Dunster is anomalous, not from the hours of attack, but from the faet that the disease manifested itself in the first few marches. The march of the Forty-third light infantry, from Jubbulpore to Calpee, furnishes a noteworthy verifieation of the truth of the above. "After having been four months and thirteen days in the field, and after they marched nine hundred and sixty-nine miles, a fatal ease oeeurred; and from that date eases of *insolatio* gradually in-

[1] Aitken, *loc. cit.*, p. 382.

creased in frequency." In a more recent warm-weather campaign in India, it was among the newly-arrived corps, composed mostly of young men who had been long exposed to fatigue, that the fatal cases were more abundant.[1] The European race is very prone to sunstroke, when exposed to tropical heat. In the march of the Thirteenth light infantry, already cited, while the white troops were dying along the march and in hospital, none of the natives were taken ill. During the fatigue and exposure of the Bengal detachments, in the same campaign, the same immunity was observed. Sir J. R. Martin relates an instance where morbid insolation among the two races proved the reverse of this. The occasion was a pursuit of the enemy by the governor-general's body-guard during the first Burmese war, and on a forced march of forty miles. Native officers and men fell off their horses, vomiting, convulsed, with cold and clammy sweat; "but none," he says, "of us European officers, whether commission or non-commissioned, fell sick either on the march or after it."

Dr. Milligan, her Majesty's Sixty-third Regiment, in speaking of an outbreak of the disease on the occasion of a funeral at Madras, as fatal in its effects as the funeral formerly referred to, says: "There were among them some old soldiers who had served twenty years or upward, some of it in the West Indies, and were much broken down by service and intemperate habits." The entire regiment had just arrived from Australia, "where stimulants were to be had on easy terms" (*Martin*). The hospitals were filled with fever cases and other sequelæ of sunstroke. Europeans newly arrived are very subject to the disease, on exposure to the sun when fatigued. Such men, in order to bear the climate with impunity, must pass through a process of gradual accommodation of the constitution to the unaccustomed range of temperature, which accommodation is the usual result of a residence of two or three years under proper sanitary precautions. Sir J. R. Martin refers to a recent hot-weather campaign, in which a newly-arrived corps, composed mostly of young men, suffered most fatally.

[1] Sir J. Ranald Martin, Lancet, March, 1859.

Care must always be exercised in discriminating simple exhaustion from morbid insolation. During Sheridan's campaign in the valley of the Shenandoah, in 1864, we often went into camp at 7 P. M., with not more than fifteen muskets in stack out of four hundred. The men would begin to fall out at 2 P. M., many of them dropping down unable to speak —the majority of them with features blanched, and quick, thready pulse. Cold water dashed upon the face and a mouthful of stimulant constituted the treatment. The man would revive, and the next morning would be in his place in the ranks ready to march. Such was the case very often during our long and severe marches in the Têche country of Western Louisiana in 1863, during which time I saw but one case of sunstroke.

Besides the direct or indirect heat of the sun, vitiated air may be an active cause of susceptibility to the disease. It would be more correct to say that any condition which lowers the vital force renders the subject liable to attack. Impure air, malaria, want of proper food, intemperance, exposure or fatigue, are so many concurrent causes. Our immunity from sunstroke in the valley of the Shenandoah I attribute to the air being perfectly free from malaria, and to the abundance of good food.

Dr. Crawford mentions a peculiar electric condition of the atmosphere as affecting the respirability of the air, and increasing the number of cases. So intense was this condition that the hairs of a horse's tail would repel each other. "Such a state of atmosphere will generally be found to prevail in localities where cases of *insolatio* occur, whether in the crowded barrack, in the still more crowded cantonment, the tented field," etc. Dr. Barclay noticed that cases of sunstroke were more numerous immediately before a thunder-storm, and that they ceased when the atmospheric electricity had expended its force. In verification of this, I recollect that one of our most fatal marches in central Georgia, in 1865, was upon a day rendered memorable by a severe thunder-storm, attended by incessant flashes of lightning. The first case occurred about 2 P. M., and by 3 P. M. we had eight cases, one of which proved fatal by the road-side, and at which hour the storm burst upon

us in all its fury. The command was five days from Savannah, where the men had drunk to excess of stimulants; and at about the close of three years' constant field-service. Our line of march lay in the swamps bordering the Ogeechee River, and in a region intensely malarious. The effects of this malarial exposure were soon manifested by about one-third of the command suffering from a severe form of intermittent. It is a rule that, where a malarial form of fever prevails, troops are very liable to insolation.

The united experience of East-India army surgeons proves that men, to be able to resist long exposure to high temperature, must be temperate, fresh, and in good sanitary condition. Dr. Beatson,[1] speaking of the great mortality in General Havelock's command, compared with that of the troops before Delhi, says that the latter were well sheltered, and had regular meals, while the former were sadly deficient in all these. The effects of exposure to high heat in laundries, sugar-refineries, bakeries, kilns, and furnaces, are oftentimes of the severest character. Cases occurring under these circumstances will, according to the late Dr. Murray, of Madras, be defined from those resulting from exposure to the direct rays of the sun upon the head. In the latter case we have a predominance of cerebral lesion and more rapid progress; and, in the former, engorgements of the lung-tissue are more prominent and the case more lingering. The greater number of cases occurring on our march in central Georgia took place during our halts in the heated part of the day. The men were in the habit of seeking the shade of the pine-trees abounding in that region. These trees have only a small tuft of foliage at the top, and cast only a small shadow upon the ground, which would shift its position entirely in the course of half an hour or so, leaving the unhappy sleeper exposed to the full force of the sun. These cases of passive insolation were more liable to prove fatal than those occurring during exercise in the sun. Lung-lesions were the most severe complication in the former, while in the latter the brain suffered chiefly. I can only account for the severe character of those cases in which the lungs wer

[1] Braithwaite, part xxxvii., p. 262.

principally involved, by the fact that the cerebral form of the disease, in its first stage, consisted principally of shock, and from which, if the patient rallied, there was but little danger.

Under the burning sun of India, morbid insolation is expressed in a clearer type, and with a greater percentage of mortality. The comparison of the statistics of the disease furnished by the late war of the rebellion and those of army medical officers of the Indian service, presents a startling contrast, as will shortly appear. Locality has a great influence upon the disease, and its death-rate. In the Atlantic region, which embraces all the slope between the Appalachian range and the sea, the reports for the first two years of the war, 1862–'63, was a total of 904 cases and 22 deaths, or 2.43 per cent. In the central region, embracing all the great basins of the continent between the Appalachian and the Rocky Mountains, we have a total of 710 cases and a death-rate of 54 cases, a mortality of 7.6 per cent. In the Pacific region there were five cases and one death.

The following figures will show that there was a general predisposing cause at work in the central region, creating an excess of all diseases and of fatal issues over the other regions. The following is the general prevalence of disease and deaths expressed in ratio of 1,000 of mean strength, for the first year of the war: Atlantic region 2,749, and a mortality of 32.54; central region 3,422, and a mortality of 80.18; and in the Pacific region 2,168, and a death-rate of 11.65.[1] These figures demonstrate that insolation depends in a great measure, in common with zymotic diseases, upon a general predisposing atmospheric cause; and further, that a malarial infection is one of the most active of these causes, for this central region is preëminently the malarial region of the continent. Taking the figures furnished upon this disease by Circular No. 6 as reliable, the mortality is much less than in civil life; the mortality in cases admitted in New York Hospital, in 1853, being 33 in 67.[2] The terrible character of the disease is shown in

[1] Circular No. 6, Surgeon-General's office, Washington, D. C., November 1, 1865.

[2] Swift, New York Journal of Medicine, July, 1854.

Mr. Marcus Hill's statistics: out of 504 cases there occurred 259 deaths; of the remaining number 8 were doubtful, leaving the deaths to seizures at 51.38 per cent.; the recoveries being but 45.03 of those attacked. The statistics furnished by Dr. Gordon, of the Tenth Foot, give a still more striking exhibit: out of 28 cases there was but one recovery, and that only a partial one. Dr. Lindsay, of the Bengal Army, says[1] that, "once seized, he never saved a patient." At the siege of Cawnpore the sun proved the greatest enemy of the English. The mortality of insolation, according to Dr. Barclay, is 42.734 per cent.; 43.3 on the authority of Butler; and one-half the cases according to Swift. My own army experience in central Georgia would not place the mortality higher than 30 per cent. Dr. W. Simpson, surgeon to her Majesty's Seventy-first Regiment, states[2] that, in one wing of that command, with a mean strength of 417 rank and file, there were 89 cases during the three months of hot weather in the year 1858, of which 13 died suddenly and 13 afterward in hospital. This was attributed to long marches on consecutive nights. The discrepancy between the ratio of mortality of our army reports and those of the Indian medical officers lies in the faulty diagnosis of our army surgeons, in making the error referred to in a former part of this paper, mistaking simple exhaustion from heat and fatigue for morbid insolation. The time of day at which the attack occurred, in sixty cases observed by Dr. Swift, was as follows: in 3 cases, between 8 and 11, A. M.; 40 cases between 11 A. M. and 4 P. M.; and 17 cases, 4 and 9 P. M. This is at variance with observations made in India and French Guiana. The statistics of sunstroke, as seen from the above, are very unsatisfactory. This is easily explained by the fact that the disease is very subject to modifying influences of temperament, climate, occupation, and previous health. Add to this the doubt that exists in the minds of many medical men as to what really constitutes the disease.

Before speaking of the pathology and rational explanation of this disease, I will give the history of a few typical cases, as

[1] Lancet, March, 1859.

[2] Transactions Bombay Medical Society, 1857–'58, p. 246.

it will bring the phenomena of the disease more vividly before the mind of the reader than pages of detailed description, and will have a direct bearing upon my theory of insolation. These cases occurred on the march from Savannah to Hawkinsville, already referred to.

Case I.—Sergeant W. Wright, American, aged thirty-four years. Bilious temperament and spare habit. On August 3d I was called to see this man suddenly at 12.30 P. M., during a noonday halt. I found him lying on his back under the shade of some bushes. He was first observed by his companions attempting to rise; after making one or two efforts, he fell down insensible. Skin dry and hot; temperature of body very high to the touch. The conjunctiva congested, face flushed, pulse rapid and full. Carotids beating visibly. The breathing rapid and labored, but not stertorous. The man was roused with difficulty, and it was impossible to fix his attention before he would relapse into insensibility. Persistent treatment placed the man in comparative comfort in about three hours. Muttering delirium during the night, with pulse about 120, and temperature of body almost normal. The next day the man was weak and languid, with white tongue and red edges and tips. Mental symptoms still continued; indifferent to surroundings; cannot get him to complain of any headache. Faulty intellection continued until August 27th, when he was returned to duty, in the hopes that the necessity of mental exertion would improve his condition.

Case II.—Private R., 75th N. Y. Vols. The man was young, but much broken down with malarial fever. He had halted to replenish his canteen. He was observed to drink freely, and then moved on rapidly to to regain his place in the column. After marching a few moments, he fell down insensible. He was removed to an ambulance. Pulse very frequent and feeble. Surface of the body very hot and perspiration entirely suspended. Stimulants, and cold douche to the head, freely used by Dr. Root, of that regiment; but the vital powers were observed to be rapidly failing, both pupils contracted to a mere point. The man died six hours after seizure.

Case III.—Augustine, colored regimental laundress. In the fall of 1863, during our severe marches in the Têche country of Western Louisiana, Augustine not only marched with the men, but carried large bundles for herself and her favorites in the regiment. She had complained for several days of feeling weak and feverish. On reaching camp after a severe day's march, she was suddenly taken ill. I was sent for, and on reaching the spot found her lying on the ground near the hospital tent, in strong spasms, tearing up the sod with her nails. A bloody froth was pouring continually from her mouth and nostrils. Face livid and bloated Skin intensely hot and dry. In a few moments after I reached the spot.

she died. A *post mortem* twelve hours after death. External appearances: *Rigor mortis* well marked, a peculiar bloated appearance of the face; lips livid. A bloody froth was still oozing from the mouth and nostrils. Thumbs firmly fixed in the palms of the hands. The lungs were engorged to perfect hepatization, of dark color (reddish), and a punctate appearance of darker spots. On section, a frothy, bloody fluid exuded from the cellular structure and bronchial passages. The entire extent of the lungs must have been wholly impervious to air. The heart was thin and flabby, the right side filled with clots, as well as the large venous trunks. Liver and spleen were congested, and the spleen enlarged. Stomach filled with fluid and congested in large patches. Nothing unusual was observed in the intestinal tract. Bladder was empty and much contracted. Kidneys normal in size, but cortical layer congested. Uterus and ovaries healthy, brain not examined.

Case IV.—While on the march, on August 4th, I was called suddenly to see John Welch, Co. "I," 162d N. Y. Vols., who had fallen out. Riding to the rear about a mile, I found the man lying by the side of the road under the scanty shade of some bushes. The face was flushed, the skin hot and dry. He was totally unconscious. He was breathing in a very irregular and convulsive manner, and at each respiration there was a peculiar moaning that I never heard before, and which never ceased, except during moments of convulsions, until his death. While making my examination he was suddenly taken with strong clonic convulsions, which persisted for from two to five minutes; and then followed by repose for fifteen or twenty minutes. The right pupil was contracted to the size of a pin-head, while the left was almost normal in size, but insensible to the stimulus of light. The man died in about three hours after attack.

Diagnosis.—Believing that the cases above detailed present the symptoms commonly observed, I shall add but little more to the list, and speak of those more anomalous in character. Sometimes, among the earlier symptoms, there are exhausted nervous energy, swollen face, faltering of the tongue. The engorgment of the brain and lungs is made evident during the attack by oppressed and difficult breathing, by wildness or coma. Sir J. R. Martin mentions a peculiar intense heat of the epigastrium. All the symptoms indicate that the great central ganglia are involved. Dr. Swift groups the symptoms in three stages. The first attended by loss of appetite, headache, and general feeling of languor. The seizure comes on with the symptoms already detailed in my typical cases, with pupils dilated or contracted, and coma; and, according to Dr.

Dowler, of New Orleans, the temperature is raised to 112° Fahr., and, according to Dr. Levick,[1] the temperature ranges from 104 to 111°. This forms the second stage; while the third stage, which generally closes the scene, consists principally of collapse.[2] The physician is very seldom called to attend the patient in the first stage of Dr. Swift. In 60 cases in New York Hospital, 44 were insensible at time of admission, 16 were either stupid or sensible. The pupils were dilated in 30, contracted in 19, and natural in 11. The respiration was hurried in 44. Pulse uniformly quick, varying from 100 to 160 or more per minute. Convulsions were present in 24 (Swift). Dr. Repper reports 20 cases, 3 of which resulted in insanity, a very rare termination. In 33 fatal cases the pupil was contracted in 20, moderately dilated in 7, markedly so in 6. No cases are reported of recovery where the pupils were contracted. Mr. Longman notices a frequent desire to micturate as a very constant symptom, and places great emphasis upon it, believing, should it prove to be an invariable symptom, that it may become valuable to the surgeon as an indication of approaching danger.[3] In India, where insolation attains a more defined expression, the premonitory phenomena assume more prominence. They generally are weariness, debility, and prostration, nausea, vertigo, and incontinence of urine. On the march in the ravines of northern Bundelcund, described by Dr. Barclay, no one was attacked by insolation who had not previously exhibited the symptoms. These symptoms are to insolation what the premonitory diarrhœa is to cholera. Barclay says, when the disease is fully expressed the pupil is always contracted—to the size of a pin often—the face invariably pale; the skin harsh, *dry*, and burning to the touch, far *beyond the doctor's experience in any other disease*. Frothy mucus, clear or of a brownish color, was in most instances ejected from the mouth and nostrils before death. Face often ghastly from the beginning of the attack. Dr. Simpson, of her Majesty's Seventy-first Regiment, gives a very graphic review of the symptoms of sunstroke occurring in that command. An in-

[1] Pennsylvania Hospital Reports, vol. i., 1868, art. xix.
[2] New York Journal of Medicine, July, 1854.
[3] Indian Annals, vol. ii., p. 399. 1860.

tensely hot, dry skin, *lasting even after death*, in those who died within twelve or sixteen hours, and a feeling of weight just below the ensiform cartilage. Involuntary weeping or laughter. A tumultuous action of the heart, and beating of the carotids. "Loud moaning during the stage of coma was almost invariably present"—a symptom distinguishing it from the coma of apoplexy. There was a great desire to sleep, which passed rapidly into a state of insensibility. In many instances attempts at deglutition brought on convulsion of an epileptic character, and in others genuine epileptic convulsions, lasting from five to fifteen minutes, also mania and hysteria.—(*Braithwaite*, vol. xl., p. 301.)

What renders morbid insolation almost Protean in its extensive list of symptoms is the fact that the heat devotes its morbid influence to one organ or set of organs, to the exclusion of other viscera. In some cases we have a predominance of lung-symptoms; in others the brain is the organ affected, constituting a true heat-apoplexy; while in others the spinal cord and great nerve-centres are the principal seat of morbid action.

Prognosis.—We are led to anticipate a fatal termination of the attack by the commencing failure of the heart's action—fluttering pulse—contracted pupil, and convulsions. The convulsions generally begin in the muscles of the face, or upper extremities, and the convulsions passing rapidly into coma. The depression of the circulation and respiration indicates that the great central ganglia are involved, similar to the type presented by malignant cases of remittent fever (Sir J. R. Martin); in milder cases it passes into that form of fever.

Swift places great value upon the state of the pupils and respiration as prognostic marks; the respiration was sighing or moaning in 31 out of 33 fatal cases. Immobility of the pupils is a symptom of grave import. He has never seen a case of sunstroke with contracted pupils recover. A favorable termination is indicated by a decrease in the temperature of the body, by a more mobile pupil and by a lessening of the disturbance of the functions of circulation and respiration. The patient cannot be considered free from danger, until the skin becomes moist and cool; relapses having taken place after the

function of the skin had been established, and the sufferer had enjoyed quiet sleep.

Care must be taken to discriminate between simple "solar exhaustion," as Dr. Dowler calls it, and insolation. They are easily distinguished. Heat-exhaustion is simply syncope; in some cases I have seen almost an entire absence of pulse at the wrist; but we always have *cold*, *clammy skin*, and pale lips and features. In morbid insolation—with the exception of the paleness of the face—which is not common except in India—we have a direct antithesis of this. The insensibility of sunstroke is easy of diagnosis, from the stupor and flushed features of intoxication. The presence of alcohol is sure to betray itself by its peculiar odor. Attempts have been made to distinguish cases of pure insolation from those following the drinking of large draughts of cold water. Men often fall down insensible after drinking largely of cold water, or after pouring water freely upon the head; but Dr. Swift justly regards these cases as at once determined by the cold water instead of the water being the proximate cause. Those cases reported as deaths from cold water are purely cases of insolation. Deaths from cold water are not so common as popularly supposed. Dr. Dickson, of Charleston, S. C., says: "I have never seen a death from drinking cold water, nor have I been able to obtain any authentic account of such an event having occurred since I have been engaged in the practice of medicine in this city. Yet here, if anywhere, such accidents should occur. . . . Those cases described by Dr. Rush I believe to have been cases of insolation, and that, being sensible of approaching danger, the patients were just procuring relief when overtaken by sudden death."[1] Convalescence is rapid usually, in those cases which terminate favorably, except in some instances where more or less mental disorder persists for even months after the attack. Diseased intellection was a very common sequela in the cases I observed in Georgia. Loss of memory and inability to make any prolonged mental effort, often attended with headache on the slightest exertion, are the most marked brain-results. Quiet but deep and prolonged slumber is the usually favorable termination of the attack.

[2] New York Journal of Medicine, *loc. cit.*

Theory of Sunstroke.—A careful study of the phenomena of insolation must lead the reader to but one opinion, that insolation is the expression of the presence of a morbid degree of heat in the organism. It is now my purpose to account for the presence and retention of this morbid heat. An opinion held by many of our army surgeons was, that it results from a drainage of the serum of the blood by excessive perspiration. Common causes must to a certain extent produce common pathological effects; but in this case we see the phenomena of insolation clearly isolated from that attending the colliquative sudation of phthisis, or the vast fluid evacuations of cholera; cases in which the fluid evacuations are obtained at the direct expense of the serum of the blood. There must be some other morbid force at work. Yet we briefly recapitulate the predisposing causes: Any depressing influence; continued fatigue; bad air or food; intemperate habits; febrile condition or plethora; highly electrical or malarious condition of the air, and a thermometric condition of the atmosphere of from 95° to 120° F. During our march from Savannah to Hawkinsville, Ga., the men did not suffer from insolation until the fourth day of the march, when the entire command was prostrated from exertion and the excessive heat. In Dr. Barclay's experience the men suffered a gradual deterioration of health. There are, therefore, two conditions which are indispensable prerequisites to an attack: 1. General depression of the vital forces from whatever cause; and, 2. A temperature of from 95° to 120°. One of the first effects of these conditions is an arrest or impairment of function. This is preëminently the case of the cutaneous secretion. Dr. Simpson observed:[1] "Every man seized with sunstroke, and who could answer questions, informed me that he had not perspired for a greater or less extent of time—sometimes not for days—previous to being attacked, and that he enjoyed good health so long as he perspired, but that on the perspiration being checked he felt dull and listless, and unable to take much exertion without making a great effort."

This suppression of the cutaneous secretion was always accompanied by a rise in the temperature of the body; often

[2] Morehead, Researches on Disease in India, p. 617.

as high as 112° (Dowler), and, according to Dr. Levick, 104° to 111°. This is a constant precursor of an attack, so much so, that the absence of perspiration is regarded by Indian surgeons as a warning of danger (Morehead). By a study of the more pronounced form of insolation we see two constant conditions: 1. An arrest of cutaneous function; and, 2. A rise in the temperature of the body unparalleled in any other form of disease. The first manifestation of the diseased condition is the arrest of the function of the skin; the second condition is the increase of temperature. These conditions stand in the relation of cause and effect, as I will shortly prove. We see in other forms of diseased action the same effects produced. In intermittent, in typhoid, or malarial fever, or in acute pneumonia, suppression of the perspiration leads to a rise in the thermal condition of the body, and a restoration of the function of the skin by either the action of remedies, or by a spontaneous amendment of the disease, is followed by a corresponding depression of temperature. In intermittent fever this phenomenon is constant, independent of any remedial measures, the result of a law of Nature, that the febrile stage of the attack closes spontaneously in profuse sudation and a consequent abatement of systemic heat. In insolation the arrest of the perspiration is but another in the series of cause and effect. A man with the action of all the vital functions unimpaired is not liable to insolation. The many causes enumerated before, all tend to lessen or suppress function; this is not only seen in the arrested cutaneous secretions, but in the constipation, and in some cases the suppression of urine, and the engorged condition of the liver, spleen, and other important glands. There is, therefore, a complete chain of morbid acts: 1. The preliminary state of exhaustion and depression; 2. The resulting impairment of function; 3. The retention in the system of a morbid degree of heat, resulting in 4. Insolation.

This constitutes the morbid acts of insolation in the order of their occurrence. In this view of the disease I am considering the case in its typical form. From the multitude of symptoms that characterize sunstroke, these leading phenomena can always be clearly isolated.

The integrity of the cutaneous function is essential to the

maintenance of the equilibrium of the thermal condition of the body. The perspiration is one of the principal avenues of escape for the surplus heat generated by the operations of organic life. While this is true of the body when in a quiescent state, it becomes a cardinal truth when the body is in a state of exertion and exposed to an elevated temperature. The healthy man, when exposed to these conditions, at once perspires, and the temperature of the system is preserved at a normal standard. If this means of compensation between the systemic heat and that of the surrounding air is impaired, heat must accumulate in the system in reciprocal proportion. To use a familiar illustration, the evaporation of perspiration from the surface of the body lowers its temperature in the same manner as the evaporation of water from the surface of heated iron.

When the body is exposed to intense solar heat, the perspiration is the direct antagonist of the sun's rays. When we reflect upon the amount of heat necessary to evaporate one ounce of water, it is easy to see how the arrest of this function may lead to serious or fatal lesion of the vital fluids or nerve-centres. An ounce of water passing from the fluid to the vaporous state receives as much heat as would raise its temperature to 990° Fahr.;[1] or, the quantity of heat required to convert a quantity of water into vapor is five and a half times as much as will raise it from the freezing to the boiling point.[2] The evaporation from the surface of the body of one ounce of perspiration would transmit from the system to the surrounding air all the heat required to accomplish its evaporation. On the contrary, the arrest of this secretion would lead to the retention in the system of the heat otherwise expended in the conversion of it from the fluid to the vaporous state. The other excretory functions being impaired, it would obviously require but a short exposure to an elevated temperature to lead to an accumulation of a morbid degree of heat. This is not an immediate effect; it is progressive. The impairment of function goes on with the impairment of strength. The exhausting

[1] W. M. Higgins, Physical Condition of the Earth, p. 116.

[2] New American Cyclopædia, Art. Evaporation.

march, or the stoking at the furnace, or laboring in the field, is still continued, and, before the victim is aware of it, possibly, the skin has ceased entirely to act. There are now but few avenues of escape for the systemic heat resulting from muscular action, from the oxidation of tissue, or from the hæmal oxidation of normal alcohol present in the lungs,[1] and still less escape from the alcohol the man too often takes to relieve the exhaustion from which he is suffering. In addition to this, from the sun's rays the body is continually absorbing heat, until such a degree of heat is present in the system, that disorganization of the blood results, or the nerve-centres are so oppressed by its presence that insolation results. I therefore conclude that insolation is the expression of the presence of a morbid degree of heat in the organism dependent mainly on the arrest of the cutaneous function.

Pathology.—There are no uniform lesions revealed by *post-mortem* examinations in insolation. There is generally some one organ more prominently affected, as if the morbid cause had expended upon it all its violence. This want of uniformity depends in a great measure upon temperament, condition of the system, length of exposure or exhaustion, and the stage at which death intervened. Dr. Simpson concludes, from his *post-mortem* observations of the disease, that death, in a great measure, results from the entire or partial suspension of the depurative functions. Martin attributes the negative character of the necrotomic results to the rapidity with which the disease runs its course. In those cases occurring in the shade or under cover, in which the disease is more lingering in its character, the dura mater is remarkably congested, with more or less engorged condition of the lungs. In those cases occurring in the full force of the sun, there is found marked pulmonary apoplexy, and the brain is found to have escaped with no or but little engorgement. In those cases of instantaneous death, with pale face and clear conjunctiva, no organic lesion is observed; the death being like that from lightning—a sudden invasion of the centres of organic life, and leaving no trace. Congestion of the lungs in all other cases is rarely wanting. The appearance of the blood, lungs, and brain, indicates that there is extreme

[1] Dr. Ford Elliott. Soc. Nat. Hist., Art. ii., vol. i. Charleston, S. C.

venalization of the blood, resulting in narcotism of the brain and heart. Favorable cases occurring on the march present the appearance of cerebral syncope proceeding to apoplexy, and terminating in febrile reaction (Martin). According to Dr. Boislinière,[1] moderate pressure on the thorax after death resulted in the expression of bloody froth from the mouth and nostrils, and on section it was found in the lung-tissue. So characteristic was this appearance, that *post-mortem* examinations were dispensed with, and the coroner's jury directed to bring in a verdict of death from insolation. Dr. Boislinière found the brain usually normal. In a few cases there was slight congestion of the superior cerebral veins and of the sinuses. This condition Dr. Boislinière accounts for by the difficulty of the return of the blood through the engorged venous trunks extending to the right side of the heart, and this setting back of the blood in the veins of the brain and sinuses causes an exudation of serum often found. In his cases the presence of serum under the membranes was quite remarkable. In Mr. Longmore's cases, occurring in an unventilated air, the appearances after death were those usually resulting from death by asphyxia. In some portions the lungs presented the appearance of interstitial apoplexy. The engorgement of the brain was not a constant lesion, and when present was less marked, seeming to be subordinate to the impairment of the functions of the respiration and circulation. The substance of the brain on section often presented numerous blood puncta. Morehead says the blood is always fluid, but some observers have found clots in the right side of the heart, extending throughout the venous trunks. According to Dr. Levick,[2] a constant pathological condition was an altered state of blood, which is liquid after death, and under the microscope showed shrivelled and crenated corpuscles. According to Flint, the vessels of the pia mater are congested as in congestive apoplexy, but rarely the vessels within the cranium. Dr. Pepper found the heart in four cases flaccid, and structure softened. The late Inspector-general Murray, of Madras, supposed that the predominance of cerebral lesions in some cases was accounted for by the ex-

[1] St. Louis Medical and Surgical Journal, July, 1860.

[2] Pennsylvania Hospital Report, *loc. cit.*

posure of the bare head to the direct rays of the sun, but other *post-mortem* observations have not verified this opinion. The *débris* of the body, consequent upon the serious wear of the material of life, seems to overload the vital fluid: the skin and kidneys having ceased their function, the lungs are selected to accomplish this depurative act; they, owing to the excessive attenuation of the air, are unable to effect this, and the blood, propelled by its *vis a tergo*, fills the lungs to engorgement. Mr. Hill, in many *post mortems*, found the lungs engorged, and even extravasation in the pulmonary tissue. Mr. Russel, of her Majesty's Seventy-third Regiment, in three cases found the lungs congested even to blackness, and so densely loaded that complete obstruction must have taken place. Drs. Mortimer and Green, at different stations in India, have recorded similar conditions of the lungs (Aitken). Mr. Hill has often observed an exsanguined condition of the mucous membrane of the small intestines, being pale and blanched, resembling the pathological condition of cholera. Fibrinous coagula in the heart is mentioned by M. Campet, forming a common pathological condition with yellow fever, or the malignant remittents of India.

Treatment and Prophylaxis.—A study of the symptoms will furnish ample data for treatment. In view of the exalted thermal condition of the body, means to combat that condition are evidently the leading curative measures. The cold douche is a most powerful means. The patient may be stripped, and cold water poured from a height of three or four feet. Ice to the head was first used by Dr. Darrach, in 1857. He details[1] four cases treated in this way, three of which recovered. Although the douche and ice applications are valuable remedies, still we must bear in mind that depression of the vital forces forms a serious element in the disease. Care must be exercised that the cold applications are timely and only carried to that extent indicated by the condition of the patient, and the manner in which they are borne. In many cases we first see the patient in a state of collapse; it would be obviously improper in this case to use a general cold douche. Cold applied to the head, and, if the patient can swallow, teaspoon-

[1] American Journal of Medical Science, January, 1859.

ful doses of brandy and chloroform, or any other diffusible stimulant, are indicated. Relaxation of the pupils is the first symptom of amendment usually following the douche. In case of relapsing insensibility, resort must be had again to the douche; the hair should be cut short, and a blister applied to the neck or to the vertex. Sinapisms to the feet, calves of the legs, and chest, are in order when the relapsing insensibility persists. In cases in which the temperature of the body is lowered by the refrigerant measures, but consciousness or delirium persists, the cold applications should be at once discontinued, and stimulants and stimulating enemata, with sinapisms to chest and extremities, be resorted to. As soon as may be, after the exhibition of the douche, a purgative enemata should be given, followed after its operation by an enema of turpentine. In cases of cerebral congestion, Longmore and Barclay recommend a few leeches to the temples. In cases of great oppression of breathing, and where the bronchial tubes are overloaded with mucus, the patient should be turned frequently over upon his face and side. Observers in this country and in India are united in their opinion against venesection of any kind, as blood-letting always appears to hasten a fatal termination. In the convulsive form of the disease, the douche occasions great distress, and ought not to be employed. In these cases Dr. Barclay found the inhalation of chloroform very useful; the convulsive efforts ceasing after a few inspirations, but in several cases its employment seemed to hasten the fatal issue. But, as convulsions are ominous of that result of the case, the remedy may be free from blame. The free use of the bromide of potassium may be useful. In cases of tardy return of the function of the skin, the patient may be placed in a warm bath, rendered stimulating by mustard or capsicum.

Dr. Beatson, of the Indian service, gives a very judicious plan of ready treatment for military surgeons. He says: "Unfasten, as quickly as possible, the man's dress and accoutrements, to expose the neck and chest; get him under the shade of a bush; raise his head a little, and commence the affusion of cold water from a sheep-skin bag, continuing the affusion at intervals over the head, chest, and epigastrium, until conscious-

ness and the power of swallowing return. When this takes place, the affusion may be stopped and a stimulant mixture given occasionally in small doses.[1] Dr. Hewlett reports a case successfully treated by blood-letting, and the administration of codine and bromide of potassium in fifteen-grain doses.[1]

In speaking of the prevention of heat-apoplexy, Sir J. R. Martin says, "The spirit-ration and the abuse of ardent spirits constitute the chief accessories." Sir Charles Napier, when serving in Sindh, says of an attack of insolation he suffered there: "I had hardly written the above sentence, ten days ago, when I was tumbled over by the heat with apoplexy; forty-three others were struck, all Europeans, and all died within three hours except myself! I do not drink! That is the secret. The sun had no ally in liquor among my brains." Martin gives it as his opinion that, by temperance in diet, with as little exposure to the sun as may be compatible with the service, the protection of tents, head-dress, and body-clothing being suitable, European troops will march well under the hottest sun of India.

Many of the French army surgeons in Algeria, and especially M. Scoutetten, insist upon the necessity of wearing a covering for the neck as an efficient means of protection against solar heat, the neck-covering being as important as the head-dress. In my own army experience, I always observed that soldiers uniformed in the ridiculous Zouave dress were very liable to heat-exhaustion and sunstroke. In this uniform there is no covering for the neck, and the red fez and turban are the worst possible covering for the head. Troops in the field ought never to be allowed to wear it. Newly arrived troops in a hot climate ought always to be an object of special care to the officers. The protective helmet of Dr. Julius Jeffreys was of inestimable value to the British in India.

Dr. William Nolan, who had charge of one thousand men employed in building the Abyssinian railway from Zoulla to Kamaylee, under as hot a tropical sun as can be found in the world, says the men should wear a head covering which will admit of being soaked in water, or a wet handkerchief

[1] Medical Times and Gazette, December 19, 1857, p. 623.

[2] New York Medical Journal, October, 1869.

under the ordinary head covering; at the same time he permits the use of stimulants in moderation. The only head-dress worn by the natives of Abyssinia is a lump of butter, which by melting runs down the neck and shoulders, and prevents their drying in the intense heat.[1]

The protective influence of temperance was effectually demonstrated by the British troops serving at the siege of Delhi. The officers marched many days in June, July, and August, and served in the trenches exposed to a temperature of 130°, and preserved their health to a wonderful extent.[2]

In regard to the prevention of this disease in civil life, but little additional may be said. It is common among laborers to wear dark-colored flannel or cotton shirts. They ought either to be white or worn with a white cotton shirt over them. Dr. McDowall, assistant-surgeon of the Bombay Army, speaking of severe solar exposure in 1865, says: "We all suffered in exact proportion to the depth of shade of our flannel. Now, in the jungle in the hottest weather, and in the sun, I have often ridden, and do ride still, both for experiment and comfort, in my shirt-sleeves; but that shirt is white. Any other color requires a proportional thickness." The neck and chest should be covered. A light straw or palm-leaf hat with a high crown is the most suitable head covering for laborers in the sun, worn with fresh leaves or wet handkerchief in the crown. The working-man should always attend carefully to his diet, and never work exposed to a high temperature while suffering from the calls of hunger. The overseers of public works ought to impress upon their men the importance of total abstinence as a preventive of sunstroke. The violent reaction following over-stimulation is attended with most serious effects when the subject is exposed to a high temperature. Men should be instructed that, when they experience a sense of fulness in the head and of tightness across the chest, with a total or partial suppression of the perspiration, they ought immediately to stop work and protect themselves from the sun's rays until the functions of the body are restored. Persons in infirm health or convalescent ought to take extra pre-

[1] Dublin Quarterly Journal of Medical Sciences, January, 1869.

[2] Lancet, March, 1859.

cautions when exposed to severe heat. It should always be borne in mind that only sound and temperate men are able to bear severe exertion in a high temperature with impunity.

ART. III.—*A Case of Strangulated Oblique Inguinal Hernia, reduced en masse; together with Strangulated Ventral Hernia; Operation; Recovery; and Remarks upon the Accident of Reduction, en masse.* By ERSKINE MASON, M. D., Surgeon to Charity Hospital, etc.

ON the morning of April 7th I was asked by Dr. R. J. McKay to see a patient suffering from strangulated hernia. The patient, a strong, muscular man, aged thirty-two, by occupation driver of a lumber-wagon, stated that, seventeen years ago, while trying how high he could kick, he found he had ruptured himself upon the left side, and about two years later, after some exertion, discovered a rupture also in the right inguinal region. Three or four years since he perceived a small rupture in the median line, two and a half inches above the umbilicus. These ruptures have been reducible up to the present time, and he was in the habit of wearing a truss for those in the inguinal region. Lately he had procured a truss "which fitted very tightly," and after a little while noticed that, when the hernia on the left side came down, it was more troublesome to reduce. Several weeks since it came down one night, and pained him very much, and, after "about four hours' work," he reduced it himself. The ventral hernia has lately given him considerable uneasiness, and it has been more difficult of reduction. The doctor informed me that, on Monday night, April 4th, about ten o'clock, soon after going to bed, the rupture on the left side began to pain him, it being down. The patient had made several attempts to reduce it himself during the night, but failed. The next morning, about eleven o'clock, the doctor saw him. He had been vomiting since one, A. M., and was suffering from symptoms of strangulated hernia. Taxis was now resorted to for ten or fifteen minutes; the doctor being obliged to leave for the present, ordered warm-water injections and a poultice over the abdomen. When he was seen again, his condition being the same, ice was applied over both inguinal regions as well as over the ventral hernia. In the afternoon, Dr. E. M. Cameron saw the patient with the doctor. The severity of the symptoms had now increased, the vomiting being more frequent, and the pain in the abdomen greater at this time; between four and five o'clock Dr. C. applied the taxis for some time; says he distinctly felt the gurgling of air leaving the intestine, and the patient felt something slip back; the tumor had disappeared, and the man felt relieved. Ten drops of Magendie's solution were administered subcutaneously, and the patient remained com-

fortable for some hours, when the pain and vomiting returned. At half-past seven the next morning the hernia was found again protruding and painful, as well as the one above the umbilicus; Dr. McKay applied the taxis, and was under the impression both were reduced, as they appeared to slip back with a gurgle; ten drops of Magendie's solution were again given in the same manner. At five P. M. he learned he was suffering again, and vomiting; at half-past six he was seen, when no tumor was discovered in the inguinal region, and the pain was located in the region of the ventral hernia, which had again appeared, but was only the size of a buckshot; an attempt at reduction was made, but was unsuccessful. Another hypodermic injection of ten drops of morphia was given, and fifteen drops were ordered every three or four hours, as symptoms required it. At eleven that night Dr. C. saw the patient with Dr. McK., and another attempt at reduction of the ventral hernia was made, but in vain. Ten more drops of morphia were given, as at first, and the patient left for the night. The following morning his condition was very bad; pulse 92; temperature 99.7. I saw the patient in company with Drs. McKay, Cameron, and Eager, about half-past ten, just sixty hours after the first symptoms of trouble showed themselves.

I found the patient somewhat under the influence of morphia, and with all the symptoms of strangulated hernia, the abdomen was tympanitic, and evidence of considerable peritonitis was manifest. Upon inspection, nothing abnormal was observed in the inguinal regions, but a small tumor above the umbilicus in the median line, the size of a small bullet, was readily seen, and to the touch felt very hard and unyielding. A careful examination of the right inguinal canal revealed nothing. On the left side, however, by introducing the finger well into the canal, I discovered a small tumor in the neighborhood of the internal ring; this was painful to the touch, and gave an impulse, I thought, when the patient coughed. Just over the internal ring, upon pressure, he complained of considerable pain; this was decidedly the most tender portion of the abdomen. This tumor was evident also to those present upon careful examination. My diagnosis of the case, then, was, that the hernia had been reduced *en masse*, and that this was the chief source of difficulty, and the one to be attended to first; afterward to examine the ventral hernia. The patient was accordingly placed under ether. During his struggle, while coming under the anæsthetic, the hernia was caused to descend somewhat in the canal. Cutting down upon the external ring, no sac was seen. I therefore divided the ring, and laid open the canal about an inch, when the tumor was reached. This was carefully drawn down, and found to be intestine enclosed in the sac. The sac had to be brought down two or three inches before the site of stricture was discovered. Here several bands were found encircling the sac. These were divided, with the expectation that they were the cause of constriction, and, as in a previous case (which I reported in *Medical Record*, August 1, 1858), would render the opening of the sac unnecessary. It being evident, however, after these were divided, that the stricture was

within the sac, this was nicked just sufficient to permit the point of a small director to be introduced; this I passed under the stricture, and divided the same. About a tablespoonful of fluid, the color of sherry wine, escaped, which was devoid of any odor; the appearance of the intestine was quite dark, but, there being no odor of gangrene present, I did not think it necessary to lay open the sac further and make a more extended examination of the contents than were seen through the sac. The parts were now reduced without any trouble. The length of the opening in the sac did not exceed a line in length, as all present can testify. No vessels required the ligature, and the wound was dressed in the usual way. The patient had a sharp attack of peritonitis following the operation, but under the opium treatment, and owing to the skilful care of Dr. McKay, he made an excellent recovery, and is again following his occupation.

This is the third case that has come under my observation, where the rupture has been returned without the stricture being removed. These cases were two of the oblique inguinal, and one of the femoral variety. This case appears to me to be a true case of reduction *en masse*, namely, that the intestine and sac were returned *into the abdominal cavity*, and that no laceration of the sac had taken place. The reasons for this belief are: 1. That no tumor was felt through the abdominal walls, in the region of the internal ring; this being the place where the tumor is found when it has escaped through a lacerated sac. 2. Because no sac was found in the canal at the external ring, and it was free from surrounding attachments, being readily drawn down and pushed up in the canal. 3. Had there been a laceration of the sac, the fluid would have passed out either into the areolar tissue of the abdominal parietes or into the cavity of the peritonæum, thus leaving no fluid to flow out in such quantities when the sac was opened for the purpose of liberating the stricture, as happened in this case. Again, had a laceration been produced by the force of taxis, this tear would, I think, have been apparent, the sac being drawn down for some distance, and the portion above the stricture being visible for an inch or more; no such rent, however, was perceived. Here, then, is a hernia existing for seventeen years, and finally reduced *en masse*. This belief militates against the general opinion expressed by Mr. Birkett, which is alluded to in this paper. The other case of oblique inguinal hernia I was called to see a few hours after

an operation for the relief of strangulated hernia had been performed.

The gentleman who operated, being in some doubt as to whether he had thoroughly divided the stricture and reduced the whole intestine, some symptoms of strangulation still continuing, asked me to see the case with him. Found the man suffering with some symptoms of peritonitis, but his pulse was not very high, and of good quality. No especial pain was complained of in the region of the inner ring, and no tumor was detected; indeed, it did not appear to me that the patient was suffering more than we are wont to see after many operations for the relief of strangulated hernia. I therefore discouraged the resort to an explorative operation at present; but, if the symptoms should increase, and the doctor felt in doubt as to the thorough liberation and reduction of the parts, I advised then to open the wound and make a thorough examination. The result of the case proved my opinion wrong, and my advice consequently injurious for the welfare of the patient. I learned, the symptom continuing, that the doctor had opened the wound, and found a portion of intestine still strangulated. This was liberated, but the patient died, and the autopsy revealed a gangrenous condition of the bowel. The other case (one of femoral hernia in a man) was reported in the *Medical Record*, August 1, 1868, p. 242. In this case, after some fibres of Poupart's and Gimbernat's ligaments were divided, the sac and contents passed back rapidly into the abdominal cavity. Passing my left forefinger through the canal, I could distinctly feel the sac, and was fortunate in being able to retain it in position, while, with the forceps, I was enabled to seize the sac, and draw it out again. The stricture was found to be due to bands external to the sac, which, being divided, allowed the ready return of the intestine. The patient died from prostration, induced from the long continuance of the stricture, and the autopsy showed that no laceration of the sac had taken place.

This accident of reduction *en masse*, or reduction *en bloc*, was first recognized and described by the French surgeons. It appears that Saviard, in his "*Observations de Chirurgie*," a work published in the commencement of the last century, was

the first to refer to this subject. He relates a case as having occurred to a surgeon of skill, who believed he had exposed the intestine, which, after being separated from its supposed attachments, was reduced. Death occurred forty hours after this operation, and Saviard made the examination of the body, and revealed the stricture at the neck of the sac, the sac having been returned unopened with the intestine, into the abdomen. To Le Drau, however, is the credit generally given of being the first to describe and bring forward this subject before the profession. His case, however, did not occur, it appears, according to Dr. Blackman (*Journal of the Medical Sciences*, October, 1846), until thirty years after that referred to by Saviard. The case of Le Drau created no little discussion in the French Academy; and though his statement was corroborated by De la Faye and Arnaud, the nature of the case was doubted by Louis and other surgeons of distinction, on account of the supposed close connection of the sac with the neighboring structures, and the large size of the tumor rendering difficult the reduction beneath the crural arch, the case being one of femoral hernia. In his "Observations on Surgery," a work written more than a century ago, Le Drau clearly describes this form of hernia, and lays down the rules for its proper treatment. Other French surgeons, as Scarpa, Sabatier, Dupuytren, and Sanson, had also met with such cases, and Sabatier, in his *Médecine Opératoire*, in speaking on this subject, makes the statement, which later experience has since confirmed—that this form of hernia occurs most frequently where the stricture is at the neck of the sac, and in the inguinal variety.

Though this accident seems to have been met with by the French surgeons, it does not appear to have fallen under the notice, or at least been recognized, by the English until a much later period. Laurence, in his work on hernia (p. 86), says: "I have never seen a rupture reduced in a mass in this manner in the living body; nor have I seen any example of such a reduction in pathological collections." Mr. Key, in his work on the "Advantages and Practicability of not opening the Sac," remarks on this point (p. 121) that he has never known this accident to take place, where the hernia has been

reduced by taxis. Sir Charles Bell, it would appear, was the first among the English surgeons who published an account of this form of hernia, and related cases coming under his own observation. Thus in the London *Medical Gazette* for 1828, vol. i., p. 484, he relates a case where the stricture was at the neck of the sac, which, with the neighboring part of the abdominal peritonæum, was separated from the ring and the contiguous part of the abdominal parietes, which allowed the intestine, though closely confined by the stricture, to descend into the scrotum and pass back again freely. The neck of the sac was thus carried into the abdomen, and the detached peritonæum was distended by the strictured bowel, so as to form a swelling behind the upper opening of the canal. The next case reported, according to Mr. South, in his notes to Chelius's Surgery, was in 1836; this was in the practice of Messrs. Green and Callaway; and then that of Bransby Cooper, reported in Guy's Hospital Reports, vol. iv., p. 326; the case coming under his notice in 1839. It would appear, from Mr. South, that the credit of bringing forcibly before the notice of English surgeons the reduction of a rupture *en masse* by taxis is due to Mr. Luke, who read a paper on this subject before the Medico-Chirurgical Society, April 25, 1843. This paper may be found in vol. xxvi. of the Transactions for the year 1843, p. 159. In this article he relates five cases which came under his notice; three were after death, and two he had under treatment; one of these would not submit to an operation and died, while the other was operated upon and recovered. The next paper on this subject, which we find among the writings of British surgeons, is the very valuable one of Mr. John Birkett, with special relation to the anatomy of the actual lesion, and deductions derived from the examination of cases. This paper appeared in the Transactions of the Medico-Chirurgical Society for 1859, vol. xxiv., p. 247.

But little on this subject can be found, as far as I have been able to discover, in our own journals, with the exception of the paper by Dr. Geo. C. Blackman, which may be found in the *American Journal of Medical Sciences* for October, 1846, p. 336. This paper was greatly enlarged, and published as a memoir upon this subject, by the same author, in 1851, and

is probably the most complete work on this subject in any language.

Though this accident had been doubted, the possibility of a rupture being returned *en masse* was proved by experiments on the cadaver by Jules Cloquet. He says: "When the neck of the sac does not adhere closely to the ring, the areolar tissue which connects them may give way, and thus the sac and ring become separated by the force used in taxis. The sac is gradually pushed through the ring, dilating it, and finally slips up suddenly, and gets behind the opening. Here the reduction would be complete, the hernia passing up *en masse*, and is placed between the peritonæum and abdominal parietes. In this case it may easily be felt through the abdominal walls, by placing the finger on the spot where the rupture had been; it forming a hard tumor deeply seated above the ring. By its elasticity the ring contracts somewhat, and in a measure prevents the return of the rupture." In about twenty-five instances he states he has reduced a hernia *en masse;* part of these were strangulated, or otherwise irreducible, and some of empty sacs; these, of course, referred to his trials upon the cadaver. He believes it is more readily accomplished in direct inguinal, than in femoral, and more difficult in the oblique inguinal. In the umbilical ruptures of adults, he never succeeded in attempts at the reduction *en bloc*.—("Researches on the Causes and Anatomy of Hernia.") Considerable discussion has taken place among different observers, as to the locality of the rupture when, as it is termed, reduction *en bloc* has occurred, some regarding the tumor and its sac as returned into the abdominal cavity, while others regard the sac as ruptured at the neck and the contents still constricted, forced between the abdominal walls, viz., between the peritonæum and the muscular parietes. That the rupture when recent, and when the sac has not yet formed strong attachments to the surrounding parts, especially a direct or femoral hernia, may be forced directly at times into the cavity of the abdomen, we believe is often the case. This would, it strikes us, be very apt to be the case where a portion of the omentum, or intestine, is adherent to the sac, thus producing an inversion of the sac, and, indeed, such cases have been recorded. Again, from the

descriptions of autopsies by the older writers, we must believe that the sac and its contents have really been found within the cavity of the abdomen, and not between the parietes of the same. Thus Cloquet found after death the sac of a direct inguinal hernia returned, he says, into the abdominal cavity, like the finger of a glove, it having been drawn in by adherent omentum. And Searpa, in his *Traité des Hernies*, observes there is no doubt that recent and small herniæ have been reduced by taxis, still strangulated into the cavity of the abdomen. In old scrotal herniæ, where the sac necessarily has formed intimate adhesions with both the cord and neighboring structures, the situation and surroundings of the intestines, when thus reduced, must in the great majority, if not in all cases, be very different. Mr. Birkett, in the valuable paper before referred to, appears to have demonstrated the true anatomy and mechanism of most cases of oblique inguinal, and especially of the scrotal variety, and gives four plates to elucidate the points under discussion. He appears to prove that in this form of hernia, when the tumor has fairly passed from the inguinal canal, properly speaking, reduction *en masse* has not taken place, but only the contents of the sac have been reduced. The sac, he believes, will be found in the scrotum and inguinal canal with their usual attachments to surrounding parts; the viscera being found, not in the cavity of the peritonæum, but between the peritonæum and abdominal parietes, in the locality of the internal ring, a laceration having taken place in the vicinity of the neck of the sac. He says, p. 266: "If the fluid does not escape into the peritoneal cavity, through the mouth of the sac, the coats of the sac itself must at last give way . . . . the fluid is allowed to extravasate into the neighboring connective tissue. This gives rise to the delusive feeling that, as the hernial tumor is slowly diminishing in size, its contents must be passing into the peritoneal cavity." The laceration, he states, is usually in the posterior wall of the sac, and this is the weakest part, it deriving at this point the least strength from surrounding parts. If an examination by the finger is made, an opening will be found which might be mistaken for the mouth of the sac, but which is the laceration through which the intestine can be felt. Mr. Birkett gives

three tables at the close of his paper, of 37 cases, said to be reduced *en masse*. The first table embraces 8 cases of inguinal hernia, reduced *en bloc*, where no operation was performed, and death resulted. The second includes 13 cases, which were operated on, and recovered; while the third gives 16 cases, which underwent an operation, and death ensued. Of these 37 cases the age is given in 22, at which the hernia was developed, viz.:

In infancy	4 cases
In youth	2 "
Before 20 years	1 "
From 20 to 30 years	8 "
From 30 to 40 "	5 "
From 40 to 50 "	2 "
	22

In 29 of the cases, the side upon which the hernia appeared was as follows: in the right side, 20 cases; in the left side, 9 cases.

Among these cases the earliest age at which this accident happened was thirteen years, and the oldest was seventy-nine, and all occurring in males. Mr. Teale, in his work on hernia, gives 21 cases of this accident; the variety and results are stated as follows, viz.:

Variety.		*Results.*	
Femoral	5	Deaths	14
Inguinal	14	Recoveries	6
Not stated	2	Not stated	1
	21		21

Thirteen years is the youngest age, so far as we have any account, at which this accident has happened—that it may occur, however, at an earlier period of life, is not at all improbable. The longest period which elapsed from the time of accident till the operation for its relief was performed, as far as we can ascertain, was in a case of femoral hernia in the practice of Dupuytren, and related by Laurence, p. 127, where the operation was not performed till the twelfth day, and eight days had elapsed in four cases, among Mr. Birkett's collection. One of these is a case of Mr. Luke's, which is

given in detail in his paper before referred to; the patient died on the second day after the operation; copious discharges continued to flow from the opening left for this purpose, up to the time of his decease. Recovery has been known to occur when this condition has existed between five and six days. This case occurred to Dupuytren, and is related in Dr. Blackman's paper. Here he was misled by false statements on the part of the patient, and cut down on the wrong side; repeating the operation on the other side, the source of trouble was discovered and removed. This accident may occur to recent as well as to herniæ of long standing, but has occurred only, I believe, to the inguinal and crural varieties. The cause of this occurrence is due in the majority of cases to forcible efforts to reduce by taxis, either at the hands of medical men or in the manipulation by patients themselves. Still we should bear in mind that surgeons have reported this accident to have happened when only "gentle" (!) attempts were made at reduction; and Laurence reports a case of Dupuytren's, where the hernia went up of its own accord, strangulated *en masse*, "suddenly and with noise." This is the same case we have referred to before, where the operation was not performed till the twelfth day. Several varieties of this accident may be met with: 1. That form where the rupture, though caused to disappear from the canal, presently returns. 2. Though it has disappeared, still may be caused to return with the efforts of patient and surgeon. 3. Where no efforts of either patient or attendant can cause its descent. One rare form has been met with, we believe by Dupuytren, where the integument, it being adherent to the sac, was invaginated in the inguinal canal.

In making a diagnosis, whether we have to deal with a reduction *en masse* or no, we may be beset by many difficulties. The history we receive from the patient might cast strong doubts upon the case, while the non-descent of a testis, and the remembering that the symptoms of strangulation do not always immediately disappear after a single reduction, may tend to embarrass the observer in arriving at a true diagnosis. In the examination of a case where this accident is supposed to have taken place, we must not be led astray by

the absence or presence of a tumor, or a certain amount of fulness in the canal, as this may be due to an adherent portion of sac, or swelling of parts from attempts at taxis. Our examination, both from questioning our patient and by digital examination, cannot be too critical. We should seek to discover whether the hernia was of old or recent date, and if soft or hard and painful—an old and hard hernia being more liable to this accident than any other—how it was reduced, and the direction the taxis was made in. A careful examination should now be made of the canal. According to Mr. Luke, in his paper on this subject, "under ordinary circumstances of hernia, when the contents are reduced into the abdomen, the area of the aperture is occupied by the remaining sac, while its margins are rendered more or less obscure. If, then, a large aperture be found free and unobstructed, with its margins unobscured, there is raised not only a presumptive evidence of the previous protrusion of a hernia at this point, but also the other evidence of the displacement and probable return into the abdomen of the sac by which the hernia had been invested." Should we meet with a tumor in the course of the canal, then our diagnosis may be comparatively easy. When, upon pressure just above the internal ring, we give rise to more pain than elsewhere, and by relaxing the abdominal walls and then pursuing our examination we feel a tumor just beyond the internal ring, or in the iliac fossa, we may be pretty confident of the nature of the case we are called to deal with. Should the symptoms continue, and we still are in doubt, nothing remains but recourse to an explorative operation. Strange as it appears, we must never forget that, even after a hernia has been reduced in this manner, the symptoms for a while may subside and the patient express himself as relieved and feeling comfortable. When hernia exists upon both sides, and we are not satisfied upon which side the trouble exists, we have but to explore first one side, and if not so fortunate to find the difficulty there, then, as in the case of Dupuytren, which we have reported, we must operate upon the opposite side. In regard to treatment, a cutting operation is the only thing that holds out any prospect of relief. Should we be able to cause a redescent of the tumor, it would not,

I think, be justifiable to again resort to taxis, for we could not be certain of having freed the gut from its constriction, even though we returned the tumor; and by this practice we might cause the rupture to be placed in a far more dangerous position than before. In our operations we should bear in mind that the tumor may be found in more than one or two situations; for example, in a case under the observation of Sanson, and narrated by Blackman, where the patient had reduced the tumor himself, and, after death, an examination revealed the tumor between the pubis and fundus of the bladder. Before death, an endeavor was made to detect the presence of a tumor which he thought must exist behind the internal ring. Sanson concludes the relation of this case with this sentence: "Suppose that I had been called to this man in time (he being moribund when brought to the hospital), how could I have distinguished the symptoms under which he was laboring, from those dependent on an internal strangulation, coinciding with the reduction of a hernia free from strangulation?" The recollection of this case will be of service to surgeons when called to operate for the relief of a hernia reduced *en masse*.

When we have this accident to deal with, we should use all means at our command, such as having the patient assume the erect position and by straining and coughing endeavor to cause the redescent of the rupture. If this can be done, our operation will be one of comparative ease. This not being possible, the canal should be carefully opened, and the parts thus brought clearly to our view. The tumor should then if possible be drawn down carefully, by aid of the forceps, which at times can be done with great facility, proper caution being used so as not to lacerate the contents of the sac. In our explorative operations Mr. Luke makes this excellent suggestion, viz.: "If the size of the ring be normal, a *hernia* has not descended through it; or if it be larger than the normal state yet occupied by an empty sac, an evidence of the previous existence of a hernia, together with an evidence of the reduction of the hernia without the sac being also reduced, is established. But should the ring be found large and free from other obstructions than the cord, and if the cord be distinct and unobscured by the presence of a sac, and a void be found

where fulness is to be expected from the previous history of the case, a strong presumptive evidence on the contrary side is established, that the hernia, together with its investing sac, is reduced." Should we find the sac, by opening the same, and passing one finger through it, the finger will detect the tumor, if present. Indeed, should a hernial tumor exist, by passing one finger through the inner ring (considering it to be of the oblique, inguinal form, which is the most common) the presence of the rupture will be evident, lying external to the peritonæum (usually) though within the abdominal walls. Should the surface of the peritonæum feel smooth and no laceration be detected, and the connection which the peritonæum maintains to the internal ring be intact, we then may suppose no reduction *en masse* has taken place. Should we find such a tumor, we may enlarge the inner ring, so as to allow the hernia to resume its former situation, thus permitting a thorough examination of the part and liberating its stricture.

Mr. Birkett, in referring to the operation in the oblique variety, says the operator having opened the sac and passed the finger upward to the internal ring, he will, very probably, pass it through the laceration in the sac, and, feeling the intestine, he will suppose he has reached the peritoneal cavity. This, however, he has not yet accomplished. He must next draw the bowel into the inguinal canal, and then, by passing the finger along the *anterior* surface of the mesentery, he will reach the *orifice* of the hernial sac, which finally constricts the protrusion. The orifice of the sac must now be divided, and, in the reduction of the hernia into the peritoneal cavity, great care is required to prevent its gliding through the laceration. He further observes, if an assistant draws down the sac steadily while the operator introduces the bistoury on his index-finger, the stricture will be divided with greater facility. In the direct or crural variety we would expect to find the sac not lacerated, and still containing the constricted viscera. In such cases, therefore, the sac would, perhaps, be invaginated like the finger of a glove.

ART. IV.—*On the Internal and External Use of Mineral Waters.* By A. KESSLER, M. D., Hartford, Conn.

WHAT are mineral waters? Waters impregnated with mineral substances would seem to be a perfectly plain and correct answer, and yet a little reflection will show that this definition is by no means justified in the light of physical and chemical facts. Does not all water chiefly belong to the mineral kingdom, and does not even the rain-water contain foreign substances in admixture with its own essential elements? And if the term "mineral water" implies indeed the presence of a larger quantity of mineral substances than is usually found in common sweet water, we must not lose sight of the fact that there are springs noted all over the world for their efficacy and healing power, such, for instance, as *Gastein*, *Wildbad*, *Pfäfers*, *Plombières*, *Bagnères de Luchon*, and others, which contain no more and even less solid constituents than certain sweet waters, and which in taste and odor are scarcely distinguishable from *aqua destillata.*

It is thus not only the presence of mineral ingredients that imparts to these waters their marked efficacy, but the *nature of the predominant active principles* and the particular—dynamic, physical and chemical—characters resulting from their presence. We would therefore prefer to define mineral waters as waters that, in consequence of their dynamic, physical, and chemical effects, are employed as medicines—as *medicinal* waters—a term corresponding to the German "*Heilquellen.*"

The effective principle of each mineral water must be considered as consisting of *three* unities of action: 1. The *water;* 2. Its *temperature;* and 3. Its *chemical constitution.*

1. The Mineral Water considered as a Fluid.—Inasmuch as water forms the basis of all organic and chemical processes, it is not only an integral component of organic matter, but also a formative element of the same, with whose relatively normal proportion the physiological function of matter is indissolubly connected. As, however, no mathematically definable rules exist for any single corporeal function, so also are there none for the proportion of fluids which the organism requires necessarily for its vital process. This measure lies rather within

more or less changeable limits. Yet the organism possesses enough auxiliary means for equalizing greater deviations from the normal condition, and thus for preserving in a certain breadth the natural proportions. The internal and external secretory organs regulate in general this mean proportion, removing any excess of fluid by increased activity, and arresting waste in a decided want of fluid by lessened activity. Water offers to us, therefore, a remedy, by the methodical employment of which we are enabled to produce certain changes in the organism that are useful for definite healing purposes. Of the nature of these changes we possess valuable investigations by Genth, Mosler, Böcker, Liebermeister, and others. Abstraction of fluid causes naturally a stasis in the secretions and excretions, especially in the renal secretion, and not only a lessened secretion of water but also of the solid constituents of the urine, urea, chloride of sodium, phosphoric and sulphuric acid; the eliminations through the cutaneous surface, the alimentary canal, and other secretory organs, are likewise more or less restrained. An abundant supply of water, on the contrary, increases not only the fluid discharge from the kidneys, but also the secretion of the solid urinary constituents; here, too, the quantitative increase affects chiefly the urea, whereas the uric acid, transformed by higher oxidation into urea, almost wholly disappears.

Deficiency of water restrains, excess of water increases, the process of assimilation. What are the therapeutic inferences to be drawn from this all-important physiological fact, as far as they concern our subject? If we have to abstain from supplying the body with an undue quantity of water in profuse secretions, colliquative processes and conditions of debility resulting therefrom, we may, on the other hand, expect salutary effects from an abundant administration in cases where there exists a tendency to condensation either in the fluid or solid parts, a tendency beginning with the retarded forward movement of the juices—stasis—developing into an induration and degeneration of the tissues, and preparing a fertile soil for the rise of general chronic nutritive derangements. Also, where excrementa, retained in the organism as products of a retrograde metamorphosis, are to be eliminated from the body by

attenuation, and an increased activity of the secretions and excretions. Water is, from this point of view, the most sovereign *solvens*, inasmuch as the solubility of most of the organic tissues increases with its augmentation, and as the functional activity of the organs is heightened by their greater saturation with liquid plasma. Contraindicated in all affections in which the vital fluid is greatly vitiated, that is to say, in all pronounced cachexies, and when extensive material alterations of any organ are existing, absolutely injurious, and instead of being capable of promoting resorption, rather hastening a fatal termination in diseases complicated with hydræmia, ascites, œdematous swellings, and total decay of the digestive power, mineral waters are highly efficacious remedies within a very large sphere, and a considerable share of their healing force must be ascribed to the general remedial action of *water as such*.

2. **The Temperature of the Mineral Water.**—One of the most essential conditions for the preservation of the animal economy is the production of a warmth peculiar to the organism. Under the most varying vicissitudes of the outer temperature, it remains pretty constant—springing as it does from the vital process itself and conditioning and sustaining again the latter. But although the proximate source of the heat-production resides in the body itself, yet the outer temperatures are not without their influence upon this process; on the contrary, we possess in them the most powerful lever for operating upon it, and thereby also upon all other functions of the organism. The same laws applying to the correlative action of various temperatures in inanimate bodies reassert themselves also here, only with the difference that with this physical alternation in the living organism goes hand in hand an equalizing process which, according to its force, the length of its duration, and the differing individuality, gives rise to other organic processes, variable in degree and intensity.

The exchange of opposite temperatures depends, however, not solely upon their quantitative difference; indeed, the capacity for heat and the conducting power of the bodies coming into contact with each other exert upon it an influence no less essential. Since water exceeds not only all other bodies

in capacity for heat, but also the air, the ordinary medium of the organism, by far in conducting power, it is evident that we are able to produce the most potent effects by means of the temperatures inherent in the water. If we assume for the organism and its surrounding temperature a close indifferential point, it is to be found in the specific temperature of the body itself; consequently at 38°—39° C.=100°—102° F.—blood-heat—for the internal parts, and at 35° C.=95° F.—warmth of the skin—for the external parts.

The employment of *hot water*—98° Fahr. and above—that is to say, the addition to the proper bodily warmth of an external heating agent, produces a very rapid and strong interior accumulation of heat, and thereby a most vehement reaction upon the circulatory and nervous systems. The *hot bath* should but rarely, and with great precautions, be administered for medicinal purposes, and should last only a very few minutes. It is a powerful excitant, producing profuse perspiration, inciting the heart to vehement action, weakening the functions of the digestive apparatus, and causing a decrease of appetite, constipation, and a feverish condition. The opinion that hot baths are required for the removal of rheumatic and arthritic affections is erroneous; they injure, on the contrary, very often the treatment by checking the discharges from the kidneys and the alimentary canal.

If we surround the body with water heated to 95° Fahr., both temperatures are in a state of equilibrium, and the physical exchange of heat is inconsiderable. But what sequels must result from the *longer duration* of this influence? The organism, accustomed to radiate heat through the cutaneous surface, lacks the cooler medium to which it can conduct it; the inner production of heat goes on, in the mean while, uninterruptedly, and sooner or later an excess of the same must be generated in the body that will share all the consequences of a heat conducted from outward; the apparently indifferent becomes thus, by the natural processes of the living organism, something different. This is the effect of warm baths if continued for some time, and then analogous to that of hot baths.

The degrees below 98° Fahr. represent the various modifications of temperature known as *warm*, *tepid*, *cool*, and *cold*.

They pass into each other in slightly-perceptible transitions, that are not only determined by the absolute temperature of the water, but also by the individual constitution, and by several external circumstances. It is but proper to remark here that the susceptibility to the influences of temperatures varies greatly with healthy as well as with sick persons, and that they require for their determination a more reliable factor than mere thermometrical degrees, namely, the so-called *individual susceptibility*. For each organism exists a definite degree of temperature by which it is not in the least affected, in other words, a temperature influencing so little the cutaneous nervous system that a propagation of this effect upon the central nervous and vascular system is not perceptible, and that the frequency of the pulse and respiration, the turgor of the skin, assimilation, and proper heat, remain unchanged. This may be called the *indifferent* employment of water.

While the *warm bath*, ranging from 97° Fahr. to 88° Fahr., produces a moderately-increased flow of the blood to the periphery, a proportionate increase of the cutaneous turgor and of perspiration, a mild excitation of the assimilative process, and an augmented activity of the mucous membranes investing the respiratory and digestive apparatus, and is, therefore, best suited for rheumatic and arthritic affections, the *tepid bath*, ranging from 87° Fahr. to 78° Fahr., reveals its efficacy as a *fluid* agent in the purest and most perfect manner. The difference of temperature between the body and the water being very slight, the inconsiderable decrease of warmth is quickly compensated by the internal heat-production, and hence the equilibrium speedily restored. It operates upon certain individualities as a slight sedative, without giving rise to any perceptible reflective action; it deprives the body of a small portion of heat, and lessens undue vascular activity and nervous erethism. Hence, it is of very excellent service in abnormally-increased irritation of the nervous system in hyperæsthesias and neuralgias, and especially suited for neuropathic constitutions.

If the temperature of the water sinks lower yet, from 77° Fahr. to 65° Fahr., and its influence calls forth a decided reflective action, we call it a *cool bath*. The abstraction of warmth by

the colder external medium ensues very rapidly and soon exceeds the internal heat-production; this diminution of warmth becomes first perceptible on the cutaneous surface, producing a contraction of the cutaneous muscles and of the muscular fibres of the cutaneous vessels, and a rising of the hair and sebaceous follicles, the so-called *cutis anserina.* The blood recedes from the outer surface and is driven inward, accumulating in the internal organs, thereby causing stagnation, and restraining functional activity, chiefly noticeable by a considerably lessened frequency of the pulse. The organism cannot long remain in this state without encountering serious perils; the central parts, reflecting the stimulus which they received from the cutaneous sensory nerves upon the motor nerves, incite the latter to increased activity, and the primary effects produced by the surrounding cool medium are soon followed by a reaction. The blood returns in a quicker flow to the surface, the skin reddens, turgor and warmth increase, perspiration rises not seldom to a profuse sweating, and all organic functions succeed more energetically in consequence of the greatly incited assimilation. If the bath is, however, too long continued, it decidedly depresses and debilitates, reaction being checked and suppressed.

All this applies, of course, with far greater force to the *cold* bath, below 65° Fahr.; here, too, the same reaction follows after a few minutes, and exerts a powerful stimulus upon the cutaneous nerves. But, if the application is too long continued, it checks all vital functions, and not seldom results fatally, in consequence of the excessive abstraction of heat, together with an undue determination of the blood toward the internal organs.

The peculiar effect of water upon the organism, if applied to the external surface, is—apart from the known effects of temperature—not fully explained yet. The exact investigations of Falk, Lehmann, Beneke, and others, clearly demonstrate that the skin does not absorb water even after hours of the closest contact, and that it continues wholly impermeable to all substances held in solution therein, so long as the epidermis remains intact. And yet the external application of water is capable of producing very important physiological

changes, not ascribable to its temperature merely, among which a *decrease of the bodily weight* and an *increase of diuresis*, with a proportionately increased discharge of the solid urinary constituents, are the most constant. We know that common water and sea-baths exert a great influence over the organism; how much more powerful, then, must be the effects produced upon the organic functions and upon assimilation in general by water strongly impregnated with mineral substances and gases! The soluble salts, not being absorbed by the cutaneous surface, the chief potencies in generating physiological and therapeutical action are evidently the *degree of density*, the *temperature*, and the *gaseous contents* of the water that pass through the skin and respiratory organs into the circulation. The appropriation of efficacious substances by the lungs, to which Prof. Löschner, in Vienna, first drew attention, is certainly an important circumstance—calculated to shed some light upon the profoundly obscure action of the indifferent thermes. This much is sure, that the inhalation of a larger quantity of nitrogen, said to act as an indirect sedative on an excited, nervous, and vascular system, cannot be without influence.

While the external use of mineral waters is, or ought to be, *chiefly* confined to warm or tepid baths—no matter whether fixed so by nature or artificially altered—cool and cold are the predominating temperatures of springs employed internally. Some are found at a higher degree of temperature, and taken in their natural state, like *Vichy*, from 88° to 112° Fahr.; *Schlangenbad*, the paradise of nervous, hysterical women, suffering from all kinds of uterine diseases, of whom this country sends annually a large contingent, 86° Fahr.; *Aix-la-Chapelle*, 130° Fahr., etc. Others, again, are naturally so hot that they have to be cooled before being used, like *Baden-Baden Hauptquelle*, 153° Fahr.; *Wiesbaden Kochbrunnen*, 155° Fahr.; and *Karlsbad Sprudel*, 165° Fahr.; the latter, most famous among all springs of the world by its abundance, its heat, its mineral wealth, and its wonderful efficacy. Only a few days ago the writer had occasion to read in European papers that a Carlsbad water-cure had restored health and strength to a long-suffering invalid with whom every other treatment had

failed—to a personage whose well-being deeply concerns a large nation, yea, all Enrope—Count Bismarck, the anthor of German nnity.

3. The Chemical Constitution of the Mineral Water.—It is self-evident that the specific and individual character of each mineral water is based on its chemical elements. But although this chemical constitution—as determined by a careful analysis—lends us not only the chief and most direct motive for the practical employment of the therapeutic agents under consideration, bnt fnrnishes also the indications for their special use in individnal cases, from a physiological and pharmacological stand-point, yet it can never serve as our sole and reliable gnide, without the touchstone of experience. For, apart from the physical and dynamic nature of mineral waters and from the method of application, all of which largely modify the effect produced by them, they are in themselves, as mere chemical bodies, very composite medicines. Granted even that the physiological action of the single constitnents, the salts and the gases, has been carefnlly studied, we have yet to deal with the *combined effects* of a great number of snbstances that cannot possibly be identified with the snm of the single effects, because they partly assist each other; partly again restrict each other in their relation to the organism.

Although hydrology has in recent times been placed in full accord with the active progress of medical science in general—although in that discipline, too, the path of exact inqniry has been opened, the method of physiological experiment and the accurate investigation into secretions and excretions have been initiated—we are still far from clearly demonstrating the effects of every mineral water, and from precisely determining the indications for each one. We must as yet chiefly rely on *experience*, and hydrology remains, therefore, to the present day an *empirical science*. The mode of action of the so-called indifferent thermes—so destitnte of traceable chemical principles—is still scientifically unsolved; and yet experience not only teaches us in what diseases they prove highly beneficial, but ranks them as among the most nseful therapeutic agents that are often nnerringly efficacious when many others have failed.

But we must not leave out of consideration that hygienic and dietetic influences are of essential importance in the mineral-water treatment—change of climate and of the mode of living, the constant staying out-of-doors and in a pure atmosphere, a quiet life, alike free from physical and mental labors and troubles, aid largely the effect of the water, and contribute to a favorable result of the cure.

We shall consider the *chemical constitution* of mineral waters more in detail in a second paper, devoted to their systematic classification, and to an enumeration of those diseases in which they have, according to experience, proved efficacious; and shall add now a few remarks on the—

General Use of Mineral Waters.—The *methodical* use of mineral waters is alone indicated in chronic affections, and then *only* when the organism is not yet wholly reduced by protracted disease or a fatal diathesis. An alkaline or saline water is not only powerless in promoting the resorption of tuberculous infiltrations, or of neoplasms in the abdominal cavity, no matter to what class they may belong, and in what organ they may be seated, but, on the contrary, it will, especially if the cachexia be already well pronounced, greatly accelerate the fatal issue. A pure and bracing air—if possible, mountain air—a highly nutritious yet easily-assimilated diet and tonics, all tending to improve the state of the vital fluid, can alone be of service in such and similar cases.

The mineral-water treatment can either be followed at the home of the patient or at the spring, and the latter is, for obvious reasons, the far more preferable, and should be insisted on whenever practicable. The physician, in recommending a spring, must, however, not be guided solely by the chemical ingredients of the water, but almost as much so by situation, climate, and surroundings of the spring. Springs are situated in various latitudes, and have therefore a variable mean annual temperature; some possess besides, in consequence of their peculiar situation, either near to the sea or to snow-covered mountains, either giving access to warm or cold winds or not, another mean temperature than the one corresponding with the isothermal line that intersects them. But still of far greater importance is the mean temperature of the summer, which ex-

hibits in most places more striking differences than does that of the whole year, and yet an equable climate, or at least one subject only to very slight diurnal and monthly fluctuations in temperature, is all essential in pulmonary affections, and of infinite value in the treatment of all other diseases.

No less important is the absolute degree of moisture, as well as the relative measure of aqueous vapor in the air, for the state of the atmosphere exerts a very decided influence over the bodily wastes, and hence over all assimilative processes. To send a patient, suffering from inflammatory irritation of the respiratory mucous membrane, to a spring situated in a region where the air is very dry, is just as irrational as to send a rheumatic to a fountain whose atmosphere is always surcharged with aqueous vapor, and therefore apt to restrain transpiration. Although we know from experience that the air near the sea-shore and large rivers, and in marshy regions, is excessively saturated with aqueous vapors, we have no sure means of ascertaining the greater or less relative humidity of the atmosphere in other localities, save by exact hygrometrical investigations, and they are, indeed, of great importance.

For reasons most intimately connected with conditions of season and atmosphere, and too numerous to be mentioned here, the months of June, July, and August, are the fittest time for the use of mineral waters. If that is, however, true in a general sense, the spring and autumn offer still many advantages. A moderate temperature of the air is, in many forms of disease and with irritable, readily-perspiring individuals, far more favorable to the use of warm mineral waters and baths than the oppressive heat in the months of July and August. To nervous, excitable persons the ceaseless turbulence prevailing at much-frequented watering-places, especially during the height of the season, is absolutely injurious, and they do better to choose either May or September for their cure. In some of the fashionable and much-resorted-to watering-places of Germany, patients are for a considerable time under the necessity of taking their water before 5 A. M., and their baths even at a much earlier hour. The writer of this paper experienced himself the pleasure (?), while at Töplitz, in 1867, of bathing at 4 A. M., and that was a special privilege, too, ac-

corded to him as a medical man. Things may not be quite so bad at our own springs, but, whenever there is a great rush of visitors in any particular month or months, a certain class of patients might decidedly consult their own comfort and good by deferring the cure to the time when the crowd has somewhat dispersed.

For "milk-and-whey cures" the month of May is far more favorable than the later months; these important remedial agents being then possessed of a greater sanative power undoubtedly, because of the fresh and more aromatic grass and herbs growing in the spring. Neither very hot and dry, nor cool and rainy seasons, are propitious for the use of mineral waters, and in either case the physician must give his patients especial directions for their conduct. Little active exercise, lighter raiment and cooler baths are indicated pending the hot term, and the reverse after the heat has moderated. The late summer months are best adapted for sea-bathing, and the months of August and September for Alpine baths.

Of late years Continental physicians have adopted the practice of prescribing the use of mineral waters, internally, and in the form of baths, during the winter season, and decidedly with excellent success. It is a positive fact that they fully retain their physical as well as chemical properties throughout the whole year; and that they are only slightly less efficacious in the winter, while being taken (by patients) indoors and even in bed, than in the summer season when drawn fresh from their natural source and consumed in the open air. The writer has seen at the Vienna, Berlin, and in fact at most of the German university clinics and hospitals, this theory verified and carried into practice. Lung-patients drink, while in bed, their Emser water, artificially heated, in order to correspond with their natural temperature; patients suffering from diabetes their Carlsbad prepared in the same way, and indeed no other known remedy affects so rapidly the quantity and specific gravity of the urine; patients suffering from chronic gastritis, their Vichy, or Bilin, and all these waters are drunk during the early morning hours, and mostly in bed. Selterser, Fachinger, Friedrichshaller Bitter Water, and many others, are indeed prescribed as often as the usual medicines

recorded in the materia medica; and mineral waters have truly, in Germany at least, become important and valuable *medicinal agents* for every-day use, for hospital and private practice, fairly competing with their sisters of the pharmacopæia.

In cases, then, where an early undertaken and systematically pursued mineral-water treatment is alone capable of affording prompt relief and of preventing serious and intractable complications, it should under no circumstances be deferred until spring or summer, when it might come too late to be of any service. In passing, we will notice here the fact that all the principal and well-appointed watering-places in Germany contain ample provisions, houses and bath-rooms that can be heated, covered halls and walks, etc., to protect invalids from the severities of winter and to render them comfortable and well cared for. Hundreds of such can be found year after year in Wiesbaden, Baden-Baden, and other places. Patients should, as a rule, drink smaller quantities of mineral water during the cold season, should but gradually and cautiously increase the dose, take their breakfast some time after the last glass is consumed, and bathe not before several hours have elapsed. The baths require no higher temperature than in summer; but, if the skin is to be incited to greater activity, the patient must stay for some time in bed and take no active exercise in the open air before the warmer hours of the day, and then only in places where he is not exposed to cold winds.

To *determine in advance* upon a definite fixed plan of treatment and to lay down certain rules, to which the patient should strictly adhere for weeks or perhaps months to come, is *contrary* to the spirit of our science, although there has been much error in that direction. Rational medicine can compute as little the amount of water and the number of baths, as the quantity of quinia or opium to be taken in the treatment of any chronic disease; it can anticipate no precise rules as to its management and no precise dates as to its duration. The duty of the family physician merely consists in selecting the proper time and suitable spring for the patient's cure and to furnish him with a carefully-written history of his case; here ceases the prerogative of the medical adviser, and here should also

cease his function for the time being. The further and sole management of the treatment must henceforth rest in the hands of a physician residing at the spring, and to whom the patient has applied, or should apply.

It is, indeed, a wise rule that prevents people from taking any amount of mineral water, and that strictly prescribes to patients the dose, etc.; these remedial agents being any thing but indifferent, a great deal of injury is thereby prevented, and it were certainly in the interest of many patients in this free country if similar restrictions could be established at our own springs. We have, indeed, seen many evils resulting from the careless and indiscriminate use of mineral waters, many aggravations of suffering and many artificially-produced ailments; and where is the physician who has not witnessed the same in the course of his practice? The use of mineral water cannot be advantageous unless prescribed, directed, controlled, and carefully watched, by a physician, who is cognizant of its character and effects; he alone can, during the progress of the cure, determine whether it is suitable or not, how long and in what daily quantities it must be taken, whether bathing should be combined with drinking, what should be the proper diet and regimen, and he alone can institute all those modifications necessitated by individual cases, constitutions, and idiosyncrasies.

The *usual* time for drinking is in the *morning* immediately after rising, when the patient takes as many glasses as are prescribed, in intervals of from ten to twenty minutes, and promenading in the mean while with slow and measured steps, and leaving a full hour to intervene between his last dose and the breakfast.

Baths are usually taken early in the *morning* or in the course of the forenoon, but in many cases the bathing in the evening and immediately before retiring is more preferable, especially when cutaneous transpiration is to be kept up for some time.

Drinking in the *evening* should be restricted to one or two cups and only be practised whenever there appears a particular necessity for it, but the taking of *small doses throughout the day*, say every two or three hours, especially when the stomach is unable to digest a larger quantity in the morning, is certainly highly commendable. The usually-prescribed medicines

of the pharmacopœia are taken in that way and why not also mineral waters? Those mysteriously-prepared and wonderfully-combined remedies, which, mixed by the most skilful and experienced of apothecaries, by Nature herself, are rapidly carried into the circulation and assimilated there. Vomiting, diarrhœa, and symptoms denoting a decided gastricism, are not unfrequently observed after the continued use of mineral waters, and not a few physicians are inclined to look upon them as favorable *critical* signs. The existence of such palpable crises must, however, according to the best authorities, be totally denied, and the mentioned troubles must rather be attributed to errors of diet, cold, and deviations from the prescribed rules.

The *duration* of a mineral-water cure depends solely upon the phenomena that exhibit themselves pending its continuance, the amelioration or aggravation of the most striking symptoms, or the *saturation* of the organism which is wont to culminate in a certain repugnance to the remedy. Whenever this becomes manifest, the drinking and bathing should at once be discontinued, for often a favorable result is intimately associated with and wholly dependent upon a timely suspension of the treatment—a circumstance quite frequently overlooked.

The patient, having finished his regular cure, does well to persevere, for a few weeks at least, in the same manner of living, as far as it relates to diet, regimen, and abstaining from mental and physical work, and this purpose is best served by a quiet residence in the country or in a mild and pleasant mountain-region, by the gentler pursuits of a health-invigorating rural life and such exercise as riding, walking, angling, etc. Sometimes it is advisable to prescribe for patients a second or *after-cure*, consisting in the use of some chalybeate water, internally or in the form of baths—and such a course is especially indicated with scrofulous or anæmic individuals that have been treated with saline or resolvent waters and suffer somewhat from the consequences of this debilitating treatment, or that have for some weeks experienced the effects of brine or sea-bathing. In most cases, however, Nature reasserts her strength without any aid from artificial tonics, even when all the secreting and excreting organs have been actively engaged,

and when profuse discharges have taken place for a considerable time, the fundamental disease once removed or greatly reduced, the patient's health and strength return speedily.

No age forbids the internal or external use of mineral waters; even children of the tenderest youth, but of scrofulous habits and sickly disposition, are much benefited by salt-sea or sulphur baths, and by the administration of whey mixed with small quantities of the suitable water; in the baths of Kreuznach, Kösen, Tschl, etc., children form indeed a very large proportion of the patients. Neither the period of *lactation* nor of *gestation* contraindicates such a cure; the former demands it rather under certain circumstances, and German gynæcologists of note have observed the most favorable effects of ferruginous baths upon weak anæmic gravidæ and their offspring. Women that were known to have borne puny, sickly children before, gave, after a bathing cure undertaken during pregnancy, birth to strong and healthy ones. The internal administration requires far greater precaution, especially during the first months, in which the tendency to abortion is greatest; and waters specifically affecting the genital organs must be wholly avoided. Pregnant women should, as a rule, drink only small quantities, bathe neither too warm nor too long, and continue the cure not beyond several weeks.

As in every treatment, so chiefly in the use of mineral water, and even in sea-bathing a *rigorous diet* is of supreme importance and one of the most essential conditions of success. Drinking four or five glasses of mineral water in the morning and then sitting down to a breakfast of hot cakes and fried ham, or to a more sumptuous dinner-table, laden with all the choice luxuries of the season and all the delicious yet indigestible dishes of salads, and the no less reprehensible ones of pies and pastries, not only annuls the desired effects of the cure, but is productive of positive harm. But too often the home physician is blamed for having sent the patient to an unsuitable spring; but too often the latter returns not only unrelieved of his complaints, but even in a worse condition, and yet the cause of all this can frequently be traced to his own imprudence and intemperance. Let the medical adviser, therefore, impress upon the patient who goes to a spring in

search of health, the wisdom of Celsus's famous words: "Optimum vero medicamentum est opportune cibus datus!" Let the invalid become impressed with the chief importance of frugality, with the fact that the digestion of the mineral water alone requires considerable exertion on the part of the stomach, and that he must not only avoid every thing in the way of food and drink that might derange assimilation, but also must do all in his power to facilitate it. And if this injunction is wise and proper in all cases, it has even more force in the treatment of diseases that are seated in the digestive organs themselves; here the strictest adherence to dietetic measures is a *conditio sine qua nullus effectus*. But the *diet of the mind*—so indissolubly bound to matter—should by no means be overlooked, and the invalid health-seeker should be earnestly exhorted to avoid every psychical excitement, to dispel every care respecting the future, and to abstain from study and every kind of mental labor; to be serene in temper, cheerful in spirit, and forgetful of every other thought but his health and the desire of regaining it. *Non enim hic curatur, qui curat!*

[TO BE CONTINUED.]

ART. V.—*Microscopical Characters of the Blood in Relapsing Fever.*[1]—By H. C. HAND, M. D., Resident Physician in the Philadelphia Hospital.

MR. PRESIDENT AND GENTLEMEN: Through the courtesy of the gentlemen in charge of the medical wards, I have been enabled to make some observations on the blood of relapsing fever, which may not prove uninteresting to you. The remarks I am about to make are based on a careful study of about thirty cases, the principal features of which will be seen by reference to the table on next page.

The most constant and important change appears to be a granular condition of the red corpuscles, as if the coloring matter were breaking up its uniform distribution and becoming collected in patches; often this granulation is most marked around the circumference of the corpuscles, giving to many of

[1] Read before the Philadelphia Hospital Medical Society, May 11, 1870.

them a false appearance of crenation, and increasing it in those which are really so.

Case.	Stage of Disease.	Red Corpuscles, granular.	Red Corpuscles, crenated.	White Corpuscles increased.	White Corpuscles irregular.
1	Initial fever.....	1	.....	1	1
2	First relapse.....	1	1	1	1
3	Initial fever.....	1	1		
4	First remission.....	.....	1		
	First relapse.....	1	1		
5	First remission.....	1	.....	....	1
6	First remission.....	1 slightly ..	1 slightly.		
	Second "	normal ..	normal		
	Second relapse.....	1 extremely.	1 extremely.		
7	Second remission....	1			
8	First relapse.....	1			
9	Initial fever.....	1	1		
10	First remission.....	1	1		
11	Initial fever.....	1	1		
12	First remission.....	1	1		
13	First relapse.....	.....	1		
14	Initial fever.....	.....	1		
15	Initial fever.....	1	1		
	Post-mortem.....	1 a few....	1 a few.		
16	Initial fever.....	1	1	1	
17	" "	.....	1		
18	First remission.....	1	1	1	
19	Initial fever.....	normal ..	normal.		
20	" "	1	1		
	Post-mortem.....	faintly.			
21	First relapse.....	1	1		
22	Post-mortem.....	1	1		
23	Initial fever.....	1	1		
24	" "	1			
25	First remission.....	1	1		
26	Convalescent, 17 days.	1	1		
27	" 6 weeks.	1	1		
28	Resident physician...	1 a few....	1 a few.		
29	" " ...	1 a few....	1 a few.		
30	" " ...	1	1		
31	" " ...	1	1		
	Total.....	27	26	4	3

The next most important change is crenation, which occurs both in connection with the granular condition and independently of it, and in various degrees from a mere waviness of edge to complete deformity.

The next change to be noticed is, increase of the white corpuscles. In the only microscopical observations on this

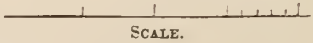
subject which I have been able to find, a report of twelve cases by Dr. Cormack and Prof. Allan Thompson, in 1843, it is stated that the white corpuscles are greatly increased. In only three of my cases has it been so; but the red corpuscles in their granular condition bear no inconsiderable resemblance to white. It is possible that they may have been mistaken for such. That they are not is proved by the following facts: 1. These granular bodies often cohere in rouleaus and otherwise after the true fashion of red corpuscles. 2. A gradual progression can be traced, in many cases, from the typical red corpuscles to the worst condition of granulation, while a few white corpuscles are seen as different almost from the granular as from the normal red. 3. In some cases the number of these dotted corpuscles is so great that scarcely any other kind can be found in the field, an unheard-of increase for white corpuscles! 4. When at long focus, the granules are not visible, the bodies under consideration appearing as red corpuscles, generally crenated, while by slightly shortening the focal distance the granules appear. This is shown in Fig. 3, at A and B.

Dr. Cormack thought the alteration of the blood could be detected a day or two before the fever commenced. That it is so, is extremely probable: certain it is that the change occurs very early. One case on this point. Ella F., aged twenty, came from prison to our surgical wards about the 10th of March, 1870. On the 17th she was suddenly seized with a high fever. Within three or four hours of the seizure her blood was examined and found to be in an average degree of degeneration; so much so, indeed, that on this and the suddenness of the invasion the diagnosis of relapsing fever was made, and she was sent to the medical wards, where the correctness of the diagnosis was doubted, in good degree, perhaps, because no relapsing fever had yet appeared in the women's hospital, until on the 27th of March she had a well-marked relapse. From this time her case was considered by all a typical one.

Indeed, I am inclined to go further, and state that by living in a contaminated atmosphere the blood becomes changed without fever necessarily following. This assertion is based

on the last four cases of the table, who were resident physicians of the hospital, and, of course, living in air loaded with fever poison. Their blood appears in almost as bad a condition as some of those suffering with the fever, although none of those

Fig. 1.



Scale.

Fig. 2.

Fig. 3.

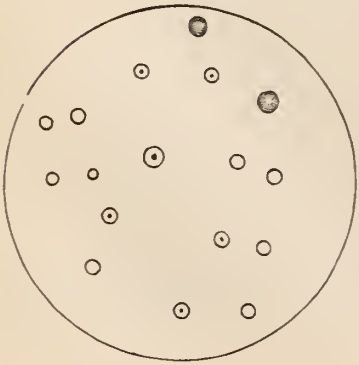


Fig. 4. A.

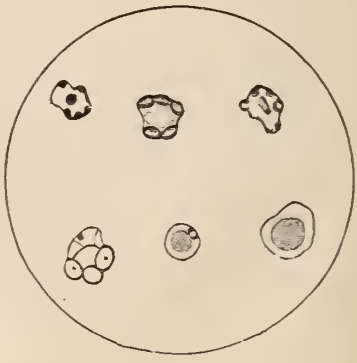


Fig. 4. B.

examined have had more than slight indispositions. Therefore, if in any case we find these blood-changes, we should be liable to err in predicting the fever about to supervene; but, if the corpuscles are normal, I think we should be perfectly safe in predicting immunity from it.

Once developed, the characters above described are constant; abating but slightly in the remissions. Nor do the abnormalities disappear soon after the subsidence of the last relapse: in case 27, although it was six weeks since he had had any fever, the red corpuscles were as badly granular as any I have seen, but less crenated. It is true he had nothing but the air of a fever ward to recover on, which doubtless had its influence.

There is no direct proportion between the blood lesion and the gravity of symptoms. In two cases the blood taken from the dead body has been less degenerated than that drawn before death.

Fig 1.—Red corpuscles: first relapse.

Fig. 2.—Is taken from the body of a man who died, having had black vomit with all the severity of yellow fever, and yet some of his red corpuscles were perfectly normal, others granular, and others again with the central colored portion shrinking irregularly away from the transparent cell-wall (?).

Fig. 3.—Red corpuscles from a man in the second day of the initial fever.

Fig. 4.—Red corpuscles; first remission. Immediately after being drawn they were crenated and very granular: in 24 hours, when the sketch was taken, many of the granules had escaped, retaining the same appearance as those in the corpuscles, viz., a dark circumference with a shining centre changing to a dark spot on change of focus, diameter $\frac{1}{7500}$ to $\frac{1}{15000}$ of an inch.

Chicken-fat clots are quite common in the *post mortems;* and in most of my cases the tendency to the formation of rouleaus has been very decided; showing coagulability to be little impaired. To conclude, the fever poison alters the blood before it produces any symptoms; the alteration becomes somewhat more extensive as the disease progresses, and continues for a length of time after all pyrexia has disappeared, and only debility and anæmia remain.

Proceedings of Societies.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Adjourned Stated Meeting, May 23, 1870.

Dr. T. Gaillard Thomas, Vice-President, in the chair.

INTRA-UTERINE MEDICATION.

Dr. J. C. Nott, in continuation of the paper presented at the meeting of April 18th (see report in this Journal for July), read the article upon the above subject, which we published in our June number (vol. xi., p. 337).

Dr. Peaslee followed in discussion, exhibiting his instruments figured and described in our last number, and expressing substantially the same views there recorded.

Dr. Byrne said that he had lately presented a paper upon the subject to the American Medical Association, and would not anticipate its publication by any extended remarks. Most of the views put forth by Dr. Nott and Dr. Peaslee accorded with the results of his own observation. He had long since come to the conclusion that powerful caustics ought never to be injected into the uterus. After long experience in their use, he had entirely abandoned them. Latterly he had been in the habit of using milder liquid applications, especially solutions of sulphite of soda, sulphurous acid, tannin, etc. These mild liquids would easily flow out of the uterus, if a proper catheter was employed. His own catheter was of peculiar construction, and, being of size No. 6, required no preliminary dilatation of the cervix; for, wherever intra-uterine medication was demanded, there was no stricture of the internal os. The reflux-channel was so arranged that, if it became at all obstructed by coagula, it could be cleared by a slight movement of the instrument. The speaker had become fully convinced that, in all cases of very troublesome intra-uterine affection, there was some constitutional dyscrasia; and that no topical treatment could be of any permanent avail without keeping this in mind and giving the most careful attention to constitutional and hygienic measures.

Dr. Prince could heartily indorse nearly all the remarks of Dr. Peaslee. He had, for a number of years, practised dilatation of the cervix by means similar to Dr. Peaslee's, led to do so by one of those failures which are often more instructive than successes. Frequently employing the uterotome, he had been in the habit of keeping the canal open, after cutting, by sponge tents, till a case fatal from pyæmia induced him to discard them. Before this he had seen others where serious disturbance had followed the use of the tents, apparently from absorption of pus; and since then he had always employed a series of bougies to maintain the dilatation.

The speaker could not agree that it was safe to inject the persulphate of iron for uterine hæmorrhage. In a case of miscarriage, in a lady of forty-four or forty-five years, where the bleeding was profuse and some astringent was necessary, he had injected five or six drops, at furthest, of Monsel's solution. The pain which followed was more violent than any thing he had ever seen; and, had he not carried a vial of chloroform in his pocket, he thought the woman would have succumbed to it. He was obliged to keep her under chloroform for an hour and a half. He had not since used the persulphate in such cases, but had found a plug of solid alum answer every purpose. He would never employ strong injections, but would introduce any powerful substance upon the armed stylet, as recommended by Dr. Peaslee.

Dr. Chadsey had always opposed strong applications, even to the neck or the mouth of the womb. He had, many years ago, given up the use of nitrate of silver; and he preferred anodyne applications, containing opium and calomel, made not by injection, but with a brush or sponge so that they would adhere to the parts. He narrated the case of a woman with cancer in the breast, who was seized with lancinating uterine pains. From the mouth of the womb, which was open wide enough to admit a full-sized silver catheter, there was discharging a dark grumous fluid. Uterine cancer was diagnosticated. The doctor injected through a catheter a solution of one part of pure carbolic acid in forty parts each of glycerine and water. Under this injection, with the administration of iodide of potassium and general tonics, the woman rapidly improved.

Dr. Messenger had found great success in arresting uterine hæmorrhage with the preparation lately introduced under the name of ergotine. So far as he had observed its effects, it produced no coagulation; but it arrested the bleeding with more promptness and less danger than any other agent he had employed. It had acted very happily in two cases which had before its use given him great trouble.

For making applications to any part of the uterus, Dr. Messenger preferred to the armed probe or wire a syringe he had had made by Mr. Tiemann. It had a long flexible nozzle of pure silver plated with gold, terminating in a bulbous extremity pierced with several small holes. The piston was graduated to minims. Wrapping a little cotton about the bulbous end, he introduced it to the exact point desired, and then expelled as much or as little fluid as he pleased. He thought he had thus succeeded in making applications, not only to the uterus but also to the neck of the bladder, more accurately than by any other means. With the cotton-wound wire, even if passed through Dr. Peaslee's speculum, you were apt to leave some part of the fluid you knew not exactly where.

Dr. Garrish thought women ought to use the vaginal syringe, as regularly as they washed their faces. No other application equalled the solution of tannin in glycerine.

Dr. Newman insisted, with Dr. Nott and Dr. Peaslee, upon the absolute necessity of thoroughly cleansing the uterine cavities before making any remedial applications. Dr. Nott's catheter was admirable for the purpose. He himself employed, for injecting the bladder, a combination of this catheter with Dr. Byrne's, and he had also used it for uterine injection. He was accustomed to attach it by flexible tubing, to the Croton water-pipes, hot and cold, so as to regulate the temperature at will, and thus to wash out the cavities very freely. He objected strongly to the use of *cold* water, as he thought it often hardened the tissues much more than the nitrate of silver.

He could not agree with those who considered the nitrate such a dangerous remedy. True, it might do much harm if carelessly used; it could hardly fail to do so if the solid stick

were thrust hap-hazard into the uterus. But, if applied with judgment and precision, to diseased tissue alone (especially granulations), and to these only long enough to stimulate and not to disorganize them, it was of the greatest value. He had for years used, almost daily, a solution of one part of nitrate of silver in three of water, and had not yet found a single instance of harm to the patient. He applied it to the bladder through the endoscope.

Allusion had been made to the very destructive action of chromic acid. That was all true; the speaker had himself seen a mouse completely destroyed by it in a brief time, and even a hair-pencil with its quill-handle. Yet Dr. Emmet cured his patients with it. He touched none but diseased parts; the chromic acid became chromic oxide, and formed a scab, beneath which the healing process went on. The dilated follicular cysts often found in the cervical canal, the speaker had never seen cured except by this means. In such cases, after dilating the canal with sea-tangle, he applied the chromic acid to the cysts, and often a single application was sufficient. Drs. Emmet and Perry even incised the uterus, and then applied this acid within its cavity. But none of these powerful agents must be used at random, or kept too long in contact with the parts.

Dr. Nott had often been asked whether the endoscope could be used for inspecting the cavity of the uterus. It could be readily introduced; but commonly the secretions of the part so obscured things that it was impossible to see the mucous membrane satisfactorily. It might probably be employed with success, if the cavity could first be thoroughly cleansed.

Dr. Peaslee would say one word regarding the use of the persulphate of iron in metrorrhagia, which he had before incidentally mentioned. He was prepared to defend his own use of it, had time allowed. Having employed the agent in perhaps one hundred cases, he had never seen any harm result, except that in one case it gave great pain. But he confined its use to a particular class of cases, in which there was great debility from loss of blood, and you could hardly excite any reaction of the uterus.

Dr. T. G. Thomas, the chairman, was called upon, and remarked: I am the more willing to state my views, because they are so entirely at variance with those I have heard expressed this evening. It requires some boldness, I admit, to take a stand in opposition to such an array of authority and experience as I see before me—a boldness which I could hardly command, were it not that I have strong convictions upon the subject. These I hope are not held without reason, as they certainly have not been lightly formed. The subject has always claimed my deepest interest, not only from its intrinsic importance and the fact that it enters so largely in my daily practice, but also because, as a teacher, I feel the weight of responsibility which rests upon me in guiding the practice of others.

Now, my impression is that intra-uterine injections do not constitute an advance in the treatment of uterine diseases; that they have done, and are going to do, a great deal of harm; and that, though they are popular, their evil results will cause them, after a more thorough trial, to be discarded.

In making such an assertion, I must, of course, sustain it by proof. I commenced the use of intra-uterine applications, both solid and fluid, at least ten years ago. At that time I was extremely fond of them, and treated many a case as endometritis of the body which I should now treat as cervical endometritis. One method which I very often employed was that brought forward by Dr. Lente, of dipping a probe into the fused nitrate of silver, and passing it up to the fundus uteri and around the cavity, so as to cauterize its whole surface. Once, after I had made such an application of the solid nitrate, the patient became dangerously ill with the symptoms of cholera morbus, due entirely to this cause. A year or two later, a lady, who had been for some time under my care for corporeal metritis, and endometritris, became discouraged, and at my suggestion consulted one of the best gynæcologists of this city. I saw her again at the end of a week, when she had a phlegmon the size of my fist, in one broad ligament. The inflammation had been set up by the introduction of an ointment of calomel through the canula of Dr. Lente.

I have mentioned these cases where solid applications to

the cavity of the uterine body have done injury merely to illustrate the fact that solid applications, which are less harmful than fluid ones, are, when made to this locality, not free from danger. Let us see how the matter stands with the injection of fluids. Dr. Nott has said that the entrance of any injected fluid into the peritoneal cavity cannot produce a serious effect immediately, but time must first elapse for inflammatory action to become established. In this statement I think that the doctor is in error. A case which I saw some years ago in company with Dr. Peters, whom I see present to-night, bears upon this point. The lady was known to have simple ovarian tumor, I think about as large as the fist. Called to her in the night, I found her almost in collapse, saying she was sure the tumor had broken. She was right, and her terrible prostration was due entirely to the entrance of the fluid of this benign ovarian cyst into the peritonæum. I recall the case of one of my students, who in lifting a trunk felt something give way, was at once violently collapsed, and finally died of peritonitis. The cause was in all probability a rupture of the vermiform appendix.

My own impression is that, where intra-uterine injection is practised, a certain number of the cases will die from penetration of the fluid through the Fallopian tubes. This certainly does produce the most intense agony, and the most sudden and fearful collapse. I remember that, while making such an injection, by means of a syringe with a screw-piston, each turn of which forced out a single drop of fluid, when I had thrown but five drops into the uterine cavity, the patient exclaimed: "My God, doctor, you have killed me." Her sudden pain and terror seemed to me due to the passage of the fluid into the peritonæum—nothing else could have been quick enough. She went through a tedious course of pelvic peritonitis, barely escaping with her life.

But it will be said that, in these cases, the cervix was not dilated, and that, had it been so, no evil would have resulted. I reply that the very dilatation, so coolly talked of theoretically, is itself attended by danger. Within a fortnight past I have had one of the most melancholy cases I have ever met in practice. The lady had come to me, three months be-

fore, with anteversion of the uterus. I had treated her with an anteversion pessary, and now considered that part of the treatment completed. So I told her, "I am to-day going to dilate the neck of your womb, and to do nothing else." I did this at my office, using three of Dr. Peaslee's dilators; and she left for her home at Staten Island, promising to write me. This was on Monday, of last week. Tuesday evening I was summoned to Staten Island, where I found the lady with violent pelvic peritonitis, of which she died on Sunday evening. I think the mischief was done by the dilatation of the neck of the uterus. Yet I am very sure that the dilators were passed with requisite skill; for I spend much of my time in this practice, and this operation is one to which I have constant resort.

Some time since, a gentlemen wrote me, from St. Paul, Minnesota, that he had known a case where a small amount of a solution of iodine was injected into the cavity of the uterus, and the woman died suddenly of peritonitis.

Now, these are selected cases, I allow; and it is by no means a final argument against any procedure that such selected cases should speak badly for it. The question is very different, however, from that in such a capital operation as amputation of the neck of the uterus, for example, which you enter upon expecting, and the patient and her friends expecting, that there is at least a chance of a fatal issue. Such an operation is justifiable and often imperative, as offering the only chance for life, though it may be a very small one. But, if the woman be suffering simply from some slightly annoying affection, she does not expect to die from the routine procedure you resort to for its relief; and you have no right to employ any means attended with such hazard.

Again, I see no necessity for intra-uterine injections. My impression is, that the uterus rarely contains over a drachm of fluid, and that it is an error to represent it as often containing a considerable amount of putrescent discharge. But, if it have within it such fluid requiring removal, dilate the cervix, and replace the organ, if ante- or retro-verted, or flexed, and what is to hinder the fluid from coming out? The dilatation itself will accomplish much. Then, in addition, if necessary, give

ergotine, or ergot, and general tonics, and, if required, introduce the cotton-wrapped probe. Every one knows the difficulty of removing the plug of viscid mucus from the cervical canal. For this purpose I keep a supply of little bits of sponge, not larger than my finger's end, which, being wet and squeezed, will wipe the canal nicely, and then be thrown away. This done, I see no difficulty in passing up the probe armed with cotton, and painting over the whole internal surface.

For myself, I never use intra-uterine injections, even for the hæmorrhage of abortion. If we know any thing about the pathology of uterine hæmorrhage, we know that it should be stopped by closure of the vessels from contraction of the tissue of the uterus itself. After delivery we all recognize that the only proper thing to do is to empty out the clots and stimulate the uterus to contraction. And, even after abortion, I look upon the injection of styptics as a bad plan. Take, as an example, a case which came before me a few days ago. A woman had been bleeding for three months after an abortion. It seemed to me there must be something in the uterus to cause the flow; for, otherwise, what is there in an abortion to keep up hæmorrhage for such a length of time? In such a case, you may take it for granted that something has been left behind. The doctor in charge of the case consented to my dilating the cervix and introducing the curette; I took away a number of little bulbous bodies, remains of the placenta—those little granulations which bleed if you look at them, and pour out blood profusely if you touch them with a probe. The next day the hæmorrhage had completely stopped, and within a week the patient's general condition was greatly improved. I mention this not as case important in itself, but as a type of many where success may be attained by a comparatively minor procedure—for I esteem the use of the curette as a far less grave operation than the injection of the uterine cavity.

I wish it to be distinctly understood that I have been objecting not to intra-uterine medication, by such means as those mentioned by Dr. Peaslee—the brush or probe, for instance—but to the special form of medication by injections; and I

include even the injection of warm water, which I think can hardly ever be necessary.

If my remarks have seemed desultory, it is because I have left out a great part of what I wished to say, owing to the lateness of the hour. I have to thank the gentlemen for listening to them; for, indeed, it seemed almost a duty to express myself. My views are the result of careful thought, and I hold them with great strength of conviction. I feel that we shall soon see such unequivocal bad results from intra-uterine injection, that the profession will be forced to abandon it as a customary practice.

The Society adjourned.

Stated Meeting, June 6, 1870.

Dr. Ellsworth Eliot in the chair.

Dr. W. B. Neftel read a paper upon the Action of the Galvanic Current on the Sympathetic Nerve. It was long and elaborate, containing much of practical value; but it was so crowded with detail, that an abstract would do it no justice.

Dr. Griscom presented a resolution, which was carried, tendering the appreciation and thanks of the profession in New York, as represented by the Society, to Baron von Diergardt, of Bonn, Germany, for his liberal donation ($50,000) to the German Hospital of this city.

The Society adjourned. Its next meeting will be held on the first Monday in September.

The *Boston Medical and Surgical Journal* of June 9, 1870, contains two capital articles, the first a lengthy paper, by Alexander Young, Esq., of the Suffolk bar, on "The Law of Malpractice;" and the second, the poem read by Dr. Oliver Wendell Holmes at the annual meeting of the Massachusetts Medical Society, held in Pittsfield, on the 13th of June. The subject of the poem is the history of one Rip Van Winkle, M. D., who went to sleep in the days of large doses, to awake in the midst of modern expectant treatment.

Bibliographical and Literary Notes.

ART. I.— *Winter and Spring on the Shores of the Mediterranean, on the Riviera, Mentone, Italy, Corsica, Sicily, Algeria, Spain, and Biarritz, as Winter Climates.* By J. HENRY BENNET, M. D. Fourth edition. New York: D. Appleton & Co., 1870. 8vo, pp. 620.

WE have here a book which, although it cannot strictly be considered a medical work, has a more substantial value for the physician, perhaps, than for any other class or profession. It is a record of Dr. Bennet's experience for ten consecutive winters in Southern France and Italy, and contains accurate descriptions of the topography, climatology, etc. of these localities, showing their fitness as winter residences for the invalid. The author himself, as is well known to the profession, was a consumptive, and, broken down with hard work in London, resigned all his professional duties in the year 1859, and departed southward, as he says, to die in some quiet corner, as he and his friends supposed. This was not to be, however, and the result of his first winter's residence at Mentone was a very manifest improvement in his condition. Again, he attempted the search in Southern Europe for a still more favored locality for the consumptive, but, failing in this search, he returned to Mentone. The result of this second winter's experience was even more favorable than the first, and he was enabled to return to his professional labors at home. Since that period he has spent all his winters in the same locality, and has occupied his time principally in examining the adjacent country with special reference to the determination of its fitness as a winter home for the consumptive. The result of all these investigations is the volume before us, which, from a moderate-sized essay describing only one point (Mentone), and first published in 1861, "has expanded in successive editions until it may now be considered a careful study of the winter and spring climates of the shores of the Mediterranean in general. This edition contains an account of the wanderings in search of health-quarters, for winter and summer, in Italy, Corsica, Sicily, Algeria, Spain, and the Italian lakes, with a short description of

Biarritz and Arcachon. The purely scientific character has been partly laid aside, and the thoughts, fancies, and travelling impressions of a long period of invalidism have been recorded."

There are thousands of people from the United States spending their winters in Europe, and many of them go there by the advice of their family physicians. For all such Dr. Bennet's book abounds in valuable, almost essential information. The problem too, of the climate best adapted to the consumptive has an especial interest for the physician, and within the last few years no small number of books devoted to advocating the claims of special localities have been published. Some of these have been noticed in the pages of this JOURNAL, but none of them, for full scientific information as well as attractive reading, will compare with Dr. Bennet's volume. The book is issued in capital style, fully illustrated with engravings and chromo-lithograph drawings and maps. *Euns rediensque gaudet* is the motto which Dr. Bennet has adopted on the title-page of his book; and it is in this spirit, that of cheerfulness, that the searcher for health should undertake all his journeyings—it is in the same spirit that we commend this book to our readers as a volume presenting two capital qualifications—it is at once entertaining and instructive.

ART. II.—*A Manual of Elementary Chemistry, Theoretical and Practical.* By GEORGE FOWNES, F. R. S. From the tenth revised and corrected English edition. Edited by Robert Bridges, M. D. Philadelphia: Henry C. Lea, 1869. 12mo, pp. 857.

PROF. FOWNES's treatise has so long held the foremost rank among books of its class that it is quite needless at the present time to enter into any critical examination of its merits. Since our own student-days the book has grown by constant accretions, so that now it presents rather a formidable appearance in bulk, while the changed character of the contents is such as forcibly to remind us that the science must be advancing rapidly, or else—possibly the more honest admission—we

must be growing old. It sounds strange to hear our old bichloride of mercury called *mercuric chloride*, and our familiar submuriate designated as *mercurous chloride*. This change in nomenclature is followed all through the work, and it is puzzling to us who belong to another generation, and no easy matter to accommodate ourselves to it. Who, for instance, would recognize in *phosphorus trihydride*, our once well-known phosphuretted hydrogen; or how on earth can the chemists expect that we of the old school are to know that *carbon dioxide* is that thing of every-day utterance—carbonic acid.

We yield to this advancing exactness of science; yet not without the fear that, in the transition stage from the old to the new, some sad accidents must happen on account of the liability to error from confounding of terms.

We might, perhaps, with a little effort accustom ourselves to the more common of these changes in the nomenclature, but the classification of the metals into monads, dyads, tryads, tetrads, etc., staggers us, and when we come to organic chemistry, and venture among the range of the alcohols and ethers, the aldehydes, the ketones, and the amines, we confess to a feeling of utter despair, and gladly give over the task of mastering these technicalities to those in whom age has not yet chilled a student's ardor.

But, ridding ourselves of this bit of conceit, we can with all sincerity and with some little degree of knowledge reiterate the many commendations which have been passed upon the book before us, which confessedly stands now the completest students' text-book on the science of chemistry.

ART. III.—*A Course of Practical Chemistry, arranged for the Use of Medical Students.* By WILLIAM ODLING, M.B., F. R. S., etc. From the fourth London revised edition. Philadelphia: Henry C. Lea, 1869. 12mo, pp. 261.

MR. ODLING's modest little book, not one-quarter the size of the one we have just examined, has about it many features which will commend themselves to the student and to the practitioner. And foremost of these is its eminently practical character. No words wasted in perplexing technicalities—no time lost in scientific discussions—but straight

at the subject the author goes, and in the very opening paragraph tells the student a fact important and illustrative of the whole range of chemical combinations. The book is arranged in four chapters: the first devoted to the consideration of chemical reactions and chemical manipulations; the second to analytical chemistry; the third to toxicological chemistry; and the last to animal chemistry. These last two chapters are admirable and full of practical material. Their conciseness of course forbids any thing like the completeness of Fownes's Manual, but for every-day work they are amply sufficient. Take, for instance, the subject of the urine. Within a compass of twenty-two pages we have a clear description, first of the healthy urine considering its appearance and its ingredients, with the modes of examination, and methods for the detection of these ingredients. Then follows the consideration of abnormal urine, albuminous, saccharine, biliary, and fatty with the more important tests for the same, and a description of the various deposits, inorganic and organic, and directions for the clinical and chemical examination of this fluid—the whole illustrated by careful and clean-cut drawings of microscropical appearances, apparatus, etc. Now, while all this is very greatly condensed, it is exact and free from confusion. On the whole we do not know where, within an equal compass, to find so much valuable material for the student as in Prof. Odling's Manual; and, by reason of its very compactness, we venture the belief that it will, to a great extent, displace Fownes's treatise in favor among medical students.

ART. IV.—*Hernial and other Tumors of the Groin and its Neighborhood, with Practical Remarks on the Radical Cure of Ruptures.* By CARSTEN HALTHOUSE, F. R. C. S., Surgeon to the Westminster Hospital, and Lecturer on Surgery at its Medical School; late Surgeon to the Royal South London Ophthalmic Hospital, and to the British Hospital, Smyrna, etc., etc. London: John Churchill & Sons. 8vo, pp. 167.

THIS little book has its origin in two clinical lectures delivered to the students of the Westminster Hospital, in the

year 1863. It makes no pretence to a full treatise upon the subject of hernia, but to draw the attention of the student and young practitioner to the difficulties which may beset the diagnosis of hernial tumors; and, secondly, to protest against the too prevalent practice of operating in cases which, though temporarily irreducible, are unaccompanied by symptoms of strangulation. The work is divided into six chapters, in which are treated: 1. The method to be pursued in the examination of the patient. 2. On the varieties of hernia as regards the aperture of exit. 3. On the varieties of hernia as regards sac-contents. 4. Conditions of hernia. 5. On non-hernial tumors. 6. On the radical cure of ruptures. This little work is full of interest to those seeking information on the subject of hernia—especially the chapters on the methods to be pursued in the examination of patients who are supposed to be suffering from strangulated hernia, and on the non-hernial tumors. With some of our author's remarks on the treatment of "temporary" irreducible hernia we cannot agree, believing the practice he appears to inculcate would be disastrous in many cases. Our author says, on p. 77: "*No cutting operation* ought to be undertaken for a recent irreducible hernia, unless the symptoms of strangulation are persistent as well as unequivocal." We would have been pleased had our author stated how long symptoms of strangulation should continue before he would justify an operation. To temporize with a case where symptoms of strangulation are present, perhaps may be safe in some cases, and in the hands of such men as the author of this work; but, as a rule, we believe the earlier the operation is resorted to, in cases where the patient is suffering from symptoms of strangulation, the better will be the result for both patient and surgeon. With this exception, there is much in the work which renders it a valuable contribution to the literature of hernia.

Prof. Barker's article on sea-sickness,[1] which first appeared in this Journal in November, 1868, attracted a great

[1] On Sea-Sickness, by Fordyce Barker, M. D., Clinical Professor of Midwifery and Diseases of Women, in the Bellevue Hospital Medical College, New York. D. Appleton & Co., 1870. 8vo, pp. 36.

deal of attention, and the number of the JOURNAL containing it, notwithstanding the fact that the edition was large, was soon exhausted. The great demand since that time for the article has induced the publishers to reprint it in separate form, and it is now given to the public in beautiful style, with limp covers just adapted for the *voyageur*. The author has added some new material, in the shape, principally, of prescriptions, which he has found useful in relieving sea-sickness.

THE *Medical Register*[1] came to us this year with a commendable promptness and with its usual varied table of contents. The registration of societies and public institutions is unusually complete; and as a new feature we observe a very full list of the county societies of New York State, with the names of the members. This list, by-the-way, we find on comparison, is much more complete than that published in the Transactions of the State Medical Society, where, we might assume, should be found a really perfect record of the various organizations which as units make up the central or State Association.

In the miscellaneous material gathered in this volume, there is an admirable sketch of the New York Hospital—unhappily, now a thing of the past. This sketch is from the pen of Dr. Roosa, and was published originally in *Putnam's Magazine*. We congratulate the editor on the success of his undertaking; and, as in previous years, we urge the individual members of the profession to encourage and sustain the work. Now that the *Register* has become a necessity and its existence seems beyond a doubt to be secured, we venture to call the attention of the Society to one point, which we have no doubt has engaged their attention many times. It is the plan of giving to the list of physicians some sort of a legal status, and thus make it worthy of recognition. To illustrate: in the late malpractice suit brought against Dr. Sayre, it was shown that one of the physicians engaged in the case was not a graduate of

[1] The Medical Register of New York and Vicinity for the Year commencing June 1, 1870. Published under the Supervision of the New York Medico-Historical Society. E. Lee Jones, M. D., editor. Vol. VIII. New York: Bradstreet Press. 1870.

any authorized school, yet his name appears in this register. Again, names appear in the Society lists and as officers of institutions that do not appear in the register proper. We are well aware of the difficulties that surround the management of this delicate question, so long as our laws regulating the practice of medicine remain as they are; but, we would suggest that possibly, under the control of the legally incorporated County Medical Society, instead of a self-appointed body, this object might in a measure be accomplished, though no register in this country can ever have the full value and recognition accorded to the English register, whose authority is absolute and whose dictum is final.

Dr. C. G. Rothe recommends, in this paper [1] on the local treatment of phthisis pulmonalis and diphtheritis with carbolic acid, the employment of inhalations of carbolic acid in phthisis. His formula is as follows:

℞. Acid carb. cryst.
Spir. vini, āā ℈j—℈ij.
Aq. destill. ℈v.
Tinct. iodinii, ℈j.
M. et sig.

Ten to twenty drops to an ounce of lukewarm water for an inhalation (by a spray-producer); inhalation to be repeated three to five times daily.

In a somewhat limited experience, Rothe found a remarkable improvement in the cough, expectoration, appetite, strength, etc., of the patients upon whom the treatment was employed. He therefore invites the profession to give it a more extended trial. His experiments induce him to regard the remedy as specially adapted to the earlier stages of the disease. The inhalations should be persisted in for months, in connection with other recognized methods of treatment. The only contraindication for their employment appeared to be the recent irritation of the entire bronchial mucous membrane of a catarrhal character.

In diphtheritis, Rothe employs a similar solution, with which he brushes the false membrane three times daily. In

[1] "Ueber die örtliche Behandlung der Phthisis pulmonalis und der Diphtheritis mittelst carbol Säure."—Von Dr. C. G. Rothe in Altenburg.

addition, the patient is made to gargle every fifteen minutes with ten or fifteen drops of the mixture in a large cup of lukewarm water; at the same time digitalis for the fever and tinct. ferri chloridi were administered. The author narrates fifteen cases of undoubted diphtheritis treated as stated, with fourteen recoveries.

Messrs. D. Appleton & Co. announce as in preparation a work on "Ovarian Tumors, with Special Reference to Ovariotomy," by Prof. E. R. Peaslee, M. D., of this city. Although the operation is recognized as among the legitimate proceedings in surgery, there are still many points relating to it that need to be cleared up; and we shall expect from Dr. Peaslee, than whom no man in this country is better qualified to write on this subject, a work worthy of his distinguished name.

Hospital Reports.—The (London) *Medical Times and Gazette*, in a late number, has some very sensible remarks concerning the growing fashion of publishing Hospital Reports as separate volumes. With the exception of those of Guy's, they have all in Great Britain proved ultimate failures. The excellent Dublin Reports were comparatively short-lived, and those of the London Hospitals, with the exception just named, are yearly getting less varied and valuable, and are evidently produced with more effort. Our contemporary writes: "It is easy to start a volume of reports, and to keep it afloat for a year or two, but after that find the task of whipping-in too great, and the reports cease. The consequence is, a disjointed collection of reports and cases difficult of reference, and too often overlooked. . . . . To secure a permanent record, easy of reference, and in the hands of all, an annual volume is not the medium to be selected." In this country these remarks are equally true. It is a short-sighted policy on the part of the writers, who will always find their papers, if of value, gladly welcomed by the medical journals, and by contributing to their columns they are certain of having them brought to the notice of the whole profession, instead of a limited and local class.

Messrs. J. B. Lippincott & Co. announce "Opium and the

Opium Appetite." By Alonzo Calkins, M. D. Dr. Calkins has paid special attention to the consideration of this subject, and we look for a work of interest from his pen.

This house also announce that, on the 1st of October proximo, they will commence the publication of a new semi-monthly medical journal, to be called *The Medical Times*. Each number will contain sixteen double-column quarto pages. The editorship has been intrusted to Dr. Rhodes, who will be assisted by a large number of collaborators in the different departments of medicine. Already a lengthy list of names, among them some of the most prominent members of the profession in this country, is given as among the regular contributors to the journal. The plan upon which the journal is established is a capital one, and, backed as it is by a competency both of brains and money, there can be no doubt of the success of the enterprise.

Dr. Luther H. Parks has retired from the editorship of the *Boston Medical and Surgical Journal*, and is succeeded by Francis H. Brown, M. D.

New Dictionary of Science.—Messrs. Moxon & Co. are preparing for publication a Dictionary of Science, edited by Mr. G. Farrer Rodwell. It will be uniform with Haydn's "Dictionary of Dates" and "Dictionary of Biography," and will comprise—Acoustics, Astronomy, Chemistry, Dynamics, Electricity, Heat, Hydrodynamics, Hydrostatics, Light, Magnetism, Meteorology, Pneumatics, Statics. These subjects will be treated of—by J. T. Bottomley, M. A., Lecturer on Natural Science in King's College School; William Crookes, F. R. S., etc.; Frederick Guthrie, B. A., Ph. D., Professor of Natural Philosophy in the Royal School of Mines; R. A. Proctor, B. A., F. R. A. S.; Richard Wormell, B. A.; and the editor.

A new edition, revised and enlarged, of Da Costa's "Medical Diagnosis," is announced by Messrs. J. B. Lippincott & Co., of Philadelphia.

The same house also offer a new work on Microscopical Manipulation, by W. T. Suffolk.

Volume II., of the *Gynæcological Journal*, handsomely bound, comes to us from the publisher. We have taken occasion previously to refer to this publication, and now have only to add that it is growing in favor, and is a most essential adjunct to the library of those engaged in the study or practice of diseases of women. It has been charged upon American medical periodicals that they have no positive or well-settled opinions, or at all events that they never express them. Let those who entertain this view only read Dr. Storer's editorials —sparkling, almost startling at times, and brimful of life and earnestness—and they will find at least one brilliant exception to this accusation. We wish the *Journal* most hearty success.

The third volume of the revised edition of Holmes's Surgery has appeared from the press of Longmans. From notices which have been made in the English journals, many of the articles have been largely improved.

Dr. Brinton's well-known work on Diseases of the Stomach has been translated into French, by Dr. Riaut, and an introductory chapter, which is a critical analysis of the work, has been added by Prof. Lasègue.

Sedillot and Leguoest's Operative Surgery has passed to a fourth edition in French.

Books and Pamphlets Received.—Announcements and Catalogues have been received from the following Medical Colleges:

Medical Department University of New York, N. Y.
" " " " Louisville, Ky.
" " " " Buffalo, N. Y.
" " " " Baltimore, Md.
" " Iowa State University, Iowa City.
Woman's Medical College of the New York Infirmary.
Bellevue Hospital Medical College, New York.
Long Island College Hospital, Brooklyn, N. Y.

Report of the state of the New York Hospital and Bloomingdale Asylum, for the year 1869. New York: D. Van Nostrand, 1870. Pamphlet, pp. 35.

Constitution, By-Laws, Code of Ethics, and Fee Bill, of the Toledo Medical Association, Toledo, Ohio. Adopted March 11, 1870.

First Annual Report of the New York Ophthalmic and Aural Institute; with Act of Incorporation and By-Laws.

Fourth Annual Report of the Metropolitan Board of Health of the State of New York, 1869.

Fifty-sixth Annual Report of the Trustees of the Massachusetts General Hospital for 1869.

Three Cases of Imperforate Anus, with Remarks. By J. H. Pooly, M. D., Yonkers, New York. Reprint from the *American Journal of Obstetrics.*

Miscellaneous and Scientific Notes.

Dr. Alexander Russell Simpson, nephew to the late Sir James Y. Simpson, has been appointed his successor in the chair of Obstetrics in the Edinburgh University. The other candidates for the place were Drs. J. Matthews Duncan and Alexander Keiller. Dr. Keiller was the oldest of the three candidates, and has been engaged in lecturing since 1849, having delivered a special course on Obstetrics since 1853. He has also, after passing through the Infirmary and Children's Hospital, served as physician to the Maternity Hospital for twenty years. Dr. Duncan is well known in this country by his writings. He has served at the Infirmary and Children's Hospital, but has not been physician to the Maternity, and in general acquirements and academic culture is perhaps superior to the other two candidates. Dr. Simpson has never given a systematic course of lectures on Midwifery, though for some years he has taken his uncle's place in the lecture-room when the latter was prevented from attending. Sir James had indicated his wish that his nephew should succeed him. On the second ballot he received the vote of the four Curators who represent the Town Council; the other three votes representing the Faculty were given to Dr. Duncan.

The *Lancet* of July 9th contains a pretty severe editorial comment on this election. There is little doubt that this paper reflects the opinion of the majority of the profession when it shows, what indeed had already been clearly anticipated, that personal popularity had more to do with the result than acknowledged ability and fitness, and it claims that the

interests of medical education and the welfare of the Edinburgh school are too momentous to allow such considerations to avail in the selection of the successors of men like Goodsir, Syme, and Sir James Y. Simpson.

A MEETING was recently held in England for the purpose of devising some measure to perpetuate the memory of the late Sir James Y. Simpson. It was presided over by the Duke of Sutherland, and among those present were Sir Roderick Murchison, Dr. Black, the Marquis of Lorne, the Marquis of Westminster, Sir Sidney Waterlow, Sir Charles Locock, Dr. Playfair, Dr. Williams, Mr. Spencer Wells, Dr. Alexander Wood, Sir George Magruder, Dr. Priestley, Lord Elcho, and many others equally well known in the arts and sciences. Hon. Arthur Kinnaird, M. P., was appointed Honorary Treasurer, and Lord Elcho, M. P., and Drs. Playfair and Black, Honorary Secretaries.

No conclusion was arrived at by the meeting as to the special form which the memorial shall take. It is suggested by Lord Dalhousie that a hospital especially devoted to the treatment of diseases of women would be the most fitting monument that could be raised to his name; though to this proposition it has already been objected that Sir James himself was strenuously opposed to the building of large hospitals and the congregation of great numbers of patients at one point. Whatever may be the determination as to the form of the memorial, this country will deem it a privilege and a duty to contribute liberally toward perpetuating the name and memory of one who was so great a benefactor and friend of the whole human race.

PROF. ROKITANSKY, of Vienna, has been elected Corresponding Member of the Academy of Sciences of Paris, Section of Medicine and Surgery, in the place of the late M. Panizza. Out of forty votes, Rokitansky received thirty-seven. The others were given, two to M. Lebert, and one to Donders the oculist.

M. MÉHU, pharmacist of the Necker Hospital, Paris, recommends, after several years' trial and experimenting, the fol-

lowing preservative fluid for anatomical specimens. It is especially valuable in not causing contraction of the soft parts: Arsenious acid, 20 parts; crystallized carbolic acid, 10 parts; alcohol, 300 parts; distilled water, 700 parts.

How can Medical Journalism in this Country be improved? — We take the following remarks from the address of Dr. N. S. Davis, before the American Association of Medical Editors, at their annual meeting in Washington, D. C., May 2, 1870:

To answer this question satisfactorily, involves a correct appreciation of the causes of its past and present instability and imperfection. These have been very generally attributed to the excessive number published, and the consequent inadequate pecuniary return for the labor required. And the remark is often made, that if our medical periodicals were restricted in number to such as are issued from a few of the great centres of population, where their editors have access to the abundant materials afforded by hospitals and medical societies, they would command a sufficient number of readers and supporters to give them permanence and excellence. It is very doubtful whether this view can be verified, either by observed facts or the application of well-established mental laws.

If it were true that the discontinuance of one-half of the medical periodicals now in the couse of publication would result in transferring all the patronage they have received to the remaining half; or if the patronage bestowed on each new journal was simply so much taken from the journals previously existing, then, indeed, would the number published furnish a direct index of the amount of patronage each could expect to receive. But observation has long since satisfied us that the matter is governed by no such simple rule. On the contrary, every new journal started enlists a circle of friends and patrons, a large part of whom were taking no periodical before, and contributing to none.

And, if it so happens that the circle formed is too restricted and the enterprise fails, it will have created in many of its patrons the habit of reading and writing, which will remain and be turned to the benefit of some other periodical. It is a law of the human mind that the more its faculties are exercised, either in the acquisition or communication of knowledge, the more imperious are its demands for an additional supply. The practitioner who has read or contributed to one medical journal, is far more likely to add another to the list, than he is to discontinue the first. A full examination will show that the unstable and imperfect character of many of our medical periodicals is neither owing to their number, nor to the fact that the places of their publication are widely diffused over our country. There are practitioners enough in the United States, if each subscribed for only one periodical, to afford every medical journal, now in course of publication, a fair support.

And the publication of these periodicals, in the different and distant sections of our country, is of great advantage in developing a knowledge of the climate, topography, and diseases of their respective regions, as well as stimulating a taste for reading and writing in the local profession around them. Our experience and observations have satisfied us that most of the faults connected with American medical journalism are traceable to two sources, namely, the defective education of the profession, and the imperfect arrangements of those who undertake the editorial supervision and publication of the respective journals.

It is perfectly well known that a large part of those who enter upon the practice of medicine, under our system of medical education, are wholly destitute of that general education and mental discipline which are essential to the formation of a taste for reading and writing. Without an adequate knowledge of the elementary branches of common education, and without the slightest acquaintance with any of the sciences, they have performed the task of reading the text-books in medicine, much as the apprentice performs his task in a mechanic's shop; they have attended the heterogeneous courses of lectures, in some medical college, during which they have made imperfect notes of as many formulas or prescriptions for particular diseases as they could, and they enter upon practice with full confidence that these formulas and their text-books furnish all the literature necessary for the rest of their lives. They have no taste for reading, and not the slightest appreciation of the value of medical periodicals.

And, if here and there one of this class is induced to patronize a journal, or furnish a contribution, the letter is written in such style that the editor must either throw it into his basket of waste-paper, so far rewrite it that the author would not recognize it as his, or let it appear in such condition as to disgrace the pages of his journal. It is directly to this imperfect education of the profession that medical journalism owes both its limited patronage and the literary imperfections which have so frequently subjected it to disparaging criticism. The physician whose mind has been early disciplined by study, and fed with the bread of science, will be just as much lost without one or more medical periodicals, as is the clergyman without his church paper, or the politician without his party organ.

The second efficient cause of instability in medical journals was stated to be, the imperfect arrangements of those who undertake their editorial supervision and publication. The history of a large portion of them may be briefly stated as follows:

The faculty of a college wants an *organ;* or one or two young men, laudably ambitious, think that an editorial position would give them both notoriety and access to the current medical literature; and, in either case, a bookseller, or publisher, or some other business firm, who can be made to think that the proposed journal would be a profitable medium for advertising his own wares, and that enough additional advertisements can be obtained to pay a large part of the expense of publication, is sought out, a bargain made, a prospectus issued, soon followed by the first number of the work. The members of the college faculty whose names have been put on as editors, or the ambitious young men whose names occupy that position, have provided no reliable corps of reporters to furnish what can be gleaned from the hospitals and medical societies, if any such exist in the neighborhood; they have no resources for original matter, except the voluntary contributions of members of the profession, and, what is equally bad, they have no positive views of medical polity, medical education, or sanitary science, with which to give their own editorial space a positiveness and individuality calculated to attract attention and command respect.

By personal solicitation, they succeed in obtaining contributions enough from their friends to make a respectable show of original matter for the first few numbers, but this resource is soon exhausted, and they are obliged to increase their selections from other journals, to fill up the required number of pages; the fear of offending some interest, whose patronage is needed, deters from doing more in the editorial department than to write commendatory notices of books, or call attention to some new advertisement, until, heartily tired of the enterprise, they discover that they have not *sufficient* time to devote to the work, and either let it die, or induce some new man to undertake it, and go through the same process.

In other instances, where the editor holds out more tenaciously, notwithstanding his scanty supply of material, the publisher, after one or two years, discovers that the benefit he derives from the advertising medium is not equal to the deficiency of receipts as compared with the expenditures, and he withdraws, leaving another printer to be found, who, in turn, arrives at the same conclusion in a few months. If the foregoing views are correct, in regard to the causes of the insufficient patronage, instability, and imperfections, of medical periodicals, in this country, the remedies are obvious. Nothing short of a higher standard of education, both preliminary and medical, on the part of those who enter the profession, and a more correct appreciation of the arrangements and qualifications required for maintaining a creditable medical journal, will remedy the evils. The first would multiply the number of readers and insure the proper merit in their contributions, while the second would speedily arrest the tendency to make inconsiderate efforts to establish new journals.

Deaths from Small-pox in Paris during the Years 1865, 1866, 1867, 1868, 1869, and to May, 1870.—In a report made by the Consulting Board of Public Hygiene to the French Minister of Agriculture and Commerce, and signed by Prof. Tardieu, president, and A. Latour, secretary, we glean the following interesting facts respecting the mortality from small-pox in Paris during the past five and a half years:

In 1865, 740 deaths; 1866, 615; 1867, 301; 1868, 655; 1869, 723.

The present epidemic began in November, 1869, the deaths during that month from small-pox having risen from 39, in October, to 93. In December, 1869, they were 119, against 73 in the same month of 1869. From January 1, to May 24, 1870, 4,251 cases of small-pox are registered in the hospitals of Paris, of which 172 cases were developed among the inmates, or originated in the institutions (4.16 per cent., or 1 in 24), and of which 683 died, or 10.07 per cent., a rate claimed to show the benefits of vaccination. But this, the Board thinks, is still more strikingly proved by the army returns. Every recruit is vaccinated or revaccinated on arriving at the depot; though there are occasional delays and overlookings. In the military hospital of Val-de-Grace, which receives the sick of an army-corps whose mean strength is 13,050 men, from January 1 to May 27, 1870, there were only 116 cases of small-pox, of which 19 were developed in the house; the deaths were 4 (3.44 per cent.). Of these 116 cases, 93 had been vaccinated in childhood, 13 revaccinated suc-

cessfully, and 3 unsuccessfully; 7 never had been vaccinated, and of these last 1 died.

At the Necker Hospital a man died of small-pox at the age of eighty-three.

The present epidemic reached Paris from the west of France, and appears to be pursuing its course toward the northern departments.

We may add that, for the week ending June 18th, the deaths from small-pox in Paris were 238, in a total hebdomadal mortality of 1,144, in a population of one and a half million. Of small-pox cases, the Salpêtrière had 111, the Incurables 250. For the week ending July 2, there were 218 deaths, and for the week ending July 9, 267 deaths from small-pox. The total number of deaths in this last week, from all sources, was 1,119.

Dr. W. B. Trule, of Boston, Mass., narrates, in the *Medical and Surgical Journal* of that city, a most extraordinary case of removal of a stone $5\frac{1}{4}$ inches long, $3\frac{1}{4}$ inches wide, and $2\frac{1}{4}$ thick, and weighing 1 lb. $4\frac{1}{2}$ ozs., from the abdominal cavity of a man. The stone had been passed up the rectum, with the view of pressing against the bladder and forcing a discharge of urine. The patient was subject to stricture of the urethra, and had resorted to this curious expedient, he says, at the advice of his family physician, and while at sea he was accustomed to use a belaying-pin for this purpose. The stone had ruptured the wall of the intestine near the sigmoid flexure. The recovery was speedy and complete, without peritonitis and without any unfavorable symptoms.

Dr. Albert Day, who has recently retired from the superintendency of the Binghamton Inebriate Asylum, has established at Greenwood, Mass., eight miles from Boston, a private asylum for the treatment of inebriates and opium-eaters. Dr. D. S. Dodge has been appointed Dr. Day's successor at Binghamton.

Dr. G. C. S. Choate has resigned the superintendency of the Taunton Lunatic Hospital, Mass., and is succeeded by Dr. W. W. Godding, of the Government Hospital for the Insane, at Washington, D. C.

Robert Nasmyth, F. R. C. S. E., and Surgeon-Dentist to the Queen, died on the 20th of May, aged seventy-eight. He held the same honorable position in the royal household during the reigns of three successive sovereigns—the present queen, George IV., and William IV. He was not only a skilful dentist, but an accomplished surgeon, and was for some time the right-hand man in many of the operations of Wardrop, Liston, Syme, Ferguson, and other eminent men. The late Prof. Goodsir was, for a number of years, his assistant.

Deaths from Chloroform.—These sad accidents have accumulated so rapidly that we have been quite unable to keep up our customary full record of them. We therefore present only a brief abstract of thirteen cases that we have noted, but have not previously reported in the Journal. At the same time, we give the sources from which the accounts are obtained, so that our readers may, if they desire, consult the original reports:

At Accrington, a young woman, aged thirty, Susannah Horsfall by name, took chloroform for the purpose of having some teeth extracted. After having taken out three teeth, the operator, Dr. Miller, observed that the patient was dying, and in spite of the promptest measures at resuscitation life was soon extinct. This patient *had taken chloroform previously*, but, as reported, without producing any anæsthetic effect.—*British Medical Journal*, April 2, 1870.

On Sunday, February 14, 1869, a chemist of Sheffield, named Godley, died while under the influence of chloroform. He was about to undergo an operation for the removal of a piece of diseased bone from the leg; and, although he seems to have felt extremely nervous and anxious about taking the anæsthetic, it was at his own request administered to him. The patient's heart and lungs were examined prior to the use of the chloroform, and the quantity used was exceptionally small, yet, after inhaling the vapor for but three minutes, the heart ceased to beat. It is impossible to say how far, in this instance, the great fear and apprehension of the patient may have contributed to the fatal result, for it must be admitted that occasionally patients have died while on the operating-table apparently from mere fear of the surgeon's knife. See the instances quoted by Sir James Y. Simpson, in his report of the fatal result from anæsthesia by chloroform, alluded to further on in this collation.—*Medical Press and Circular*, February 24, 1869.

At the Brooklyn Dispensary, February 16, 1870, one Mary Cassidy was put under the influence of chloroform for the purpose of reducing a dislocation of the humerus. The patient was an aged woman, and had been badly beaten by a drunken husband. She died just after the second dose—amount not stated—had been poured on the inhaler, and the wise conclusion arrived at by the jury was that chloroform had nothing to do with her death. Patient's heart was in a state of extreme fatty degeneration. Of course she had no business to have a fatty heart, and so the chloroform must be held innocent in her case. But nevertheless she died while under its influence. —*New York and Brooklyn papers of date.*

At St. Francis Hospital, Columbus, Ohio (no date given), Prof. Hamilton amputated the thigh of a man who, while intoxicated, had fallen upon a railroad track and had his leg crushed by the engine-wheels passing over it. The operation was performed on the day following the receipt of the injury, and the patient's condition at this time was "as good as could be expected." Chloroform was administered after the usual manner, and anæsthesia was produced "unusually quickly—almost instantly." But little hæmorrhage during the operation, nor, since the receipt of the injury, had there been enough to produce any great prostration. Soon following the operation the pulse began to fail, became weak, irregular, and intermittent; the breathing interrupted and spasmodic, and in spite of artificial respiration the patient was quickly dead. The not infrequent comment is made by the reporter, "This is the first case of death that has occurred in Prof. Hamilton's practice in connection with the use of chloroform;" and we may add, by way of illustration, that Billroth, the famous surgeon of Vienna, met his first death after having used chloroform over twelve thousand times, and Sir James Y. Simpson, but a few weeks before his own lamented death, lost his first case from chloroform after several thousand administrations of this anæsthetic. We are glad, however, to record the fact that Prof. Hamilton, believing, in this instance, that chloroform "had such a suspicious part in causing death," has resorted to his former practice of giving ether when an anæsthetic is called for.—*Clinical Report in the Medical Gazette*, February 5, 1870.

Lincoln County Hospital, England, had *its* first death from the administration of chloroform on the 23d of December, 1869. The patient was a boy fourteen years of age, the subject of necrosis of the tibia. *He had taken chloroform safely on a previous occasion.* The lad was anæsthetized, and the operation, most of the surgical staff of the hospital being present, had

been commenced when he was seized with vomiting. After vomiting one or two minutes, he became livid, his breathing ceased, and the pulse was imperceptible. In spite of the usual measures, death followed. The *post-mortem* examination revealed nothing abnormal, excepting an hypertrophy of the liver. At the inquest death was attributed by Mr. Hett, the house-surgeon, "to failure of the heart's action."—*British Medical Journal*, January 8, 1870.

Mrs. Bradford C. Foote, of Sheffield, Mass., died from the effects of chloroform in the office of Dr. W. W. Rice, in Great Barrington, Mass., Saturday, February 12, 1870. Mrs. Foote called at the office to have a number of teeth extracted, and requested Dr. Rice to administer chloroform. Both he and the husband endeavored to dissuade the patient from taking the chloroform, but, as *she had taken it on a previous occasion* without accident, she insisted upon its administration, and Dr. W. H. Parks was called in for this purpose. The chloroform was given in the usual way, by pouring a small quantity upon a napkin which was held at a little distance from the face, so as to allow the entrance of a sufficient supply of atmospheric air. Twelve teeth were extracted, and Mrs. Foote had partly recovered consciousness, when suddenly she seemed to choke, and died almost instantly. Artificial respiration was kept up for three-quarters of an hour without avail. No *post-mortem* examination was allowed to the physician and dentist engaged in the case, though the report states that a clandestine examination was made by other parties, who failed to find any organic disease to account for the death. Dr. Parks has administered chloroform over two thousand times, and this is *his* first death. —*Dental Cosmos*, April, 1870.

John Plowman, a farmer, aged sixty-eight, was admitted into the York County Hospital for the purpose of having partial amputation of the foot performed, on account of disease of the bones. Previous to the operation, January 11, 1870, chloroform was administered by the house-surgeon. *Scarcely a drachm had been inhaled* when the patient suddenly became rigid, and his pulse stopped. He was dead. Every exertion was made for his restoration, and artificial respiration was kept up for more than three-quarters of an hour, but without avail. No report of *post-mortem* examination.—*British Medical Journal*, January 22, 1870.

Sir James Y. Simpson, of Edinburgh, administered chloroform on the 5th of February, 1870, to a young married woman, aged twenty-two, a patient of Dr. Brotherston. The operation of ovariotomy was about to be performed by Dr. Brotherston, at Sir James's advice. A single layer of towel was

placed over the nose and mouth, leaving the eyes exposed, and the chloroform was dropped upon the towel. When Dr. Brotherston made his first cutaneous incision, the patient moved so much that he stopped for a time, until she was brought more deeply under the anæsthetic. The tumor was readily reached, but could not be brought out through the original opening, which was now enlarged. The doctor then introduced his hand, and was in the act of turning out the tumor, when the patient vomited suddenly and profusely. Immediately the eyes opened, the pupils were preternaturally dilated, the face looked pallid, and the respiration, which, until now, had no noise or stertor in it, seemed arrested. The tongue was pulled forward and artificial respiration was resorted to. Deep, spontaneous respiration then occurred several times in succession, and the patient was deemed out of danger, but a second collapse immediately supervened, terminating in death. At the autopsy no diseased conditions were discoverable anywhere except in the tumor, which was declared cancerous by Dr. Pettigrew, the Pathologist of the Royal Infirmary of Edinburgh.

Sir James Simpson appends to the history of this case some remarks, in which, after calling attention to the two recognized modes of death from chloroform, viz., asphyxia and syncope, he raises the question whether all the cases of death from syncope are in reality due to the chloroform which happens to be used at the time. Prior to the introduction of anæsthetics, patients sometimes died upon the operating-table, and these sudden deaths do not seem to have attracted much interest, because they were looked upon as inevitable accidents not coupled with any special pathological condition, and the author, with his usual research has unearthed and appended to his narrative ten such instances. One of them was the first case in which, after the discovery of the anæsthetic property of chloroform, it was proposed to employ this agent while performing a surgical operation. It had, however, been once, a few days previously, tested in a case of tooth-drawing. Dr. Simpson could not, however, be found, and the operation was commenced without the anæsthetic. The first incision through the skin had been made (the operation being for the relief of a strangulated hernia), when the patient suddenly fainted and died. Sir James very pertinently remarks that, had chloroform been used on this occasion, and had the fatal syncope occurred while the patient was under its influence, the whole career of this new anæsthetic would probably have been at once arrested.

The closing paragraph of this report, in which the reader is left inferentially to the conclusion that it is proper to use

chloroform because it is less fatal in proportion to the number of cases in which it is employed than opium or many other potent drugs of the pharmacopœia, seems to us both disingenuous and irrelevant. These cases are neither parallel nor analogous to the chloroform deaths, for the first are almost invariably due to *over* and hence poisonous doses, while in the last the quantity used is not infrequently *exceptionally small*. And, again, if there were other agents which could be substituted with equally good results, and with *greater safety*, for these powerful drugs (as, for instance, opium, which is especially and statistically arrayed by the author as an offset to chloroform), no one would be justified in using them. Now we have an agent which stands precisely in this relation to chloroform, and hence it seems to us there should be no division of opinion upon this point.—*Medical Times and Gazette*, February 26, 1870.

At Prof. Billroth's clinic in Vienna, February 23, 1870, a death occurred. The patient was a servant-girl, twenty-four years of age, and had been in the Vienna Hospital since the 11th of October, 1869, on account of acute articular rheumatism. On the 18th of November *she was chloroformed*, and forcible extension of the right knee-joint was done *without accident*. The knee and ankle-joint, however, remained stiff and immovable, and, after repeated examinations of the heart had failed to indicate the presence of any disease, it was determined again to operate on her. The chloroform narcosis was hardly complete, when symptoms of asphyxia prevented proceeding with the operation. The operator at once commenced artificial respiration. The patient breathed regularly during one minute; but, before the interrupted operation could be continued, breathing became again irregular, and the pulse ceased to be perceptible. Tracheotomy was now performed, but to no effect, as the lungs acted only a few times. Finally, venesection and electro-puncture were tried, but all in vain. The *post-mortem* examination showed small vegetations on the valves of the heart. It is to be noted that the pulse ceased to be perceptible before respiration stopped.—*British Medical Journal*, March 12, 1870, reported in detail in *Wiener Med. Wochenscrift*, February 26, 1870.

At the Cook County Hospital, Chicago, Illinois. Case of caries of ankle-joint preparing for amputation. Middle-aged man, anæmic. Chloroform administered with a folded towel in a judicious and skilful manner. One minute after the first inspiration a convulsive movement of the extremities occurred. A few seconds later the chloroform was removed, and his head declined. After four or five convulsive inspirations at long in-

tervals, he ceased to breathe. Face livid; pupils dilated; eyes and jaws open. The heart's action was maintained for forty minutes.—*Cook County Hospital Reports, in Chicago Medical Journal*, August 15, 1869.

A death occurred at the Middlesex Hospital, London, December 29, 1869. The patient was a laborer, aged twenty-six, in whose thigh Mr. De Morgan was about to insert a drainage-tube, through a sinus which required enlarging for that purpose. He had disease of the neck of the femur, and had undergone a somewhat similar operation in September last, *when chloroform had been taken*, which had been followed by much sickness. On the present occasion, half a drachm of chloroform was first poured upon a piece of lint, and, that being exhausted, another half-drachm was applied. By this time the patient was in the second stage of anæsthetization, and the chloroformist held out the lint to an assistant for another half-drachm. At this moment the man's respiration ceased. His face, pale at first, shortly became livid. Silvester's method was tried without success; the tongue was pulled forward, and electrical stimulus applied by means of a powerful battery which is always kept in readiness in the operating theatre. One pole was placed at the lower part of the chest, and the other at various points in the course of the pneumogastric nerve. Powerful contractions of the respiratory muscles followed, but no trace of revival occurred. One of the jugulars was then opened, but all means failed, and it was evident that the man's death had been instantaneous. Mr. Arnott, surgical registrar, made the autopsy, and we derive the following from his notes: The lungs were dark red in color, and the large bronchial tubes were filled with thin frothy fluid. There was no clot in the pulmonary arteries. The heart was large, and contained only a small shred of decolorized clot in the left ventricle. The wall of the left ventricle was thicker than natural, and the cavities generally were large. The heart weighed fourteen ounces. Under the microscope, bits of the wall of the left ventricle showed well-marked appearances of granular degeneration, the striæ in many places being obliterated. There were evidences of recent endocarditis on the aortic valves, and traces of an older affection of the mitral valves and neighboring endocardium.—*Lancet*, January 8, 1870.

We regret to know that accidents with anæsthetics still continue unusually frequent. At Moorfields, ten days ago, an elderly man died under the influence of chloroform. He was a patient of Mr. Couper's, and had taken chloroform without any unusual occurrence a short time before. On the second and fatal occasion, very little had been given, and he had

struggled violently. The inhaler had been removed in order to add more chloroform; and, while it was away from his face, although there was no special change in the man's countenance to excite alarm, his pulse suddenly stopped. He continued to breathe for some time after absolute absence of pulse at the wrist. The case remarkably resembles some others on record, in this feature, that the pulse gave the first sign of danger. All the usual means of resuscitation were promptly employed, but without avail. At the *post-mortem* examination, the heart was found very thin, loaded externally with fat, and its muscular fibre also in a state of fatty degeneration. The left cavities were empty, but flaccid.

On the day following this event, a death occurred at University College Hospital, in a patient upon whom Mr. Heath had just performed amputation of the thigh. The patient was a lad, in a very anæmic condition. The operation was completed; and the inhaler (Clover's) had been removed from his face for two minutes, when the heart suddenly ceased to beat. —*British Medical Journal*, April 30, 1870.

Early American Medical Periodicals. — The first medical periodical published in America, of which we have any knowledge, was the *Medical Repository*, commenced in 1797, in the city of New York, and edited by Drs. Samuel L. Mitchell, Edward Miller, and Elihu H. Smith.

It was a good-sized quarterly journal, and its pages were enriched by the contributions of many of the ablest members of the profession at that date. Dr. Mitchell remained its principal editor through the first sixteen volumes, when it passed under the editorial management of Dr. James R. Manley, who, with his associates, maintained its reputation and usefulness until the end of the twenty-third volume.

In September, 1804, the *Medical Museum* was commenced in Philadelphia, edited by Dr. John Redman Coxe. In the same city, in November of the same year, the first number of the *Medical and Physical Journal* was issued, under the editorial management of Dr. Benj. Smith Barton.

The *Museum* was continued until 1813, while we lose all trace of the *Medical and Physical Journal* in 1808, until it is revived under the same name, and edited by Nathaniel Chapman, in 1820, and continued until 1827, when it seems to have been merged into the *American Journal of Medical Sciences*, which has continued until the present time. Another quarterly journal, called the *American Medical Recorder*, was commenced in Philadelphia, in 1818, and continued until 1829, when it appears to have been also merged into the *American Journal of Medical Sciences*.

A neatly-illustrated quarterly journal, devoted to Medicine, Natural History, and Agriculture, called the *American Medical and Philosophical Register*, was published in New York, in 1810, and continued until 1814. The *New-England Journal of Medicine, Surgery, and Collateral Branches*, was published in Boston, from 1812 to 1824. After 1820, new medical periodicals continued to be issued so rapidly, that I have been wholly unable to devote sufficient time to the subject to enable me to follow them in detail. With the aid of Dr. Toner, of Washington, I have been able to learn the names of about one hundred and twenty medical periodicals proper, which have been issued within the last fifty years, not including the annual transactions of medical societies.

Of these, one-half were discontinued within from six months to three years from the commencement of their publication. Of the remaining number, twenty did not continue beyond five years; and of more than thirty medical periodicals belonging legitimately to the profession, not including those of dentistry, now being published in the United States, only thirteen have been published more than a single decade.—*From Dr. Davis's Address before American Association of Medical Editors.*

The editor of the *Nashville Journal of Medicine and Surgery* is exceedingly angry with us for an article which we wrote some six months ago, dealing with American medical periodicals. Nor have we only fallen under his lash; but it is applied with still more unsparing hand to a journal we took the opportunity of praising—praise which we reiterate—the New York Medical Journal. *A propos* of this journal, the Nashville editor writes:

"The editor need be merely a myth, having but little more to do in guiding the creation than the driver of a street car has in shaping the course of the machine over which he presides. Having nothing to do, he would of course soon become a nonentity, and his machine, exhibiting fitful signs of life here and there, as accidental and trivial obstructions interposed to shake and jostle it, would stick to its ruts, and make its twelve cycles within the year as well without as with an outrider. Its tendency would be to become a Dead Sea of dignity and self-contentment, with a rag in the horizon marking the whereabouts of the craft of its editorial Sinbad."

This confusion of metaphor would be delightful were it intelligible; but here, as in many other passages, the writer is beyond us, and we are fain to confess we do not understand the American language, but are obliged to content ourselves with plain English. By-the-way, in the same number of this journal, we read of a famous man who lived down South, and who is described as "the lithotomist of the nineteenth century." Among other wonderful traits of character it is said

of him that "when at home he never omitted the towel-bath every morning at all seasons of the year."—*Medical Times and Gazette*, June 4, p. 624.

Mr. Syme, the famous surgeon and teacher of Edinburgh, is dead. We condense from the *Lancet* the following account of his life: Born in 1799, in his nineteenth year he commenced the study of anatomy under Robert Liston, then rising to fame as a surgeon, and was by him appointed prosector to the class. He took his surgeon's diploma in 1821; in 1823 he was admitted a Fellow of the Royal College of Edinburgh, and in the former year became a member of the English College of Surgeons, of which, in 1843, he was made a Fellow. From 1825 to 1829 he lectured on surgery in the extra-academical school; and, having been refused election as a surgeon of the Royal Infirmary by the managers of that institution, he converted Minto House into a hospital, at his own expense, in 1829, and delivered for four years a course of prelections within its walls. Here he laid the foundation of that skill and versatile resource in surgery, and that aptitude for clinical teaching, which distinguished him ever after; and here he won the esteem of his fellow-citizens for that generous humanity of which a notable instance is recorded in the celebrated "Rab and his Friends" of his pupil Dr. John Brown. He contributed to the *Edinburgh Medical and Surgical Journal* a series of reports on the practice pursued in his hospital, and these, as they appeared from time to time between the years 1829–'33, were of marked service in advancing surgery as a science and as an art, and in heightening the already high reputation of the Edinburgh school. In 1831 he published his treatise on "The Excision of Diseased Joints;" and in 1832 his "Principles of Surgery." The following year he was appointed to the chair of Clinical Surgery in the University of Edinburgh, and here he became so famous that, some fourteen years after he had entered on the duties of the chair, a requisition was made to him by many friends in London to transfer his immediate teaching and influence to the great metropolis. In 1847, accordingly, he removed thither, where the post of Professor of Clinical Surgery in University College awaited him. Unfortunately, however, he came into frequent collision with some of his colleagues and professional brethren—mainly, we believe, his fellow-countrymen; and, after much acerbity of spirit had been expended on both sides, he returned to the great seat of learning from which he should never have migrated. Again in the old scenes of his numerous triumphs, he shone forth with all the higher lustre for his temporary estrangement; while his brief sojourn in London had sufficed to

attract many students to his clinique from the southern to the northern metropolis. He was the first to devise and perform amputation of the foot at the ankle-joint—an operation which, even in its less scientific form by Pirogoff, has saved many limbs, as well as lives, and, according to the statistics of the American War, is less fatal than any other amputation. He demonstrated the success with which the largest tumor of the jaw can be removed by cutting out the entire bone, tumor and all. He suggested the treatment of indolent ulcers of the leg by applying blisters. He showed how, in cases where the lip was destroyed, or had to be removed, from disease, a new lip could be formed; how a new nose could be produced from the cheeks; and how, in cancer of the tongue, the entire organ could be completely and safely extirpated. He revived, with success, the old operation for aneurism by cutting directly into its cavity; while he may claim as distinct and original contributions to his art the operation of external urethrotomy; the enforcement of a non-stimulating diet in cases of senile gangrene; the new and safe method of removing cartilages from the joints; and the demonstration that the periosteum possesses the power of forming new bone—a fact of the most pregnant significance to the surgeon. Against such achievements his errors in judgment (if such they were) are as dust in the balance. And we shall not be suspected of ignoble jealousy in remembering here that he scarcely did justice to the pressure treatment of aneurism till conviction of its efficacy was forced upon him by the Dublin school; that his opposition to resection of the hip and knee joints was persistent for many years; and that he never adequately appreciated the operation of lithotrity.

Mr. Syme was not voluminous as an author. Literary composition, under the severely exacting conditions of style which he imposed upon himself, could not but be laborious; and he aimed at impressing his doctrines on the minds of his generation rather by word of mouth than by stroke of pen. Still he has left, in addition to those already enumerated, several most valuable works, such as that on "Diseases of the Rectum," on the "Pathology and Practice of Surgery," on "Stricture of the Urethra and Fistula in Perinæo," on "Incised Wounds," on "Excision of the Scapula," and "Observations on Clinical Surgery." Some two years since he sustained a stroke of paralysis which left his power of walking impaired, with little or no manifest mischief, however, to his mind. A second attack, quickly followed by a third and a fourth, prostrated him completely, and he sank from point to point, till, on the evening of Sunday, the 26th June, he expired, in his seventy-first year. It is worthy of remark that,

like the majority of distinguished Scotchmen of late years, he died from failure of the cerebro-spinal centres—Sir Walter Scott, Professor Wilson, Professor Alison, Sir William Hamilton, John Goodsir, etc., having all been cut off by disease of that system.

By the death of Sir James Clark, on the 29th June, 1870, the Queen has lost a faithful servant, the medical profession one of its wisest members, and a large circle of friends a loved and trusted adviser. At the great age of eighty-one, after a life of constant activity, he died in the full possession of his faculties, and retaining to the last his interest in public affairs. Public honors were his to a greater extent than is common in our profession; but far beyond these was the estimation in which he was held by the highest in the land, and by those who directed the affairs of the nation. This estimation he had fairly won by a career of usefulness which it is difficult to estimate aright, so unostentatious was his method of procedure, and so indifferent was he to public recognition and applause.

He was born, a farmer's son, in Banffshire, in 1788, and, after a course of study at King's College, he entered the Royal Navy as a surgeon, in which capacity he served with distinction for several years. By a happy instinct, he settled, in 1820, as a physician in Rome, then, even more than now, one of the centres of European diplomacy and high life. There he acquired the courtly manners, the graceful reserve, the refined knowledge of the world, so eminently characteristic of a society to which Cardinal Consalvi gave the tone; there, too, he formed that experience in climate and its hygienic conditions which afterward served him in such excellent stead. Six years of life in the *beau monde* of the Eternal City were an admirable preparation for practice in London, where he soon rose in aristocratic favor, and was appointed physician to the King of the Belgians. On the death of Dr. Maton he became medical adviser to the Duchess of Kent and the Princess Victoria, who, on her majesty's accession to the throne, conferred on him the honor of baronetcy. He was also made physician in ordinary to the Prince Consort, and from that time till his death was a highly-esteemed and greatly-trusted counsellor at court. His versatile accomplishments and his fine scientific talent were of material value to the prince, who continually sought his advice in those agricultural and educational projects which engaged so much of the time and attention of "Albert the Good." All this time, too, while enjoying at the court of Queen Victoria an even larger share of his sovereign's confidence than was vouchsafed to Dr. Arbuthnot by Queen Anne, he never lost sight of the interests of his own

profession, and contributed much by his example and counsel to improve the literature of medicine. He coöperated effectively with the late Sir John Forbes, another court physician, in the establishment and conduct of the *Medico-Chirurgical Review*, and assisted most ably in the consummation of those salutary reforms with which posterity will associate the names of Andrew Combe and John Conolly. His journal, which we believe he kept with regularity, will not only have an historical interest, similar to that of Swift's in its notices of Arbuthnot, but a scientific interest peculiar to an age so rich in the results of inductive research.—*Lancet.*

Mr. Thomas Nunneley, F. R. C. S., one of England's most famous surgeons outside the metropolis, died at his home, in Leeds, in the early part of June. He was born at Market Harborough, in March, 1809. His early life was one of much privation and suffering. He was supposed to be suffering from some spinal complaint, and had to undergo a long course of treatment, which threw him much on his own resources, and tended to develop that taste for scientific inquiry which was a characteristic of him in after-life. Apprenticed to a surgeon in Wellingborough, he entered Guy's Hospital soon after the separation of that institution from St. Thomas's, was a dresser of Mr. Key's, and took so much interest in the business of the Hospital as to reside in a house next door to it. After taking his diploma at the college, and passing the Hall, he spent some months of study at the Paris hospitals. Subsequently he settled at Leeds, in which town he practised with success for upward of thirty-five years. Early in practice he paid great attention to diseases of the eye and ear, and took a deep interest in the institution for their treatment, and which was afterward amalgamated with the General Infirmary. He was an excellent operator on the eye, and it is said he operated for cataract in upward of 1,000 cases. He had a large and lucrative private practice, and had a reputation of the highest for his skill and success as a surgeon. It was not, however, until 1864 that he was elected a surgeon to the Leeds Infirmary, no vacancy having occurred in the surgical staff of that institution for upward of thirty years. Mr. Nunneley was for a long period connected with the Leeds School of Medicine, in which he was an able and industrious lecturer on anatomy and physiology. The earliest of Mr. Nunneley's works was an essay on Erysipelas, which was published in 1831, and to which was awarded the first prize offered by the Junior Physiological Society of Guy's. The "Nature, Causes, and Treatment of Erysipelas" was the subject of the Fothergillian essay for 1841, and Mr. Nunneley competed for the medal. Owing

to some trifling informality, the essay was rejected, and the author afterward published it on his own account. The conduct of the Fothergillian Committee was strongly animadverted upon by Mr. Nunneley, and he attacked them again and again with much bitterness and power. Unquestionably his essay was in every way worthy of the prize, and it may be ranked as high as, if not higher in the scale of excellence than, any of the essays which gained the medal of Fothergill from its institution. It was a long time the standard work on the disease, and still retains an honorable position among surgical monographs. In 1858 he published a work on "The Organs of Vision, their Anatomy and Physiology." He published, in the *Transactions* of the Provincial Medical and Surgical Association, an essay on "The Effects produced by Hydrocyanic Acid on Animal Life; with an attempt to determine the real value of presumed antidotes and remedies;" and another entitled "On Anæsthesia and Anæsthetic Substances; being an experimental inquiry into their nature, properties, and actions, and their comparative value and danger, and the best means of counteracting an overdose." In this essay he gave the results of experiments on nearly forty anæsthetic agents. His last essay, "On the Effect of the Calabar Bean on the Animal Economy," was published in 1863. He published a paper, in the *Medico-Chirurgical Transactions*, "On Aneurism of or within the Orbit," and another on "Vascular Protrusion of the Eyeball."

From Hoffmann's most admirable report on the progress of pharmacy, 1869, we make the few subjoined extracts, which have a practical value for the physician:

Iodine and Milk.—It is well known that milk takes up iodine, disguising its taste, smell, and color completely; since iodine is an antiseptic, iodized milk keeps for some time. Dr. Hagar calls attention to this fact, and suggests that this perhaps is the mildest form of administering iodine. Its therapeutical effect seems to be equal only to about one-fifth of the iodine.

Hagar thinks that iodized milk will soon become a favorite form of administering iodine, and suggests the following mode of preparation: one part of iodine, dissolved in ten parts of alcohol, is admixed with ninety parts of fresh, warm cow's milk.—(*Centr. Halle*, 1869, 10.)

Apparatus for the ready Detection of Phosphorus.—A simple apparatus for the ready detection of phosphorus in minute quantities, for the use of physicians, has been advised

by Dr. Mueller. It consists of a glass flask of about one hundred cubic centimetres' capacity, closed by a cork which is perforated by a slender glass tube, at least eighty-five centimetres high, and three millimetres wide. Some of the contents of the stomach (or other suspected substance) is introduced into the flask, water is added, and the whole boiled. In the dark the slightest trace of phosphorus will immediately cause a lightning-like phosphorescence.—(*Berlin. klin. Wochsch.*, 1868.)

A Novel and Delicate Reagent for Alkalies, particularly for Ammonia.—Prof. Böttger recommended, some time ago, the coloring principle of *Coleus Verschaffelti* as a delicate reagent for alkalies. More recently he ascertained that the extract from the alkanet-root surpassed in delicacy all known reagents for this purpose. It is used by saturating paper with a diluted alcoholic solution of the extract; before use the paper is moistened with distilled or pure water. Alkalies, and particularly ammonia, turn the red color into blue.

Secret Medicines.—In Germany, where the sale of secret medicines is prohibited, or at least restricted to a considerable degree, the nuisance of this illicit traffic is effectually met by analyzing all such nostrums, and publishing their composition and their real cost price. Referring to Mr. Robbins's striking disclosures on this important subject in his last year's report on the drug-market, and considering the increasing importance of this disgrace to American pharmacy, I leave it to the judgment of the members of this association if the same practice would not work in our country just as effectually, and be, perhaps, the best legitimate means of baffling this growing degeneration of the medicinal trade.

Culture of Cinchonas in East India.—On this important subject, Daniel Hanbury, in his opening address to the Norwich meeting of the British Pharmaceutical Conference, made the following statements: The Hollanders have first endeavored to transplant and cultivate the cinchonas in the East India colonies. To their experiments, failures, and errors, the present success of this important culture is partly due. The first successful attempt was made in 1852 in Java; the plantations prospered, and were considerably extended in 1854, when the British Government took the matter actively in hand. At present the chief plantations in British India are those on the Neilgherry Hills, near Madras, the most elevated mountain-range in India southward of the Himalaya. It appears that in May, 1866, the number of cinchona-plants in the government plantations in this locality was 1,233,645, of which nearly 300,000 belonged to the species yielding red

bark, 758,000 to that affording pale or crown bark, and 37,000 to *Cinchona calisaya*. This, however, indicates by no means the full extent of cinchona culture on the Neilgherries, since there were in addition considerable plantations belonging to private individuals. From Mr. Broughton's report, published in April, 1867, it appears that the number of plants of the red bark in the government plantations in that locality was at that date 800,000, which is an enormous increase within but one year. Other plantations have been formed in Wynaad, Coorg, on the Pulney Hills, and in Travancore, in British Sikkim, in the Kangra Valley in the Punjab, and at Mahabaleshwur, in the Bombay Presidency. In Ceylon the success that has attended the introduction of the cinchonas has been most marked. From the Himalaya the accounts are no less promising; there are now five plantations for the cultivation of cinchona, with an aggregate total in April, 1867, of more than 1,558,000 young trees, of which a large proportion belong to the species which furnish what are called the crown and the red barks.

But, however rapid and vigorous the growth of the cinchona in India, the culture of the tree would avail but little unless the bark were as rich in alkaloids as that produced in South America. At the outset of the enterprise many persons capable of judging had considerable doubt as to the results. From the recent numerous analyses of Howard, De Vry, Broughton, and others, it is, however, evident that the percentage of alkaloids in the bark grown in India may even exceed that obtainable from the same sort of bark grown in its native country. Another point worthy of notice is that the proportion which one alkaloid bears to another varies extraordinarily in the same species—sometimes quinine predominating, sometimes the less valuable cinchonine or cinchonodine. We are as yet to a great extent ignorant of the causes of this variation, but they will to all appearance become manifest, as is already the fact that the rapid reproduction of the bark and its richness in alkaloids is favored by coating the roots and stems with moss after the removal of the bark.—(*Proc. Brit. Ph. Conf.*, 1868–'69.)

On the Functions of the Trachea in the Act of Respiration.—Some interesting observations on this point, by Dr. Leven, appear in the just-published part of Dr. Brown-Séquard's *Archives de Physiologie*. Dr. Leven remarks that, up to the present time, most physiologists have regarded the trachea as an inert conduit for the passage of air. Nevertheless, sudden death has occurred on various occasions during the operation of tracheotomy; and fractures of the larynx

have frequently induced sudden death, without any exact physiological explanation ever having been advanced. His observations, however, have led him to form certain conclusions, to the effect that the trachea is not an inert tube, but that it is intimately associated with the medulla oblongata in its function through the pneumogastric nerves, permitting the passage of air, and therefore, also, the entrance of oxygen, which intermittingly excites the periphery of the pneumogastric nerves, and maintains the medulla oblongata in a constant state of activity. He grounds these conclusions on the facts: 1. That a ligature applied around the trachea, which effects a slight constriction of its calibre, instantly retards the respiratory movements. 2. A strong ligature, suddenly applied, so as altogether to occlude the passage of air, stops at once both respiration and circulation; sudden death follows, preceded only by one or two convulsive efforts. 3. It is through the pneumogastric nerves that the impression received by the trachea is conveyed to the medulla. 4. This is proved by the fact that, if the pneumogastries are divided before tying the trachea, the application of the ligature does not produce sudden death. The animal then dies asphyxiated by carbonic acid. 5. Moreover, if, after incompletely ligaturing the trachea, the coma of carbonic acid be induced, the respiratory act can still be retarded by tightening the ligature, or may be brought to a sudden stop by occluding the calibre of the tube. 6. These experiments have a direct bearing on various pathological conditions, and upon asphyxia in general, teaching us— 7. That we should not confound asphyxia produced by carbonic acid with asphyxia caused by strangulation, nor either of these two with the asphyxia of submersion, since the pathogeny of each is different. 8. Although, doubtless, the presence of carbonic acid in the blood is superadded as a cause of death, in the asphyxia of strangulation and submersion it is only a subsidiary and secondary cause. 9. Death by hanging is due to compression of the trachea, from the excitation of the pneumogastric, consecutively to irritation of the bulb. 10. Death by drowning is due to the fact that the trachea no longer receives the oxygen of the air, and hence the pneumogastric is no longer excited, the medulla oblongata consequently remains passive, and life is suspended by the arrest of the circulation and respiration, after the animal has made three or four respirations, induced by the oxygen still contained in the bronchi. 11. Thus it would appear that the asphyxia produced by hanging and by drowning rather merits the name of syncope, if the distinction between these two clinical terms could be preserved, and if the greater number of supposed cases of asphyxia were not cases of true syncope of a different kind. Asphyxia by

hanging is due to an irritation of the bulb; that by drowning to inertia of the bulb.—*The Lancet*, *March* 5, 1870.

The "Weapon-Salve" of Paracelsus. — Among the more curious of the magical remedies of the sixteenth and seventeenth centuries was a certain ointment, invented by Paracelsus, which, he asserted, would cure all wounds resulting from violence by being applied to the weapon which had caused the wound (or its *fac-simile*), under certain precise and stringent conditions. The directions which are given for the preparation of this unguent vary slightly, according to different authors. It was to be compounded of moss from the skull of an unburied man, gathered under certain planetary conditions, of oil, "mummy," and human blood; while some recommended the addition of the "dryed brain of a wilde bore." The most minute directions were given for applying the unguent to the weapon; and a slight carelessness could as easily cause the death of the patient as his cure; thus it was said, "Beware that the weapon fall not downe, nor the winde blow upon it in a cold place, for it will force the patient to madness." Many writers wrote strongly in favor of this cure; among them, Crollius, Baptista Porta, Cardanus, Burgravius, and Coclinius. Lord Bacon alludes to it in his "Sylva Sylvarum" (cent. 10, par. 998), and adds, "though myself, as yet, am not fully inclined to believe it." Robert Fludd, physician, and a contemporary of Bacon, was one of its staunch supporters.

Now, a certain William Foster, "M. A., and Parson of Hedgeley, in the County of Buckingham," who appears to have been fond of controversy, and dissatisfied with his position in the Church, was particularly bitter against this cure, which he verily believed to be the work of the devil. Full of this idea, he published a *brochure* of fifty-six pages, in 1631, entitled "Hoplocrisma Spongus; or a Sponge to wipe away the Weapon-Salve. A treatise wherein is proved that the cure late taken up amongst us, by applying the salve to the weapon, is magicall and unlawfull." In the preface, Foster, in vindication of the violent attack which he made upon the advocates of this cure, says: "I dare call sin, sin in whomsoever. If Jesabell be painted, with Jehu I will not have peace with her to commend her, though a queene. If Herod be incestuous, with the Baptist I'll not sooth him, though a king. If Simon Magus be a socerer, I feare not his divell; with St. Peter, I'll rouze him, though a witch. Shall any one, for my boldnesse, think to sit on my skirts? Let these knowe I esteeme myself *infra invidiam.* I cannot have lesse in the Church, unlesse nothing. And, if they shall endeavour to keep me still low, let them knowe I looke for no good from them that envie my

endeavours to do good." Against Fludd, as one of the most recent advocates of the cure, Foster is specially virulent; indeed, the *brochure* is principally directed at him. At first, Fludd took no notice of the attack, deeming Foster, as he tells us, not worthy of notice; but, finding one morning that Foster had caused a title-page of the "Hoplocrisma Spongus" to be nailed to each of his door-posts, he was so incensed thereby that he forthwith brought out a *brochure* of 212 pages in reply. It is entitled, "The Squeezing of Parson Foster's Sponge, ordained by him for the wiping away of the Weapon-Salve. Wherein the sponge-bearer's immodest carriage and behaviour towards his brethren is detected; the bitter flames of his slanderous reports are, by the sharpe vineger of truth, corrected and quite extinguished; and, lastly, the vertuous validity of the sponge in wiping away of the weapon-salve is crushed out, and thus abolished." On the title-page, Fludd introduces a verse from the 92d Psalm concerning the fall of the wicked man, and also the somewhat pointed remark, "Opera Dei, vir brutus et stultus, non intelligit." It is to be confessed, however, that he was a good deal provoked. The manner in which the controversy was continued is somewhat amusing, when we remember the subject of it. Foster, after mentioning several men who had advocated the weapon-salve, and indirectly included Fludd among them, says, "I wonder at nothing more than that Beelzebub was not in the number." To which Fludd replies: "A singular diabolical conceit. . . . . Marry, I will tell him why: If it had been true that the use of the weapon-salve is witchcraft, and the users thereof witches and conjurers (as he boldly saith), how, I pray you, should Beelzebub be missing from our company? . . . And this is the reason that Mr. Foster and his like have failed to find Beelzebub or the Devil in this number, forasmuch as he is nearer to them than they are aware of."

After vindicating himself, and disavowing all connection with magic and necromancy, Fludd attacks certain of Foster's statements in regard to other matters. "I will proceed now," he says, "to the greatest assault, wherein his sponge rubbeth very hard against my text, but prevaileth no more than they which go about to wash away the colour of a black-moore." He then enters into an elaborate statement to prove that "devils have aëry bodies allotted to them in their creation," which Foster had denied. And thus is the foolish controversy continued to the end. The amount of erudition brought to bear upon it is surprising, and worthy of a better theme. An assertion is rarely made on either side without a quotation to back it up, Foster preferring the Fathers of the Church (notably Saints Augustine and Jerome), while Fludd goes back to the

ancient Greeks, and to Hermes Trismegistus. They both quote the Scriptures profusely, Foster because he is a clergyman, Fludd because he knows that arguments drawn from that source will most prevail with a churchman.

We do not hear much more of the weapon-salve. After all, it is scarcely more absurd than some of the beliefs which prevail in the present day in remote country districts—such, for instance, as the cure of warts by rubbing them with a piece of stolen meat. The belief in cures of this nature was rife in the seventeenth century; Bacon asserts many of them. We must remember that the belief in witches and demons, spells, conjurations, philtres, and raisings of the devil, was as firm then among all classes of society as it is now in many a lone hamlet in Cornwall, and many a green village of Galway or of Wales. Of necessity, superstition lingers longest in those places which are most removed from centres of thought and civilization. There is a conservative attitude of idea about people who are much shut out from the external world. We know a village not two hundred miles from London (which there is no reason to believe differs from other villages distant from large towns) in which there are many Middle-Age superstitions; there is a witch, moreover, who possesses the power of the evil-eye, and those who offend her are sure to suffer, sooner or later, some dire calamity; we have not yet heard of her raising a familiar demon. Now, all this goes on in a village by no means debarred from the progress of civilization; there is a boys' school with a certificated master, a girls' school with a certificated mistress, a night-school, a Sunday-school, penny-readings, and occasional concerts, not to speak of a really good village-library. If, then, in this nineteenth century, all manner of rank superstitions are among us (and we have most of us some pet superstition or other), we can scarcely cry shame on the advocates of the weapon-salve two centuries and a half ago. As for Parson Foster, of Hedgeley, he was certainly a man born out of due time.—*Mr. G. F. Rodwell, in Chemical News.*

Autoplastic Treatment of Severe Burns. — In the service of Prof. Gosselin, at the Hospital of the Charity, has been, for the last six months, a man about forty years of age, who had the whole of his right leg severely burned about two years ago; for which, at that time, he entered a hospital, and remained for six months. There being left a wound, about five inches long and one wide, which would not heal, he was then sent to Vincennes, where there is a hospital for men, convalescent, from all the hospitals of Paris. Having remained there a month or six weeks, and feeling strong, he resolved to leave the hospital and begin work. The little wound, still remain-

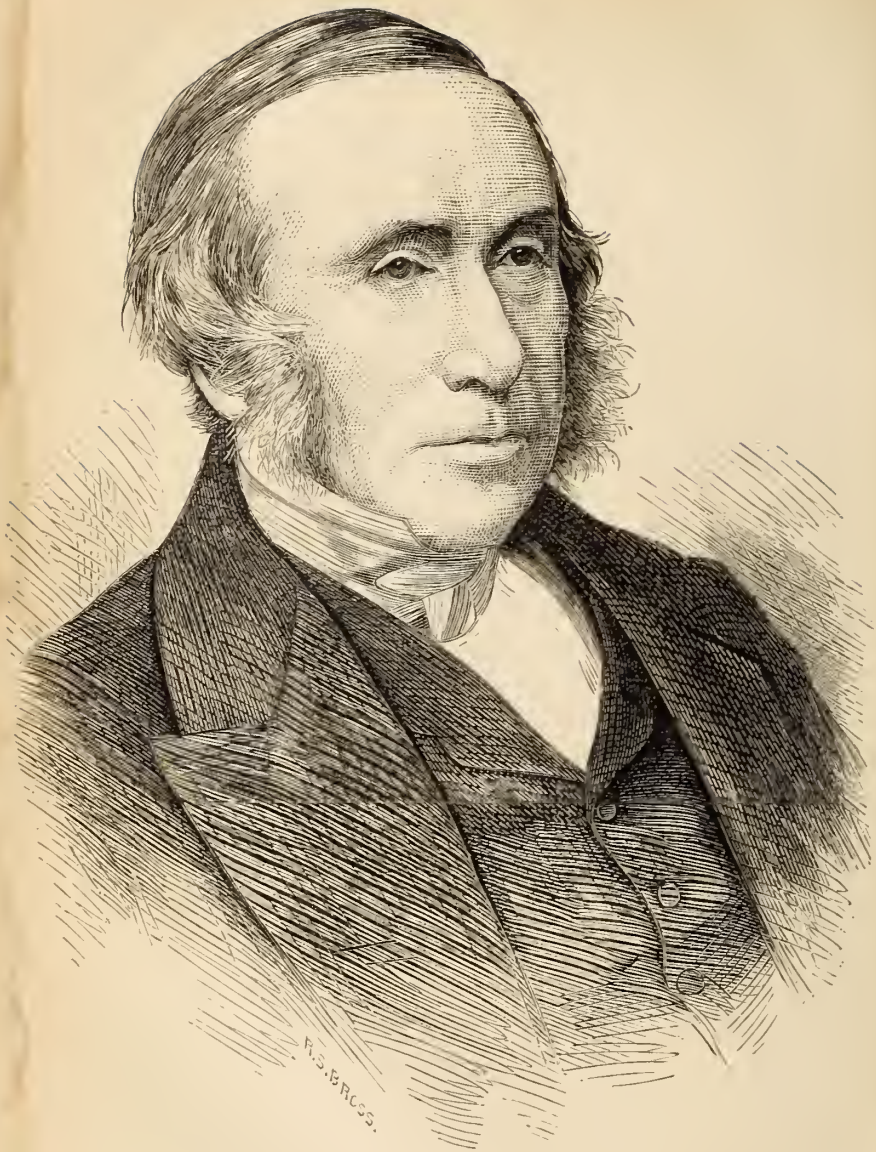
ing open, now began to enlarge; and finally became so troublesome, that the patient sought aid from Prof. Gosselin. This celebrated surgeon, from the beginning of last October till the middle of March, tried every thing possible to make the wound heal. He finally gave up in despair, telling the patient he must leave the hospital, as he could do nothing for him. One of the internes of the service then proposed to try the autoplastic method, but in a new way. This latter consists in taking, with a lancet, little pieces of the patient's skin, or of another person's, and putting them on to the wound, where they soon begin to granulate, and around them the skin begins to grow, forming, as it were, little islands of true skin in the midst of the wound. The pieces of skin taken are not larger than the heads of two or three pins taken together, and just thick enough to cause a little bleeding of the part from which they are taken. I examined this patient's leg this morning, and found that the large exposed surface is nearly covered with true skin; and in a very short time he will be completely well, and out of the service. The patient said he felt nothing in the wound. All goes perfectly well.

In doing this little operation, which is certainly much to be recommended, care must be taken that the cut surface of the skin be placed on the surface of the wound, and there maintained with a strip of diachylum till it has formed a union with the part. The ordinary dressing may be placed over the adhesive strip of plaster and rest of the wound.

The interne, who appears to be the originator of this process, informed me that he had healed in this manner several wounds which had been considered hopeless. Prof. Gosselin has given him three or four patients in his private practice to treat, on whom he had been long uselessly trying to heal their wounds.

I saw, two days ago, Prof. Richet ordering the same treatment for one of these indefinite wounds, result of a burn. He, also, has been trying for months to make the wound heal, and at last gave it up. Being told of this new treatment, he resolved to try it.

It is almost needless to state that, before applying these little pieces of borrowed skin, the wound should first be brought into as healthy a condition as possible; that it would be useless to apply them while the suppuration is very profuse.—*Paris Cor. Chicago Med. Jour.*



THE LATE PROFESSOR SYME, OF EDINBURGH.

(See page 117.)

NEW YORK

MEDICAL JOURNAL.

A MONTHLY RECORD OF

MEDICINE AND THE COLLATERAL SCIENCES.

VOL. XII.] SEPTEMBER, 1870. [NO. 2.

Original Communications.

ART. I.—*Intra-Uterine Medication.* By FREDERIC D. LENTE, M. D., of Cold Spring, New York.

I HAVE been very much interested in the perusal of the very important paper, on the above topic, read by Dr. Nott before the New York County Medical Society, and of the report of the discussion thereon by the many distinguished gynæcologists present at the meeting. Nothing can indicate more clearly than this discussion the present chaotic and uncertain state of uterine, and especially intra-uterine therapeutics. To render, perhaps, the "confusion worse confounded," though certainly not with that object, permit me to add my mite, which may, with other discordant facts submitted, finally tend to some reliable deductions.

It is asserted, in this discussion,[1] by one member, that certain applications cannot reach the uterine cavity at all; by another, that they do reach it, and produce the most painful and dangerous consequences; by another, that they may reach it, and may produce no effect at all, like Dr. Jacobi's piece of nitrate in the *bronchus;* by still another, that they do reach

[1] NEW YORK MEDICAL JOURNAL, July and August, 1870.

it, and produce the most beneficial results, and rarely any unpleasant consequences. Chromic acid and nitrate of silver appear to have met with more reprobation than any other agents; while iodine, even in its strongest preparations, received the highest encomiums as a perfectly harmless and very efficacious agent. Having quite extensively employed all these drugs, except chromic acid, and having given to the profession several instruments designed to facilitate their employment, it may be of some value, toward the elucidation of this important subject, to present to the profession a brief statement of some of my experience, especially as I have never before published a line with regard to it, except in the necessary description of the uses of certain instruments; having never yet been able to arrive at any definite conclusion as to the best treatment of these intractable affections, and the best agents for intra-uterine medication.

In the first place, as regards the alleged perfect safety and comparative painlessness of *iodine*, I beg leave to state that, in the case of one lady, the wife of an editor, I first dilated slightly the *os internum*, as is my custom, with one of a series of olive-pointed, graduated silver probes, without any considerable pain, and then introduced into the cavity of the uterus a little tincture of iodine (U. S. P.) by means of an ordinary cotton-carrier. Immediately, the most alarming pain and prostration set in, and I really thought that the lady would die. She was as pale as death, bathed in a cold perspiration, the pulse irregular, and almost imperceptible. I ran to a drug-store, near by, for some brandy, and poured it down her throat, but she rejected it; other restoratives were employed, but it was only after the lapse of an hour that I felt at all easy. At my next visit, some twelve hours after, she was as well as ever. Quite recently I made a first application, in the case of a lady from Brooklyn, the wife of a celebrated professional man. To be on the *safe* side, I diluted Churchill's tincture, which I usually employ in its undiluted state, with two parts of water, and passed it into the cavity of the uterus with a cotton-carrier of a peculiar fashion, to be presently described, and used it very sparingly. Almost immediately, the lady complained of violent pain, the surface was bathed in a cold perspiration, she

became excessively pale, pulse very slow and feeble, with nausea; she did not quite lose consciousness. One-third of a grain of morphia was injected hypodermically, and, within a few minutes, the pain abated, and, on giving some brandy, the symptoms gradually disappeared, and the next day she was as well as usual. A distinguished gynæcologist of New York City applied the tincture of iodine (U. S. P.) to the cavity of the uterus, in the case of a lady who had previously been under my charge, and immediately excessive pain and most alarming symptoms of prostration set in, causing him to feel the greatest concern for her safety, and requiring prompt and powerful stimulants, heat to the extremities, etc. No serious consequences resulted. Nevertheless, in the present state of my experience, I quite agree with Dr. Nott, and those who laud iodine, that it is one of the best and safest remedies we possess.

First, as regards treatment by *injections* into the cavity of the uterus. It is recommended that, in order to avoid the serious consequences which are known to have followed this mode of treatment, we should not fail to dilate the internal os, since, even with the recently-invented double tubes, the instantaneous coagulation at the *os internum*, by the fluid employed, may otherwise completely prevent the egress of any superfluous quantity. The fenestrated tubes contrived by Dr. Peaslee, and described and figured by him in the July number of the New York Medical Journal, afford the most reliable means of avoiding this danger. This matter of uterine injection, and the sudden and very painful, sometimes even fatal, results following it, and the mystery hanging over the cause of these results, merit more attention. It has been already noticed, but is not at all generally known in the profession, that the injection of pure water into the uterus is sometimes productive of as serious consequences as the most irritating fluids; not only this, but that these injections, even into the *vagina*, may have the same effect. Two instances occurred in my practice, several years ago, in which the most violent pain followed the vaginal injection of a weak solution of sulphate of zinc (two grains to the ounce) by means of Davidson's syringe, though the patients had repeatedly employed

these injections without a feeling of the slightest discomfort. I concluded that the end of the tube had, by chance, been inserted directly into the os uteri, blocking it up accurately, and that the fluid had flowed directly into the uterus through the central opening. Ever since, I have directed the apothecary to close up this opening, before dispensing those instruments. A lady, now under my charge, has been still more seriously injured by a vaginal injection of pure water. She had brought the syringe with her from New York, where she resides, and, as I was not aware of this fact, the central hole was not stopped. One day, last April, while using a copious vaginal injection of hot water, which she had been doing for some time, she was suddenly attacked with the most intense pain in the pelvis which she had ever experienced, shooting upward to the chest and shoulders, and downward to the feet. For several days after, she could scarcely move in bed, and the tenderness, on slightest pressure over the hypogastrium, was very great, and extended more or less to the whole abdomen. For several weeks the cervix was swollen and congested, and the slightest pressure, *per vaginam*, on the uterus or ovaria, caused very severe pain; there was also tumefaction of the right ovary and right broad ligament. She has not recovered from the accident from that day to this. Some months since, for the first time, I noticed, in print, a reference to this danger. It was a somewhat similar case reported to the Gynæcological Society of Boston, with the question, "What was the cause of it?" But few of the members had ever heard of such a case, or were aware of the danger, and various explanations were suggested. With regard to injections into the cavity of the uterus, Dr. Nott makes the following statement: "Numerous instances have occurred, under such circumstances, in which, not only severe uterine colics have followed, but almost instant collapse, and even death, in a short time." He asks, "How are we to explain these sudden and violent symptoms?" This question has given rise to a considerable amount of discussion and experiment, and still a certain mystery hangs over it. Dr. Barnes, in his recent excellent treatise on obstetric operations, gives eleven cases of death from uterine injection, and suggests three causes: shock; the entrance of air into the vessels;

and the passage of fluid through the Fallopian tubes. Dr. Nott suggests, in addition, the entrance of fluid *into the circulation*. *Air* has actually been found in the vessels and heart after death; but, I believe that, in these cases, the injections had been used either for induction of labor, or for the arrest of *post-partum* hæmorrhage. In such cases, we might be ready to admit that air entered the enlarged and gaping sinuses. But, it is more difficult to conceive that it should enter the vessels of the unimpregnated uterus. In some exceptional cases of chronic internal metritis, it is possible the Fallopian tubes might be so much dilated as to permit the passage of fluid, through them, into the peritoneal cavity; but it is very doubtful if the small quantity of any fluid, ordinarily injected into the uterus, and finding its way through the tubes, could produce any very injurious effect on the peritonæum; and the effect, if produced at all, would not be of that sudden description always characterizing these accidents. As regards the entrance of the medicated fluids into the circulation, it seems very doubtful if it is possible, and, if so, whether most of them would produce any noticeable effects, since salts, in considerable quantity, have been transfused repeatedly in cholera, with good though temporary effects; and even ammonia has been injected into the veins, as recommended by Prof. Halford, in cases of snake-bite, with no bad results. The *shock* caused by the sudden stretching of the uterus is undoubtedly the cause in those cases, like the first two noticed in this paper, where the symptoms, so severe at first, subside so quickly; and yet it seems unaccountable that this particular and apparently trifling injury should produce such alarming effects, when they never succeed the really severe operative procedures to which the uterus is constantly subjected. Whatever be the true pathology, however, of the phenomena under discussion, it is important to bear in mind the danger, and the fact that we have the means of avoiding it. But those who depend on *dilatation of the os*, as a means of avoiding the dangers of injection, seem to forget or to ignore the fact that the very preventive is capable itself of producing serious results, even death, as in one case fatal *tetanus*, and in another fatal *peritonitis*, has resulted from a sponge-tent,

in the practice of two of our most eminent gynæcologists. So, let us be chary in condemning our neighbor's choice of means, and not over-confident in the safety of our own. The importance of getting the diseased surface which is to be attacked by our application, whatever that may be, in a condition capable of being influenced by it, is acknowledged by most of those participating in the discussion. The difficulty of effecting this is not slight. To *wash it out* thoroughly, without first *fully dilating*, which can only be sufficiently done, perhaps, by a tent of some description, is unsafe, though one physician may accomplish it time and again, and another might almost, if not quite, kill his patient at the first attempt. To go through with the tedious, sometimes painful, and not always safe process of dilatation, at each application, would render the treatment complicated, and, of course, troublesome to the physician, and unnecessarily annoying and expensive for the patient. Dr. Nott's suggestion, which is also that of Prof. Thomas, to suck up, with a syringe, the mucus within the cavity of the uterus and canal, seems far preferable, if it be quite feasible. To accomplish it, I would suggest that, perhaps, the ointment-syringe, devised by me, and figured in Dr. Thomas's work on the diseases of women, would answer the purpose well, being careful to see that the *fenestræ* of the tube are of sufficient size. Some one has much improved it by substituting glass for the hard-rubber receptacle for the ointment. The openings, being in the side of the tube like a catheter, there is no danger of occluding them by pressing the end of the tube inadvertently against the sides of the uterus. It was this very difficulty of reaching the diseased membrane effectually by any of the appliances then in use, which led the writer, several years since, to use the solid nitrate of silver fused on the end of a probe, and to offer to the profession what has since been termed the *intra-uterine porte-caustique*, and quite extensively used by gynæcologists, and not any particular partiality for the nitrate itself.

The great advantage of the solid nitrate, fused on the end of a probe, is, that we can use a definite quantity, and apply it in a definite manner to any particular portion of the lining membrane which we may suppose affected by disease. By the size

of the knob, after some experience, and after having broken it off and weighed it once, we may, with sufficient accuracy, judge whether we have five, eight, or ten grains. Dr. Jacobi remarked that "the advantage it offers is that it will never act beyond the place where it is applied. . . . But I confess," he says, "that, from this very fact, I have little faith in its producing any effect on the whole lining membrane of the uterus, when introduced in the solid form; I think it can only affect the limited part with which it comes in contact." The great advantage claimed by the writer for this instrument and method of using the drug is, that we may pass it, with whatever pressure we may consider requisite, *over every part* of the diseased surface, and avoid, to a considerable extent, that which is sound; and that it is thus made to *pass through* the thick secretion generally coating the diseased membrane, and to effectually attack the membrane itself, rendering cleansing, with all its tedious and more or less painful preliminaries, unnecessary.

Now, a few words with regard to the *danger* of using the *solid nitrate*, which has been much emphasized in the discussion and elsewhere. It certainly has the merit of being the neatest, the most convenient, and most manageable, as regards certainty of application, of all methods. In the first place, I protest against the application of the term *caustic* to the nitrate of silver, whether in the fluid or solid form, or to placing it in the same category with *chromic acid;* as this very misnomer has had not a little influence in generating the prejudice which has always existed against the use of the remedy in various departments of practice. So far from being a caustic, it is well known that, in its solid form, it may be left in contact with the tissues, and, by its powerful astringent and coagulant power, will *protect* them from any thing like a destructive process. To produce a caustic, or, properly speaking, *destructive* effect, it must be *forcibly* rubbed on the part, or applied *with unusual frequency* for this special purpose, or thrust into the substance of the tissue (as in the case of exuberant granulations, mucous polypi, etc.). No man, so rash as to employ any thing approaching this violence on the interior of the uterus or of the cervical canal, should ever undertake the

topical treatment of their diseases. Although I have frequently applied it to the whole lining of the uterus, and the patient has never confined herself to the bed at all, and, on some occasions, has felt only trifling inconvenience, yet it is not to be denied that, as a general rule, it causes very severe *pain*, which, if not checked by some anodyne, may last, in a more or less mitigated form, for twelve or even twenty-four hours. But, as I always caution the patients beforehand, that they must expect it, and leave the remedy for counteracting it, I rarely have occasion to visit them until the time for another application arrives. If the pain is very severe, before leaving the house, I inject morphine hypodermically, and within ten or fifteen minutes it is completely relieved, and rarely recurs to any considerable extent. If opium should disagree, a full dose, thirty or forty grains, of chloral-hydrate, would probably be sufficient, repeated if necessary. The symptoms following the application frequently resemble, in some respects, those of a violent attack of *metritis*, and some physicians, who tried the method on my recommendation, informed me that metritis was induced by it. In my first cases I was myself considerably alarmed, until I learned, from larger experience, that my fears were entirely groundless. For, although the pain is so intense, as it sometimes is, it is somewhat remarkable that the pulse seldom, if ever, rises above eighty, unless in the case of some unusually nervous and hysterical female, and is full and regular, which could hardly be the case in acute metritis. In some cases there will be tenderness over the hypogastrium for several days after an application, rendering the recumbent posture advisable, and sometimes fomentations; but still the *pulse* is not accelerated, and the tenderness invariably subsides. It is somewhat singular that, on some occasions, a timid and imperfect application seems to give rise to more unpleasant effects than a thorough one; and, that the gentle application of the exploring probe to the internal wall of the uterus, in some very irritable cases, has caused full as much, if not more, pain than the nitrate, which has followed it. For instance, in the case of a lady recommended to my charge by my friend Prof. Peaslee, during his absence from the city, I conceived that a certain

obstinate affection of the lining of the uterus required a strong alterative directly to its surface. One of the characteristic symptoms, in her case, had always been a most sensitive condition of the uterus, the slightest pressure over the hypogastrium being painful, and any considerable degree always followed by distress, lasting for hours. The passage of the probe into the cavity, and the touching of the walls in the gentlest manner, through the speculum, gave the most intense pain that I had ever met with in uterine disease. With some trepidation, and many misgivings, notwithstanding a large experience with it, I passed in the solid nitrate, and applied it to the whole surface of the uterus. She suffered intense pain, of course, but said distinctly that it was no worse, and she thought even less, than that produced by the probe. Large anodyne enemata *per rectum* were required at intervals, for some hours after, but, at my next visit, on the succeeding day, she was suffering less pain than before the application. Pulse 75. Subsequently, three similar applications, at long intervals, were made with the effect of relieving the symptom (periodical watery discharge, preceded by severe pain, tenderness, etc.) for which it was employed. M. Nélaton has employed "cauterization of the uterus" very extensively by means of the solid nitrate, and, according to Dr. Atlee,[1] "has never seen it attended by any bad effect." He also states that "M. Cazeaux has told him that he considered it an operation totally exempt from danger." It has been asserted that the use of the nitrate induces metrorrhagia, or increases the tendency where it already exists. I can only say that my own statistics, now amounting to no small number, do not substantiate this charge. Any active local medication may induce hæmorrhage occasionally. It has happened that, in cases where I have applied the persulphate of iron, considered the most reliable of all hæmostatics, to the interior of the uterus, I have had the greatest inconvenience from subsequent sanguinolent discharge, though probably only a coincidence. A more serious objection is the alleged production of *induration*, and of *contraction* of the *os internum*. That it can and does

[1] Clinical Notes on Surgery, from Notes taken by W. F. Atlee. Philadelphia, 1855, p. 722.

produce these effects must be admitted, and this should make us cautious not to push its use too far, in any particular case, and to employ it with the utmost judgment, both as to manner of application and the length of the interval between the applications. The same objection to its use in various morbid conditions of the surface of the body has long ago been urged, and has arisen almost entirely from its injudicious employment either as to frequency or severity of application. For instance, in the case of *ophthalmia tarsi*, it was, a few years ago, generally reprobated by the surgeons of the New York Eye Infirmary, yet in this most intractable affection I have found it, in conjunction with partial or complete evulsion of the cilia, almost uniformly successful. It is not possible for me to say whether or no some induration of uterine tissue may have resulted from the great number of applications of the nitrate made by me; but no distinct case has been observed, and a great many of the cases remain constantly under my observation. With regard to contractions of the *cervical canal* and *os internum*, I do not remember any case of sufficient importance to give rise to any inconvenience, in my own practice. On the contrary, in some cases, where, as occasionally happens, in "corporeal endometritis," the *os internum* has been so contracted, as, in conjunction with a certain amount of flexion, to prevent the entrance of a probe, the application of the solid nitrate to the congested membrane, and against the contracted os, repeated once or twice, has caused the latter to open, as it were, and subsequently to admit of applications within it, as we occasionally see in strictures of the urethra. But, within a year, I have seen two cases in the practice of another physician, to whom, in consultation, I recommended the use of the nitrate to the interior of the uterus, in which very marked contraction of the internal os followed the treatment. I am not sure that the treatment and the pathological condition bore the relation of cause and effect, as there were other concomitant conditions, which might, at least, have had a share in the causation. But we attributed the result mainly to the nitrate, or rather to its injudicious employment, for this physician has had the candor to inform me lately that he has no doubt the trouble arose mainly from his timidity in ap-

plying the nitrate, passing the bulb rather over the upper part of the canal and *os internum* than fearlessly over the interior of the uterus. A bulb larger than that formed by the nitrate should always pass freely through the internal os, before the latter is introduced, so that no injurious force at this point may be likely to occur. I have this very day examined the wife of a brother practitioner residing in another place, where I found the *os externum* almost completely occluded, it being impossible to introduce a pocket-case probe without first dividing the stricture. This gentleman used the solid nitrate more than a year ago, at which time, he says, there was no contraction of the os. But, not having had much experience with the treatment, he used it, as he says himself, too freely. He applied it for two months, and at intervals of only five and six days, whereas they should have been at least eight days (the treatment having been addressed merely to the canal). And the nitrate was rubbed more freely over the os, where but a light application was requisite, than to the canal itself, where a more bold and thorough application, at proper intervals, would probably have resulted in more lasting benefit. The symptoms were, however, for the time relieved, and the stricture is superficial, almost membranous.

As regards the length of the *interval* which should elapse between the applications, it must depend, of course, somewhat upon the case. It requires a few days for the processes, lighted up by so strong an application, to pass through their stages, and for the film of coagulated tissue (not an eschar) to be cast off. My usual plan is, to wait until the discharge, if any, caused by the application, has disappeared for a couple of days, and for all the subjective symptoms to subside, and a feeling of relief, to a greater or less degree, from old symptoms, to take their place, which we may usually expect, before I venture to repeat the application. Dr. Thomas says two weeks, which is probably the correct *average*, as we must take into consideration the time lost during the continuance of the catamenia. As to the precise *mode* of application, I still follow that described several years ago. The bulb at the extremity of the probe or porte-caustique is first *well cleaned* with an emery cloth, then moderately heated in a *spirit*-lamp,

then dipped *rapidly* in and out of a little deep platinum cup, nearly filled with the molten nitrate (Squibb's cones most convenient), by which means a pear or olive shaped bulb of the nitrate is made to adhere intimately. For a uterus but slightly enlarged, six or seven grains will do for one application to the whole lining of the uterus and canal; sometimes a larger quantity is required. A probe, having a bulb somewhat larger than the bulb of nitrate, should be previously passed through the os internum, for we may, otherwise, have the nitrate arrested, for a short time, in the canal or at the os, which is sometimes thus provoked to such a degree of contraction as to prevent the further progress of the armed probe. The latter is then passed rapidly through the canal and os, and wiped firmly and methodically over all the diseased surface of the body of the uterus, in longitudinal lines, and then applied, in the same manner as it is withdrawn, to the canal, should that be also diseased. To make sure that the nitrate has reached the *fundus*, the armed probe should have a slight expansion at the distance of full an inch and a half (the usual length of the cervical canal) from its extremity, which, as it passes the os externum, indicates to the eye or the touch that the nitrate is passing the os internum. On showing the bulb of nitrate to Dr. Sims, on one occasion, he expressed surprise at the quantity used for one application. But, if the whole surface of a uterus, only moderately enlarged, is supposed to be diseased, and a thorough application is to be made to this and to the canal, less than six or seven grains will fail to secure the full benefit of the method. It is well to bear in mind, however, that the preparation above recommended is not all *nitrate*, but partly the oxide of silver.

As regards the *tolerance* of so severe a mode of treatment, on the part of patients, it may be added that ladies under my charge here, and thus treated, have, almost without exception, expressed their preference for it over the milder but more frequent applications to which they had been subjected by their medical attendants in the city, since they inferred, from their own observation, that the cure progressed more rapidly. Some very sensitive females assured me that it was not so much the *pain* they dreaded, as the mere fact of hav-

ing an application made, the exposure, etc. This fact is alluded to because one physician, largely engaged in this department of practice, said he feared that so severe a treatment would disgust his patients. I trust I may be excused, by those thoroughly conversant with this procedure, for entering into these details; but it is astonishing to what an extent the manner of arming the probe properly, and then of properly and certainly reaching the inner surface of the uterus, and of applying it there, simple as it appears, has been misunderstood even by intelligent and more or less experienced physicians. Those who will persist in using the rough and uncertain methods of applying the nitrate, formerly in vogue, and especially the extraordinary experiment of breaking off a stick of nitrate within the *cavity of the uterus*, and leaving it there, must expect results which will deter themselves and others from obtaining the beneficial effects which a more definite method will insure.

As regards the most safe and effective method of applying iodine and other *fluid* agents to the lining membrane of the cervical canal and the uterus, it may not be amiss to say a few words, as a very great diversity of opinion has been expressed, in the discussion of this subject, on this important point. I must confess that I never could understand how a comparatively mild agent, like the tincture of iodine and similar fluids, can be effectually applied by the means ordinarily, indeed, until quite recently, universally employed; that is, by twisting cotton on a probe or something of the sort, and dipping it in the fluid. After the saturated cotton has squeezed its way through the canal, not unfrequently tortuous, and filled with its thick and excessively tenacious secretion, the small amount of iodine, still left on the instrument, meets another coating of mucus, and can, as it appears, have, under these circumstances, but a very moderate effect on the diseased membrane itself; though the mere rubbing of the cotton on the often extremely sensitive membrane may make it *appear* a very severe one. A reapplication, or a succession, may, without doubt, be very effective, but the *mechanical* effect of so many reintroductions of the instrument would be likely, in some cases, at least, to counteract the good effect of the drug, since it is not uncom-

mon, as we have seen, to have the patient complain almost, if not quite, as much of the gentle exploration with the probe as of the application even of the solid nitrate. To overcome this difficulty, and to render entirely unnecessary, in most cases, any dilatation of the cervical canal, except such as, if necessary, may be effected in a few minutes by a flexible, conical bougie (French), or by the successive employment of the olive-pointed probes which I employ, Messrs. Otto & Reynders made for me, a year ago, as a *cotton-carrier*, a pure silver tube not much larger than a No. 1 catheter, with a minute opening at its extremity, and two minute slits in the sides near the end; this portion of the tube is roughened so as to hold the cotton securely. At the distance of an inch and a half from its extremity there is a slight expansion, as in the porte-caustique, and for the same purpose; the proximal end is terminated by a knob of hard rubber containing a female screw; into this is screwed, when needed, a hypodermic syringe containing the fluid required. Having pushed down the piston until the fluid has filled the tube, and just saturated the cotton, the latter is passed into the canal, previously explored or dilated by a bulb larger in diameter than the mass of cotton, or into the cavity of the uterus; and, after a few drops have been thrown into the cotton to replace that which the passage into the canal has displaced, it is to be gently wiped over every part of the diseased membrane. With a graduated glass syringe, or a graduated piston, the exact number of drops which has been found just sufficient to keep the cotton saturated, may be used. Finding that a tube of pure silver, so small, was likely to bend too readily, I had a stiffer tube of German silver made to envelop all but about three inches at its extremity. The connections should be all of hard rubber and not of metal, as the latter is very soon destroyed by iodine. The case should contain a different syringe for each chemical employed. This mode of employing iodine and other fluids, whether for the arrest of hæmorrhage, or as an ordinary application, may be considered as more effective than the ordinary injection; since, when the cervical canal is well dilated, as it *must* be to render an injection safe, the fluid cannot come so forcibly and completely in contact with the bleeding or diseased surface as

when it is directly applied there with the cotton freshly and repeatedly saturated. The carrier need be armed with but a slight covering of cotton, since the amount of fluid held by it can be so conveniently replenished (after introduction), which thus reduces the diameter of the instrument to such an extent that any previous dilatation of the canal is usually superfluous; and the whole operation, in such cases, after the patient is in position, and the speculum applied, need not require more than two or three minutes. I venture to affirm that, with this instrument, we may, except in those rare cases, in which the *os internum* is almost completely closed, get at least as much benefit as is obtained from the dilatation, the washing out by injection of water, and the subsequent injection of the medicated fluid, and thus dispense with the various tents, double tubes, and the other very ingenious contrivances for insuring the safety of injections. Dr. Peaslee, in his able article in the July No. of this JOURNAL, says: "But, whatever method is resorted to, the dilatation should be carried to at least three-eighths of an inch, whether the fluid is to be applied by injection or ingestion." With the instrument above recommended, the process need not be carried to more than one-third this extent, if required at all; since the portion of the instrument engaged in the canal, at the moment of application to the interior of the uterus, is only about one-fourteenth of an inch in diamater, and might be made still smaller by using coin-silver instead of pure silver. The great point of safety, I repeat, is the mere *saturation of the cotton* by pushing in the fluid drop by drop, which can, if thought necessary, be accurately measured. But, with *iodine*, the agent usually employed, as it does not coagulate the fluids sufficiently to interfere materially with its exit by the sides of the tube, we can *see* it trickle through the *os externum*, and thus know that we are proceeding safely. But the whole amount of iodine necessary to *saturate* the cotton, again and again, is not as much as would fill the cavity of a uterus, which has gone through the process of parturition, and yet its thorough application to every part of its lining membrane can be made certain.

The use of *ointments*, for the relief of internal uterine in-

flammation, was but slightly touched upon in the discussion. Prof. Fordyce Barker, who has had considerable experience with this method, referred to the great benefit which he had derived from the sulphate of zinc in the form of ointment. Being aware of the unirritating and rapidly-healing effects of *calomel* applied to external ulcers, and some cutaneous affections of an extremely obstinate character, I was led to employ a strong calomel-ointment for the interior of the uterus, and with good effects; but the occasional occurrence of its constitutional manifestations of quite severe character, from a very small quantity of it, is a great drawback to its use.[1] Prof. Barker informed me, some time ago, that he had been in the habit of using it in conjunction with the oxide of zinc, and with the most gratifying success. The application of drugs, by means of this vehicle, is, perhaps, the mildest of the effective methods. Ointments appear to me to possess at least three advantages over any other form of injection or "ingestion:" 1. By their use, we may apply drugs which we cannot otherwise employ: as calomel, oxide of zinc, and other *insoluble* substances. 2. The ointment, passing, as it must do, *slowly* through the small side-apertures of the tube, is in no danger of producing that sudden and painful stretching which sometimes follows the injection of fluids; it finds its way back by the side of the tube, and appears at the external os the moment it meets with the slightest resistance, since it produces no immediately-coagulating effects, whatever the agent employed. 3. The effect on the mucous membrane of the uterus is slow and gradual, and therefore much less likely to be followed by those sudden and alarming fits of prostration which are known to attend, though rarely, every other method of application. The ointment-syringe suggested by the writer several years ago, and described and figured in Prof. Thomas's work, first edition, p. 249, affords a very ready means of using ointments. The small size and flexibility of its pure silver

[1] The rapidity with which *iodine* is sometimes absorbed, even from the cervical canal, is remarkable; one patient could taste it within a minute after its application. I have never known any unequivocal instance of the absorption of the nitrate of silver, when used in the solid form. It might occur from a weak *solution*, as suggested by Dr. Nott.

tube gives it a great advantage over Prof. Barker's larger and more rigid tube, especially in cases of flexion; and one charge of its chamber will suffice for several applications. Some one has recently improved it by making the chamber of glass, which enables us to see if any bubbles of air are drawn up with the ointment, though the calibre of the tube is so much reduced that the ointment cannot well be introduced with a spatula, as recommended by Dr. Thomas, but must be forcibly sucked up in a semifluid state by a sudden movement of the piston.

The *arrest of hæmorrhage* from the uterus, complicating chronic affections of its lining membrane, occupied a considerable share of Dr. Nott's paper, and of its discussion; and, among the various means suggested for its arrest, it is somewhat remarkable that, perhaps, the most efficient of all, undoubtedly so in a certain class of cases, should not have been alluded to. I refer to the partial or entire removal of the lining membrane of the cavity of the uterus with the *curette*. But, first, let us briefly consider the means suggested. These were principally the tampon, or tent in the cervical canal, medicated or not, and certain intra-uterine injections. The simple introduction of even a large sponge-tent I have found inefficient in stubborn cases, since, after the dilatation has proceeded to its full extent, the hæmorrhage recurs, the blood probably finding its way both around the surface of the sponge and through its substance. If, as was suggested, cotton, soaked in liquid persulphate of iron, be thrust into the cervical canal, and held there for a time, we have, as Dr. Kammerer justly styled it, a "stopper in the full bottle," and the hæmorrhage is, for the time, arrested. But the uterus is not always tolerant of such a condition, and very unpleasant symptoms may continue until the cork is removed and bottle emptied. Of course, we would all prefer, if we had the option, to arrest hæmorrhage by direct application to the bleeding point. This is a well-established surgical principle; but, to do this, in the case of the bleeding uterus, is not easy, as one may readily infer from the remarks and suggestions, on this point, by the very distinguished specialists who alluded to it, and the silence of those who did not. *Iodine*, either in the form of tincture,

or of Churchill's solution, appears to have presented itself as the most reliable styptic, and its injection, either with or without the previous cleansing of the bleeding surface, the most efficient means of its application. To secure the action of most styptics, "it is necessary," to quote the language of Dr. Nott, "to keep them, for some little time, against the bleeding part." This is precisely the reason why the liquid persulphate of iron, so safe and admirable a styptic in external hæmorrhage, so frequently fails within the uterus, except occasionally by the indirect and temporary method of forming a coagulum in the canal, which, as Dr. Nott suggests, may act as a tampon. Dr. Emmet places great reliance on the tincture of iodine, and, acting on his advice, I have found it superior to other fluids. But, even when I have washed out the uterus with iced-water, after previous dilatation of the cervical canal, I have sometimes failed in permanently arresting the hæmorrhage with Churchill's tincture. What, then, is to be done? Perhaps this question can be best answered by relating, as briefly as possible, a case in point:

I was called to Mrs. P., aged forty-seven, March 20, 1869. Health always good until the advent of her present trouble. Has had eight children, two miscarriages. Has always suffered from dysmenorrhœa, and for some years has had slight leucorrhœa, but catamenia always regular in other respects, until last June; at that time they became profuse, and have been irregular, and gradually increasing in quantity since; also suffers from various pains; is anæmic and very feeble, having eaten but comparatively very little food for some time; her headaches are frequent and intense. States that her catamenia appeared two weeks ago, and have been profuse and uninterrupted to this time; discharge thin and dark. ℞. acid. gallic. gr. x. q. 2. h., rest, cold drinks, etc. *March* 21*st*. No better. On vaginal examination, the cervix is found to be soft, flabby, enlarged, the os dilated, and the seat of extensive granular ulcerations. Uterus measures three and a half inches; not tender on pressure; *os internum* much dilated. Packed some damp cotton, saturated with Monsell's styptic, into the cervical canal, and tamponed the upper part of vagina to insure the retention of the plug *in situ*. *March*

22*d*.—Hæmorrhage checked for some hours, but has recurred. Removed plug, and replaced a fresh one, and tamponed the vagina thoroughly through the speculum. Directed to apply cloths wrung out of iced-water. Take liquid ferri persulp. gtt. x. q. 2. h. *March* 23*d*.—Hæmorrhage checked for a few hours, but now going on as usual, not rapidly but continuously. To take ℞. ergotæ ext. fl., acid sulph. ar., āā. ♏xv., tinct. lavand. c. ♏x., tinct. matico ʒj, M. in water, q. 2. h. Removed plug, applied a sponge-tent, and again tamponed. *March* 24*th*.—Hæmorrhage not so great. Tent has not succeeded well; very little expansion. Applied solid nitrate of silver to the granular surface of canal, injected tincture iodine (double strength of U. S. D.) into the uterus, applied a better sponge-tent, and a sufficient plug to retain it *in situ*. *March* 26*th*.—Dr. Murdock saw patient yesterday, in my absence; found the hæmorrhage proceeding about as usual; applied a large tent, by my advice, with the object of thoroughly dilating the canal and body of uterus, but only succeeded in getting it partly through the canal, owing to its large size; he also applied some cotton, soaked in persulphate of iron, around the cervix. To-day, patient complains very much. There has been less bleeding, but she has been restless and sleepless, nervous, and nauseated; secretes but little urine and has difficulty in voiding it, only a spoonful at a time; pulse soft and feeble. Removed plug and tent. The usual dark thin blood poured from the os. Introduced Recamier's curette, and scraped the whole internal surface of the uterus. It did not have the soft, boggy feel of vegetations, and only one or two strips of thickened lining membrane were observed to pass from the os after the operation. Patient complained very much of pain during the operation, but it ceased immediately after. I now passed a large elastic catheter into the uterus, and washed it out thoroughly with iced-water, until it passed away almost colorless; then injected it freely with tincture of iodine (double strength U. S. P.). Patient did not complain of even an uneasy sensation during these injections, and of none succeeding them. On putting her to bed, she felt no worse, and her pulse was noticed by Dr. Murdock to be stronger and not accelerated; no soreness over hypogastrium. Discontinued other treat-

ment. *March 27th.*—Has been *quite comfortable* since yesterday; no soreness whatever, no hæmorrhage, no nausea, pulse 70, and better. To take a tonic pill *ter die*. *April 1st.*—Has had no discharge of any kind, and has been rapidly improving in strength. Wishes to get up. *April 9th.*—Still doing well. No discharge. On examination, the ulceration is found to have diminished in extent. The treatment of the diseased membrane was continued by the application of Churchill's tincture to the canal and fundus, and the patient completely recovered in a few weeks, and has required no treatment since, her catamenia continuing regular.

Dr. Nott, in his paper, says: "The most effective way to control uterine hæmorrhage is to inject iodine, and then plug the cervix with cotton and persulphate of iron." This is true as regards the *immediate* arrest of the bleeding, and, often, is all sufficient. But cases are, every now and then, occurring, in which the hæmorrhage recurs after this has been done. In these cases, the curette will succeed, though the operation may, in some instances, after the lapse of several weeks, require repetition; and this treatment has the advantage of being applied directly to the seat of mischief, and not indirectly through the intervention of a cervical plug, and may also be relied upon as not only palliative but as tending to *cure* the pathological condition which is the cause of the hæmorrhage. It is singular that this treatment, as in the case of the solid nitrate, so effective and so safe as it has invariably, I believe, shown itself to be, should be so little appreciated by the profession, if one may judge from its silence regarding it. Prof. Thomas, in his excellent treatise, dismisses the subject with a very brief notice, and largely restricts the application of the treatment. I was induced to adopt the practice, in the very exceptional cases requiring it, in consequence of the strong recommendations of M. Nélaton[1] as to its efficiency and safety. He gives the following as a reason why the practice has met with so few advocates: "The surgeon might be tempted, from the small amount of tissue brought away by this operation, to think that it had nothing whatever to do with the cure; but I

[1] Clinical Notes on Surgery, edited by Walter F. Atlee.

have seen too many such cases to have any doubts about it." Again: "The reason why some surgeons reject the operation, why it does not enter into ordinary practice, is because sometimes the fungosities are so small in quantity that it is not believed that their extraction can afford such great relief. Whatever be the theory, however, as to the action of the curette, one thing is certain—observation shows that the patients get well after its use." My own experience, moderate though it be, in this matter, has taught me that the reliance which I have been accustomed to place in the judgment and candor of this eminent surgeon and diagnostician has not been misplaced here. I have been surprised (and should have been deceived but for the above caution) at the very small amount of tissue removed, in some of the cases, as in that of Mrs. P., and yet followed by results which treatment, usually considered very efficient, had failed to effect; also at the comparatively moderate amount of pain suffered at the time, and the almost complete immunity from pain and constitutional disturbance, after the operation. In a case of most obstinate and persistent hæmorrhage, which I have recently had under treatment, in consultation with Dr. McParlin, U. S. A., at West Point, the patient has declared that she suffers much less from this than from the previous injections and applications of iodine, etc. I have seen fit to quote the above sentences from Nélaton's notes, and to dwell particularly on the above facts, because they indicate a much wider range of usefulness for the operation than has usually been allowed. The very name which has been applied to the disease, for the treatment of which it has been advised, has conduced to this result. "Fungosities," and "vegetations," and "small polypoid excrescences," do exist, and come away in considerable quantity in some exceptional cases, but in the majority, to which the operation may, with great advantage, be applied, and in which it may be eminently successful, there may be no evidence, either before or after, of their existence. I have brought away, with the scoop, several drachms of these vegetations at one application; and again, only a few strips of smooth, thickened membrane congested and ecchymosed, and with the same result in each case—the arrest of the symptoms.

What are these "fungosities?" Nélaton uses the term merely as a convenience. He says, "they are, in reality, only parts of the mucous membrane itself."[1] He begged the class "not to preoccupy themselves with these words." I quote the following description of the arrangement of the vascular system of the lining membrane of the uterus from Dr. Nott's article, as given by Dr. Arthur Farre:[2] "The arrangement of the capillary vessels is peculiar and characteristic. The capillaries, which are of large size, usually descend between the canals of the uterine glands, giving to them a few small branches in their course. Having reached the surface of the mucous membrane, they spread out into a mesh-work of round, oval, and hexagonal spaces, in the centre of each of which may usually be observed the orifice of the uterine gland.

"The net-work of capillaries thus formed lies *very superficially with regard to the uterine surface*, the layer of epithelium covering them and the nuclear corpuscles, and amorphous tissue supporting them, appear to have so little cohesion, and to form so slight a protection, that *the vessels are often seen to be nearly bare*, while, in some instances, the individual capillaries may be observed *hanging out loose* in the uterine cavity, and giving to its surface a villous appearance." One may readily conceive how hæmorrhagic a surface, thus circumstanced, may become, and how difficult to control the flow permanently without destroying the vessels themselves; also how difficult, nay impossible, to appreciate this condition accurately by any means but the digital touch, if even by that, as is the case with the granular os. But a slighter degree of thickening of the membrane and relaxation of the vessels will sometimes give rise to a most intractable hæmorrhage, and call as imperatively for the curette. In some of my cases, as for instance, in one now under treatment, and already alluded to, which had been under the care of competent physicians for a year, and had had tents, injections, etc., without any check to the hæmorrhage, the application of the curette arrested it at once, for a considerable time, and two repetitions enabled the patient to get out of bed, and go about her business, and

[1] M. Robin, Archives Gén. de Méd., also describes them as such.

[2] Cyclop. of Anat. and Phys.

promise a cure within a reasonable period; and yet at no time were more than a few strips of thickened membrane brought away by the curette. I treated this case in conjunction with Drs. McParlin and V. B. Hubbard, of the U. S. Army. Prof. Thomas, in his deservedly popular treatise, says, of this condition, which he styles "fungous degeneration," that it "must be clearly diagnosticated, not surmised, but absolutely ascertained by the touch to exist." In this case he recommends that "the canal should be fully dilated at intervals of about a week. . . . Should this plan, persisted in for three or four months, fail, full dilatation should be secured, and the whole mucous lining scraped gently by one of the curettes. . . . After this, at intervals of a week, the cervix should be dilated, and the whole cavity painted freely over with the solution of persulphate of iron, a strong solution of nitrate of silver, or Churchill's tincture of iodine." This rule of action would restrict the operation to but a small number of those very troublesome cases to which it is really applicable; and the application of tents, for so lengthened a period, would probably result in an infinitely greater amount of pain and danger than the final operation, which he seems to allow as a sort of "forlorn hope." We all know how painful and annoying tents usually are, especially when they require constant repetition, and that death even has been the result. Whereas, Nélaton asserts that the operation of denudation has been done "thousands of times," "and in one case only did any bad consequences follow; the autopsy showed that these could hardly be attributed to the operation, but were probably only a coincidence." Nature often performs this operation more thoroughly than the surgeon, since, "in pregnancy, and membranous dysmenorrhœa, the mucous membrane is thrown off entire, *utricular follicles and all.*—(*Nott.*) M. Nélaton says, with regard to *diagnosis*, that it is rather by *exclusion*. As a general rule, the operation would only be performed in such cases as had *resisted other means;* and this very circumstance, coupled with a knowledge of the non-existence of any of the other causes of hæmorrhage, such as we are readily able to diagnosticate, would lead us to a correct diagnosis. But, in many cases, we *can detect* a thickened, villous, or boggy feel of

perhaps only a portion of the lining membrane of the uterus, when other portions are comparatively healthy, by passing the curette gently over it; the sensation communicated to the hand, in one condition, being quite different from that in the other. As regards the application of iodine and nitrate of silver after the scraping, I applied the solid nitrate in one case immediately after, and in others, Churchill's tincture. It is somewhat remarkable that the effect of these applications, at that time, has invariably been far less painful than after ordinary applications; owing probably to the sensitiveness of the inner wall being somewhat impaired by the destruction of its lining. Nélaton and Thomas allow a week or more to elapse. I doubt if any thing is gained by any application immediately after the scraping, if this has been thoroughly done, or by applications after an interval, unless the purulent discharge, which may succeed the operation, should continue an unreasonable time. Even when the hæmorrhage is actually going on, and when other less violent manipulations had only increased it, I have found that the operation very commonly checked it *at once*, so that, after waiting, with the os uteri exposed for some time, not a drop of blood has passed out. This I suppose to be due to the fact that the enlarged, flabby capillary net-work and loops, described by Farre (*op. cit.*), have been cut or torn off. It is difficult to convey an idea of the amount of force used in what may be termed a thorough application. If Recamier's instrument be employed, the force required is greater than that with the curette of Sims, which has a thinner edge. The former may be considered the safer instrument, while the latter has some advantages, and is applicable to certain cases, especially when the other has failed, after two applications, to permanently check the hæmorrhage, which is rarely the case, or when the very small pediculated polypi are supposed to exist, since the blunt instrument might readily slip over some of them, without cutting them off, whereas the other, being sharper, and in the form of a cutting ring, might readily catch them. If the abdominal parietes are thin enough to allow the uterus to be readily felt and fixed by the left hand, the amount of force employed can be better appreciated than is the case when the patient is very obese,

or when the operation is done, as it may be, through the speculum.

Of *internal scarification of the uterus*, so highly recommended by Dr. H. R. Storer, of Boston, in the treatment of those forms of uterine disease considered almost, if not quite, incurable by the mass of the profession, I have had but little experience. It has safety and comparative painlessness to recommend it. I have not been favorably impressed with Dr. Storer's arguments and deductions in support of the operation. But he claims that both he and Dr. Miller, of Dorchester, the inventor of the intra-uterine scarificator, have had a wonderful degree of success. Other Boston physicians have spoken highly of the treatment. In a case formerly under my charge, and now managed by Dr. Murdock, my assistant, relief seems to have followed the scarifications.

For the relief of very rebellious and harassing cases (harassing alike to the patient and her medical attendants) of chronic metritis, affecting all the tissues of the organ, attended by hypertrophy, almost always by flexion or version, generally backward, with severe constitutional symptoms, I venture to suggest a method to the profession for trial, which, so far at least as my knowledge extends, has the merit of novelty, if no other.[1] It consists in the introduction of a *seton deeply through one side of the cervix*, with the expectation that the somewhat profuse purulent discharge, which may be expected, will melt down the induration, the interstitial deposits, the hypertrophy, or other consequences of prolonged inflammation, and thus remove those distressing symptoms, characteristic of these conditions, which render the patient's life a burden. I inferred, from the almost complete immunity from danger which usually attends operations on the cervix below the *os internum*, that the procedure would, at least, be free from risk.

The first case, in which I ventured to put this plan into execution, was that of a woman who had suffered more or less at intervals, for several years, from uterine disease, having been

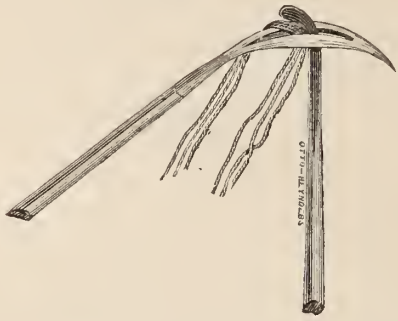
[1] Issues have long ago been employed; but the effect of an issue is far less radical than that of a seton.

at times under my care, and at times under that of other physicians. Had been subjected to almost every variety of constitutional and local treatment, including some applications to the cavity of the uterus. At times, much improved for several months, and at times relapsing, generally from the most imprudent acts on her part. The uterus, at the time of the operation, January 4, 1870, was enlarged, very much retroverted, and very tender, but the cervix healthy; she was suffering from an unusually severe train of symptoms—pain and tenderness all over the abdomen below the level of the umbilicus, in the hips, sacrum, etc., violent headaches, great nervousness, and a frequent nausea and vomiting. With the assistance of Dr. G. W. Murdock, who introduced and held in position Sims's speculum with the patient in Sims's position (semiprone decubitus), I introduced, through the posterior wall of the cervix, at a height of full one-half an inch from the os, a seton of six coarse threads of silk, and tied the ends so that the knot should be just within the vulva. I extract the following notes of the case from my note-book: *January 6th.* Since the morning after the operation, has felt better "in every way;" much less pain and tenderness over the abdomen. *January 15th.*—Says she is better than she has been for some months: no pains, is going about the house and street, is cheerful, and states that she has gotten rid of a dreadful but indescribable sensation, which has troubled her for many months. The discharge is "laudable pus,"[1] very abundant, and threatens to excoriate the vulva. To use enemata of salt and water, *per vaginam, bis die.* *January 26th.*—Has continued remarkably well; no complaint of any kind until to-day; she has now some headache and backache. There is a profuse purulent discharge from the wound, which does not now irritate the genitals. The cervix and the ulcer look perfectly healthy. *January 28th.*—Has been doing well. *February 4th.*—Her old symptoms are threatening to return. The uterus, on examination, is found to be rather more enlarged than it was at the date of operation, and the fundus is very tender on pressure. Removed the seton. *February 11th.*—Symptoms about the same. On questioning the patient closely, find that her catamenia ceased twelve days before the date of operation, and

that her husband had intercourse with her a day or two after. It is probable that the enlargement of the uterus, and also the accompanying symptoms, are due to conception. I will conclude the case by stating that any doubts concerning her pregnancy have long since been removed. She is going on as well as the majority of multiparæ. No comments on the case are needed. The only other cases, in which I have applied the seton, are two in number, and were not successful. Neither of them, however, was in the pathological condition to which this treatment may be considered as peculiarly appropriate. They had had repeated relapses, had a complication of diseases, and had exhausted every other means of relief, and this was employed as a sort of "forlorn hope." In one of the cases, the uterus was excessively irritable; the passage of a probe through the *os internum*, which has always been very much contracted, causing always excessively severe pain; not hypertrophied; cervix healthy. Patient had never borne children. With Dr. McParlin, U. S. A., in consultation, and, with his assistance, I operated precisely as in the last case. The symptoms under which the patient was laboring were rather aggravated; but no healthy, purulent discharge was ever established. After the lapse of several days, patient was attacked with metrorrhagia, and I removed the seton. Rest and cold applications subdued the flow; and, after the active symptoms had subsided, two applications of Churchill's solution to the cavity of the uterus benefited the patient, so that she has been able to do more work and walk farther than she has done for several months. The second case was somewhat similar; but, by mistake, the seton consisted of only four threads. Only a very slight and somewhat offensive discharge was established, and as the symptoms were not benefited, and the cervix, which was nearly healthy when the seton was introduced, somewhat inflamed, the latter was removed after the lapse of a fortnight. There was no evidence, in either case, of any pelvic inflammation. I have thought it incumbent on me to give the results of all the cases.

The seton-needle, which I have contrived for this little operation, and which was manufactured by Otto & Reynders, of 64 Chatham Street, is very similar to Mott's or the Ameri-

can aneurism-needle, except that it is sharp-pointed, and has cutting edges, and it is manipulated in the same manner. As soon as the point is pushed well through the wall of the cervix, the hook is passed in, as represented in the accompanying engraving (full size), the shank of the instrument is unscrewed, and the needle with the seton drawn through. As the needle is armed with three threads, the seton, of course, consists of six. In case the *os externum* is not patent, the point of the needle may catch in the lining-membrane of the cervix, before it has passed to a sufficient depth, which should be one-half to three-quarters of an inch. To prevent this, the point may be armed with a bit of yellow wax.



NOTE.—The hook, by mistake, is represented as turned in the wrong direction.

There seems to be no reason to fear that this treatment, so simple and easy of application, will be attended by more danger of unpleasant consequences, in properly-selected cases—cases, too, which are confessedly rebellious to all other management—than other means now being generally employed by the profession. It is, therefore, with the hope that it may be considered of sufficient importance to justify a fair trial, that I now present it to the public, before having sufficient experience with it myself to pass sentence on its merits.

In conclusion, I have only to add that the instruments and the treatment herein recommended—that is, the porte-caustique and the cotton-carrier—are as important and convenient for the management of endocervical disease, as for that affecting the lining membrane of the fundus, in some respects even more so, since the greater amount of mucus, secreted by the

diseased membrane of the cervix, and its greater tenaeity, render its removal almost impossible; while the peculiar anatomieal arrangement of this membrane also renders it partienlarly difficult to reaeh the bottom of its folds and inequalities by the ordinary methods of applieation. In eommon with others who have lately treated of this subject, I eonsider that the eases whieh require applieations to the *endometrium* are exceptional, but not to the extent whieh these writers seem to suppose. I also quite agree with the elosing sentenee of Dr. Peaslee's artiele, already referred to, namely: "Applications to the endometrinm demand a delieate surgical dexterity; and those who possess neither taet nor experienee, in this direetion, will probably produee more mischief than benefit by their use."

Art. II.—*On the Internal and External Use of Mineral Waters.* By Adolph Kessler, M. D., New York City.

(Continued from the August number, p. 64.)

When hydrology began to assume the charaeter of a science, the necessity of systematieally arranging the endless number and variety of mineral springs was urgently felt, and efforts thus made to group the seattered members of the various families under eommon heads. Brongniart's geologieal classifieation, althongh rational, found no general aeceptance, from the faet that, based as it was upon the geological formations in whieh the springs reeeive their mineral and gaseous impregnations—sueh as waters issuing from and belonging to the lower erystallized, the transition, the three sedimentary, the porphyritic, the traehytie, basaltie, and volcanie strata—it appeared altogether too indefinite and unsatisfaetory for the purposes of a diseipline so purely medieal as balneo-therapeuties. The so-ealled *therapeutic* classifieation met with no other fate, and deservedly so, beeause moving in an opposite extreme. This classifieation gave to mineral waters a determinate pharmaeodynamie eharaeter, and arranged them, like the ordinary remedies of the materia medica, under the heads of tonies, exeitants, sedatives, etc. The eurative agents prepared in the vast and mysterious laboratories of Nature are very

complex in constitution and different in temperature, and do not on that account, unlike iron, opium, quinia, etc., exhibit single effects; they exercise rather, with rare exceptions, combined effects, and these are again modified by various modes of employment. Osann was the first to recognize the fact that the specific individual character of a spring and the indication for its special use depend on its physico-chemical constitution alone, and the first to introduce the now universally-accepted chemical classification which defines in a precise and satisfactory term the specific or dominant character of a water, and designates its exact place as a body and as a medicine.

He divides mineral waters into nine distinct groups, each one taking its name from the element predominating either in mass or in effect, viz.: 1. Chalybeate; 2. Carbonated;[1] 3. Alkaline; 4. Sulphurous; 5. Chloride of sodium; 6. Bitter salt; 7. Glauber salt; 8. Calcareous, and 9. Indifferent thermal waters, and these chief classes he subdivides under secondary heads, according as important ingredients modify to a considerable extent the effect of the principal element. For, be it remembered, mineral springs are complex bodies, *κατ' ἔξοχην*, holding in solution nearly all the animal, vegetable, and mineral matter found on earth. Among their leading constituents are iron, especially the protoxides and oxides, manganese, the numerous salts of soda, magnesia, lime, sulphur, alumina and silica, carbonic acid, nitrogen, and sulphuretted hydrogen; much less frequent are iodine, bromine, arsenic, strontian, lithia, potassa, ammonia, fluoride of calcium, sulphuric and phosphoric acids, oxygen, carburetted hydrogen, etc., and very rare zinc, copper, tin, lead, antimony, and others. Organic matter, invariably in inferior proportions, appears in the form

[1] Following the example of recent hydrological authors, we drop the carbonated waters as a distinct and independent class. Their claim to that position falls to the ground when we consider that many chalybeate and alkaline springs are richer in carbonic acid than those that have been designated as acidulous or carbonated proper. The waters mentioned as such in European and American works belong, in fact, either to the group of alkaline or ferruginous—like Vichy and Pyrmont—the number of pure carbonates being very insignificant. We shall therefore adhere to a strictly and consistently chemical classification.

of gelatinous, saponaceous, humus, resinous, and animal extractives (zoogen, glairine, theiothermine, and barégine).

I. **Chalybeate or Ferruginous Waters** (*Chalybopegæ*).—This class contains in solution the one or the other salt of iron, usually the carbonate of the protoxide, and in quantities not below one-half a grain in sixteen ounces. Of other ingredients the most important are carbonic acid, the carbonates and sulphates of soda and lime, sulphate of iron and alumina. Although iron requires a good digestive power, it is readily borne by the stomach, and quickly conveyed to the organism in the medium of the milder chalybeates, that is, in those abounding in carbonic acid and alkaline salts, and deficient in the sulphates and alumina. They promote the energy of all the functions, sustain the system against inordinate losses, improve the quality of the blood by increasing the number of red corpuscles, and strengthen the entire organism. Chalybeates, usually of cold temperature, limpid, inodorous, and of an astringent, inky taste, are indicated in anæmia and chlorosis, in nervous diseases, passive hæmorrhages and blennorrhœas, atony of the mucous membranes, in scrofulous and tuberculous cachexies, in debility, convalescence, and after an exhausting medical and mineral-water treatment; they are contraindicated in plethora, in inflammatory and asthenic fevers, in the florid forms of phthisis, in acute gastric and dyspeptic disorders, and during pregnancy.

1. *Pure chalybeates* are characterized by containing leading proportions of protoxide of iron and carbonic acid, and by being deficient in solid constituents; they are therefore indicated in strongly-marked cases of anæmia and chlorosis, where the tonic, blood-improving effect of iron is chiefly needed. There being no salts present that excite the bowels to undue action and check resorption, as laxatives do, these waters have a chance to display their full and undisturbed power as givers of tone and restorers of tissue. The most noted of the class of simple chalybeates are *Spa*,[1] in Belgium; *Schwalbach*, *Altwasser*, Brückenau, *Reinerz*, Imnau, etc., in

[1] We italicise the leading springs of Europe that enjoy a wide reputation, and all those belonging to this country.

Germany; Camarès and Bussang, in France; Nocera, in Italy, etc.

2. *Alkaline and alkalo-saline chalybeates* contain, besides protoxide of iron, considerable amounts of carbonate and sulphate of soda and carbonic acid, and are indicated in all cases where the combined effects of tonics, aperients, and resolvents are required, as in the various disorders of anæmic and decrepit individuals, that depend on circulatory disturbances in the abdominal organs, such as intestinal catarrhs, liver-complaints, hypertrophy of the spleen, piles, hypochondriasis, hysteria, etc. Leading springs of this kind are *Franzensbad*, Elster, Cudowa, Flinsberg, etc., in Germany; Cheltenham (chalybeate), in England; Sermaise, in France, etc.

3. *Earthy saline chalybeates* contain, besides carbonates of iron and sulphate of soda, chiefly the carbonates and sulphates of lime, elements scarcely inferior to iron, and entering even more largely into the constitution and preservation of the organism. A system reduced by profuse excretions and secretions, and whose nutrition has greatly suffered, requires for its reparation not only the use of iron, but also of the sulphurous and calcareous salts, which supply a considerable amount of organic matter, and in such cases this class of chalybeates proves highly useful.

The best-known and most efficacious are *Pyrmont*, Driburg, Rippoldsau, Bocklet, Wildungen, etc., in Germany; *St. Moritz*, in Switzerland; Forges-les-Bains, in France; *Bedford*, in Pennsylvania;[1] *Sharon* (chalybeate), in New York; the *Sweet Springs*, in Virginia.

[1] It is not the writer's fault that so few of our numerous springs are mentioned in this paper; he examined and compared as many analyses as he could procure, but a small number only appeared reliable and vouched for by high authorities. Although this country is second only to Germany in the wealth, variety, and efficacy of its mineral springs, yet but few have been thoroughly analyzed and placed in the ranks of recognized therapeutic agents, while the overwhelming majority are proclaimed in high-sounding phrases, based upon fictitious analyses and cures, as panaceas against all evils the human flesh is heir to. Since, however, all the leading European waters have been scientifically analyzed and can be easily procured here either in their natural form or artificially prepared, his effort of drawing the attention of the profession to these wonderful remedials may

4. *Vitriol and alum-waters* contain, with other ingredients, chiefly sulphate of iron and alumina, but no carbonate of soda, and very little carbonic acid; this composition renders them very difficult of digestion and almost unfit for internal use. As powerful astringents and styptics they are advantageously employed, especially in the form of baths, douches, and injections, in profuse secretions, passive hæmorrhages from the uterus and rectum, in atony of the mucous membranes, inveterate ulcers, and other torpid affections of the skin. Such waters are *Alexisbad*, Muskau, and Mitterbad, in Germany; Parad, in Hungary; *Brighton* and Sandrock, in England; Hartfell and Moffat, in Scotland; Ronneby, in Sweden; *Rockbridge* and *Church Hill Alum Springs*, in Virginia.

II. **Alkaline Waters** (*Natropegæ*).—This class is characterized by containing as principal elements carbonate of soda and carbonic acid, and in smaller amounts carbonate of lime, sulphate of soda, and chloride of sodium. They are cold and thermal, clear, often sparkling, have sometimes a strongly-alkaline taste, and are administered internally and externally. Chiefly operating upon the mucous membranes, the glandular and lymphatic systems, the skin and kidneys, they regulate secretions, resolve glandular tumors, liquefy the blood, counteract the formation of acids and concretions, increase the discharge from the kidneys, and calm the excited nervous system. Their effect is diuretic, antacid, antilithic, resolvent, and sedative, and they are therefore excellent curative agents in many diseases, especially in acidity of the stomach, in certain forms of dyspepsia, in arthritis, lithiasis, biliary calculi, induration of the glands and uterine tissue, in chronic catarrhal affections of the mucous membranes, diabetes, chronic skin-diseases, and nervous disorders. Hydræmic and scorbutic conditions, hectic and suppurative fevers, and great debility, contraindicate the administration of alkaline waters, and even when rightly indicated they should be used only for a limited time, as an ex-

not prove altogether futile. The artificial mineral water establishments of Dr. Hanbury Smith and Schultz & Warker, of this city, deserve especial mention, and their waters may be considered fully equal to those prepared by Struve & Soltmann, and other leading firms in Europe.

cessive ingestion is apt to dilute and impoverish too much blood and tissues.

1. *Pure carbonated or acidulous waters* are deficient in solid constituents, but distinguished by an excess of carbonic acid, that cannot be less than twelve, and varies from twelve to sixty, cubic inches in sixteen ounces. They are all cold, and principally administered internally, for dietetic purposes, in torpid digestion and dyspeptic complaints, but prove also highly efficacious in the form of gas-baths, as the carbonic acid exercises a tonic and animating influence upon the cutaneous nerves, and improves a deficient innervation.

To this class belong the acidulous springs at Liebwerda by Brückenau, the Marienquelle at Marienbad, the Sauerbrunnen by Karlsbad, etc., in Germany; and St. Remy, in France.

2. *Alkaline-carbonated waters* contain large amounts of carbonate of soda and carbonic acid, with inferior proportions of other ingredients. They are chiefly noted for their power of improving or restoring the impaired digestive functions, and of promoting the elimination of gravel and renal calculi, etc., and are indicated in all forms of dyspepsia, in all chronic catarrhal affections of the mucous membranes, in arthritis, lithiasis, and other diseases of the bladder, in morbus Brightii, diabetes, biliary calculi, and in the milder forms of abdominal plethora.

Examples of this kind are the famous thermal springs of *Vichy*, France, and Neuenahr, Germany, and the cold springs of *Bilin*, *Fachingen*, Gieshübel, Geilnau, Rodna, etc., in Germany; and Hauterive, in France.

3. *Alkaline-muriatic-carbonated waters* contain, besides carbonate of soda and carbonic acid, leading proportions of chloride of sodium, thus combining the effect of alkaline and saline springs. They operate like the preceding class—as antacids, antilithics, and resolvents—and are employed in the same diseases, but by their large amount of chloride of sodium they are also stimulant tonics and alteratives, and the field of their usefulness is accordingly enlarged. Special indications for their use are digestive, nutritive, and catarrhal affections in scrofulous individuals, incipient tuberculosis, pleuritic and peritonitic exudations, and chronic metritis and oophoritis (hysteria, menstrual anomalies).

The famous thermals of *Ems*—internally, gaseous inhalations, uterine douche—in Germany, and those of *Mont d'Or* and St. Nectaire, in France; the cold waters of *Selters*, *Luhatschowitz*, Gleichenberg, Weilbach, Natronquelle, etc., in Germany, belong to this class.

III. **Sulphurous Waters** (*Theiopegæ*).—This class takes its name either from the metallic sulphides (sulphurets), held in solution, or from the free sulphuretted hydrogen, which is formed by the decomposition of the salts in their union with organic matter. Although they are chiefly characterized by the peculiar fetid smell of that gas, it is usually present only in a very small volume, and the effect of sulphur-waters must therefore be ascribed rather to the solid constituents, which are various and abundant, and to the nitrogen. The sulphated and carbonated earths and alkalies hold a conspicuous place in their composition; iron and manganese are next in rank, and iodine is an important ingredient in some. According as these secondary chemical groups predominate, the waters are called, 1. Alkaline-muriatic; 2. Alkaline-saline; 3. Earthy-saline, and 4. Chalybeate-saline, sulphurous. The effect of sulphur-waters is naturally modified by the presence of various salts—some being laxative in consequence of their large proportions of chloride of sodium and sulphate of soda; and others, again, constipating by their considerable quantities of carbonate and sulphate of lime—but they operate all as diaphoretics, diuretics, alteratives, expectorants, and resolvents, while some are also tonics. Experience has proved them to be efficacious in chronic bronchial catarrh, in hepatic disorders involving the secretion of bile, in torpid abdominal venous circulation, piles, in chronic rheumatism and atonic gout, in diseases of the cutaneous surface, chronic poisoning by metals, and as adjuvants (and diagnostic criteria) in syphilis. They are cold and thermal, and employed internally and externally, in baths, douches, vapors, and fomentations, the latter by the strongly-mineralized residual *sulphur-mud*.

The most noted thermals are: *Aix-la-Chapelle*, Burtscheid, and *Baden*, by Vienna, in Germany; *Mehadia*, *Ofen*, and Töplitz, in Hungary; *Baden* and *Schinznach*, in Switzerland; *Barèges*, *Aix-les-Bains*, Eaux Bonnes, and *Cauterèts*, in France;

Abano and *Acqui*, in Italy, and the "*warm*" and "*hot*" *springs* in Virginia; the leading cold sulphur-waters, *Nenndorf*, Eilsen, Meinberg, *Weilbach*, etc., in Germany—all rich in mineral sulphur-mud; Stachelberg and Le Prese, in Switzerland; Enghien, in France; *Avon* and *Sharon*, in New York; the *White*, *Red*, and *Salt Sulphur*, in Virginia; the *Indian Springs*, in Georgia; *Bladon*, in Alabama; *Lauderdale*, in Mississippi, and many others.

IV. **Common Salt, or Chloride of Sodium Waters** (*Halopegæ*).—The predominant element in these waters is chloride of sodium; besides, there are other chlorides, and in inferior quantities the sulphates of soda, potassa, lime, and magnesia, and the protoxide of iron; some are distinguished by considerable amounts of the iodides and bromides of sodium and magnesium. While many of the cold springs are impregnated with a large amount of carbonic-acid gas, nitrogen and occasionally sulphuretted hydrogen are found in those of higher temperatures. The physiological action of the saline waters is very marked; they augment and improve the secretion of the mucous membranes, promote diuresis and the peristaltic motion of the intestines, and stimulate the glandular and lymphatic systems to greater activity. As internal and external remedies, they are chiefly indicated in scrofulosis, chronic catarrhs of the alimentary canal, arthritis, rheumatism, blennorrhœa of the urogenital sphere; scrofulous, syphilitic, and arthritic residua in the urinary organs; enlargement of the prostate, lithiasis, etc.; in chronic affections of the skin, and in hysteria, hypochondriasis, or other nervous disorders connected with and dependent on disturbed abdominal venous circulation.

1. *Simple salt-waters* contain, besides chloride of sodium and gaseous elements, alkalies, earths, and iron, in large proportions, and, according as the one or the other of these chemical groups predominates, modifying the effect of the principal constituent, they are called *alkaline*, *earthy*, and *chalybeate salines*. All prove highly efficacious in scrofulosis and the various disorders dependent on a general scrofulous diathesis, in affections of the mucous membranes of the respiratory and digestive apparatus, in diseases of the liver and spleen, in rheumatism,

and arthritis, hæmorrhoids, biliary and renal calculi, diabetes, chronic metritis, etc.

The leading *cold* springs of this class are *Kissingen*, *Homburg*, Canstatt, etc., in Germany; *Cheltenham* and *Leamington*, in England; *Ballston Spa* (Sans-Souci), *Saratoga* (Congress, Union, Pavilion), in New York.

The leading *warm* and *hot* springs are, *Wiesbaden*, *Baden-Baden*, *Soden*, etc., in Germany; Lamotte, Bourbonne-les-Bains, and Bourbon-Lancy, in France; and Montecatini, in Italy.

2. *Concentrated salt-waters* (brine-springs, "Soolen") are characterized by containing an excess of chloride of sodium, and are thus made to furnish a large supply of common salt, which is produced by evaporation. In consequence of this process, other important remedial agents are gained, matters remaining in the residual liquid, the so-called mother-waters, in which the earthy chlorinated metals, iodine and bromine, and their unions, predominate, and which are either added to brine-baths to increase their effect, or are locally applied in the form of compresses and douches to intumesced lymphatic glands, struma, and indolent osseous affections. The springs of this class are principally employed in baths and other external methods—the very mildest only being fit for internal use—and prove of the highest service in all forms of scrofulous disease, in chronic metritis, in obstinate affections of the skin, in rheumatism and atonic gout, and in peripheric palsies.

Most prominent are the thermal brines of *Nauheim* and *Oeynhausen*, in Germany, and the cold brines of *Ischl Reichenhall*, Salzungen, Kösen, Hall, Arnstadt, etc., in Germany; Salins, in France; Sales, in Italy, etc. There are many brine-springs in the United States, chiefly in New York (Salina, Montezuma, Galen), Pennsylvania, Ohio, Kentucky, Virginia, Michigan, Illinois, and Missouri.

3. *Iodo-bromated-brine waters* are such as contain, besides chloride of sodium, the iodides and bromides of sodium and magnesium in an appreciable quantity. They are powerful curative agents, and chiefly indicated in scrofulous affections of the glands, skin, and bones, and in chronic inflammation of the uterus and ovaries. Their use is external—baths, steam, douche, injections—and internal.

To this class belong *Kreuznach*—very famous, and used both for drinking and bathing, the mother-water of Kreuznach also being used all over Europe—Elmen, Dürckheim, *Krankenheil*, *Adelheidsquelle* (used much internally, even by children), Hall, etc., in Germany; Wildegg and Saxon, in Switzerland; Lippik, in Hungary; Montecatini, in Italy; and Staraja-Rossa, in Russia.

Of *alkalo-saline* springs, containing a large proportion of iodine, and especially useful in bronchial catarrh, gastric and intestinal disorders, gout, lithiasis, and skin-diseases, dependent on or connected with a scrofulous diathesis, we may mention as noted examples, *Luhatschowitz*, in Germany; *Ischia*, in Italy; and *Saratoga* (iodine spring), in New York.

4. *Sea-water* is among the most dense and powerful of all mineral waters of the saline class. The amount of salt in it depends, like its perceivable physical qualities, on various external influences, and the different seas differ in composition, according to the amount of evaporation. Thus the Atlantic Ocean contains from 240 to 290 grains of salts to the pint; the Mediterranean from 260 to 335, the Adriatic from 175 to 210, the German Sea 240, the British Channel 280, the Baltic from 32 to 154, and the Black Sea 40. In the annual mean temperature these seas vary as follows: the Atlantic, from 12 to 8° R.; the Mediterranean, from 16 to 12° R.; the Adriatic, from 12 to 10° R.; the German Ocean, from 8 to 4° R.; and the Baltic, from 6.9 to 4° R.

The chief ingredients are, chloride of sodium, magnesium and potassium, the sulphates of magnesia and lime, besides bromine in slight amount, traces of iodine and other salts and metals, together with organic matter in minute proportions. Sea-water is but rarely employed internally; so much the oftener, however, externally, in baths, douches, and injections, cold and warm. The most favorable time for sea-baths, at least in temperate climes, is from the middle of July until the end of September, when air and water exhibit higher degrees of temperature. Their therapeutic effect depends on the chemical composition, the temperature, and wave-motion of the sea-water—the latter operating like a powerful artificial douche—and, further, on the nature of the surrounding atmos-

phere. They stimulate the cutaneous system, promote resorption, improve the blood, tranquillize the excited nervous system, promote and improve assimilation and all vital functions, and act thus as tonics, stimulants, alteratives, and resolvents. But to dwell here at length on the physiologic and general therapeutic effects of sea-baths would be transgressing the scope of this paper; and we will therefore merely enumerate the various diseases in which these powerful saline remedials, assisted by the highly-oxygenized salt-air prevailing on seashores, have proved of signal benefit: 1. Diseases of the nervous system, hypochondriasis, hysteria, chorea, neuralgias, peripheric palsies, hyperæsthesia, etc. 2. Scrofulous, rachitic, gouty, and rheumatic diatheses. 3. Anæmia and chlorosis. 4. Female diseases, uterine disorders, anomalies of menstruation, fluor albus, pruritus vaginæ. 5. Affections of the male sexual organs, impotence, spermatorrhœa, chronic orchitis, varicocele. 6. Chronic hypertrophy of the spleen and chronic catarrh of the digestive organs. They are further employed as tonics and restoratives in protracted convalescence, and in the after-treatment consequent upon debilitating internal mineral-water cures. Very irritable and decrepit patients must be confined to the use of sea-air or lukewarm sea-baths only; while pregnancy, plethora, hæmoptysis, organic disease of the heart, aneurisms, excessive erethism of the nerves, and febrile conditions, contraindicate their use altogether.

V. **Bitter-Salt Waters — Bitter Waters** (*Picropegæ*).—The leading and characteristic constituents are sulphate of magnesia and sulphate of soda; besides these, they contain muriated and carbonated alkalics and earths, traces of iron and manganese, and slight amounts of gases. They are invariably cold, and used only internally. Their effect is cathartic, debilitating, antiphlogistic, and a protracted use leads to serious gastric disturbances, total loss of the digestive power, and even to hydropsical conditions. They are only suitable for robust, plethoric individuals, either in large, single doses, to effect copious evacuations, or in small doses, taken at intervals, to counteract abdominal venous stagnation. Chief indications are congestions to the head and chest, hyperæmia of the liver, suppressed menses, and hæmorrhoidal flow and chronic exanthemata connected with intestinal torpor.

To this class belong *Püllna*, *Saidschütz*, and *Sedlitz*, in Germany; Gran, *Ivanda*, and Ofen, in Hungary; Birmenstorf, in Switzerland; Cherry Rock and *Epsom*, in England; and Aranjnez, in Spain.

Milder and less debilitating in effect, and therefore far more preferable for use in the morbid conditions above named, whenever great weakness or catarrhs of the alimentary canal are present, are those bitter waters which contain in large proportions chloride of sodium. They are also indicated in cases where the just-mentioned affections are associated with torpid scrofulosis, and may be taken for weeks and months—a wineglassful morning and evening—without doing any injury, as the one-sided and noxious effects of the one class of salts are modified by the presence of the other. The noted waters of this kind are *Friedrichshall* and *Kissingen* (Bitter Wasser) in Germany, and Alap in Hungary—the first one, especially, being used and valued throughout Europe.

VI. **Glauber-Salt Waters.**—These waters are characterized by containing, besides the predominating sulphate, the carbonate of soda in considerable amount, and in smaller proportions the carbonates of lime and magnesia, chloride of sodium, and other earthy and metallic salts. They are either alkaline or earthy according as the one or the other of these secondary constituents predominates; the former, however, being by far the most numerous and important. The cold Glauber-salt waters are usually well charged with carbonic acid, which renders them even more efficacious; but so are also some of the thermal, the Schlossbrunnen, at Karlsbad, containing over twenty cubic inches in sixteen ounces. They do not only effect important changes in the blood, in consequence of their alkaline and earthy contents, but they exert also a salutary influence upon the organism by stimulating the activity of the alimentary canal. Operating as aperients, diuretics, diaphoretics, antilithics, and resolvents, they are indicated in chronic hepatitis, cirrhosis, fatty liver, amylaceous degeneration, at least during the first stages of the last-named disorders; in gout and lithiasis; in all severe disturbances of abdominal venous circulation produced by habitual constipation, high living, sedentary habits, etc.; in the various affections resulting from

these circulatory derangements, hyperæmia of the liver, uterus, and of the ovaries; hæmorrhoids, congestions to the brain and lungs, and psychical disturbances, like hypochondriasis and hysteria; in diabetes, and chronic affections of the bladder and prostate.

The thermal Glauber-salt waters are *Karlsbad*—very powerful and renowned, and from which is prepared by evaporation the Karlsbad salt, a popular purgative, either taken alone or added to other mineral waters—and Bertrich in Germany, and Neris and St. Gervais in France. Of the cold springs are best known *Marienbad*, *Salzbrunn*, Rohitsch, and the *Salzquelle* of *Franzensbad*, in Germany, etc.; *Tarasp* in Switzerland, and Malvern and Victoria in England.

VII. **Earthy or Calcareous Waters.**—This class contains, as predominating ingredients, calcareous salts, carbonate and sulphate of lime and chloride of calcium, besides other carbonates and sulphates, iron, carbonic acid, and sometimes also nitrogen and sulphuretted hydrogen. They are almost all thermal, and chiefly used in baths, douches, lotions, vapors, etc.; but the milder ones are also employed internally, with much benefit—being by no means indigestible and offensive to the stomach, as experience and chemical facts sufficiently prove[1]—by introducing into the body, in easily-assimilated forms, the elements requisite for its invigoration.

The waters of this class, which are divided into earthy-alkaline and gypsum springs, according as the carbonate of lime and neutral salts, or the sulphate of lime, predominates, and to which might properly be added those sulphurous spas that are strongly impregnated with gypsum, operate as diuretics, diaphoretics, astringents, antacids, stimulants, tonics, and are indicated in arthritis, skin-diseases, in disorders of the

[1] The prejudice that sulphate of lime is indigestible, etc., is wholly unfounded. The excellence and digestibility of such waters as Pyrmont, Driburg, Rippoldsau, and Bath—the latter highly praised by Heberden in digestive disturbances connected with gout—all of which contain very large proportions of sulphate and carbonate of lime, and the fact that the sulphates are transformed in the stomach into sulphurets, and the sulphuret of lime is easily soluble in consequence of the union of any free acid—carbonic, lactic, muriatic—with the base, prove the correctness of the above assertion.

digestive organs, scrofulosis and tuberculosis, lithiasis, and other affections connected with or dependent on those just named.

Of cold earthy springs, the alkaline at *Wildungen*, Germany, deserve especial mention; chiefly used and greatly famed in vesical catarrh and renal calculi, not only promoting the elimination of gravel and renal concretions, but, by the tonic action on the mucous membrane of the urinary passages, tending to prevent the formation of fresh depositions; and the chalybeate of *Contrexéville* in France, and *Recoaro* in Italy. There are numerous springs in the United States whose leading contents are calcareous salts, but they differ somewhat in composition from each other; foremost among them are *Gettysburg*, in Pennsylvania, otherwise remarkable for its large proportion of lithia, in which it is only surpassed by the Murquelle of Baden-Baden, *Sharon* in New York, and *Church Hill* in Virginia.

Celebrated earthy thermals are *Bath*, in England (arthritis and gastric disorders); *Lippspringe*, in Germany (incipient tuberculosis, etc.); *Leuk* (gout, skin-diseases, atonic ulcers) and Weissenburg, in Switzerland; Aix (Provence) and *Ussat*, in France; *Lucca* and Pisa, in Italy; *Washitaw hot-springs* in Arkansas. The limestone springs of Pike's Peak (Colorado), and the hot-springs of Utah, with many others, belong most probably to this class.

VIII. **Indifferent Thermal Waters** (*Acratothermæ*).—These waters resemble, in their character and amount of their contents, the *aqua communis* or rather *pluvialis*, and differ from it only in temperature. Their physical properties are just as negative; they are perfectly limpid, tasteless, and inodorous. What is it, then, that produces the wonderful influence they are known to exercise upon the organism? Is it their mineral constitution, or their impregnation with gases? By no means. The solid ingredients exceed scarcely ever a few grains in the pound, and the gaseous contents are equally scanty, nitrogen alone being found in comparatively larger quantity. Their effect can only be ascribed to high temperature; and here, again, the alleged superiority of natural heat over artificial becomes a verity. Something may also be due

to other agents still unknown. The indifferent thermals, by promoting secretions and excretions, improve assimilation, they calm the vascular and nervous systems, soften and relax the tissues, and vitalize the organism. Operating as diaphoretics, diuretics, resolvents, sedatives, and tonics, experience has proved them to be highly efficacious in morbid irritability (erethism) of the nervous system, in neuralgias and hypercineses, in chronic rheumatism and atonic gout, especially of delicate, exhausted, and nervous individuals, in palsies dependent on contractions, tumors and nodosities, in diseases of the skin, bones, and joints, and in convalescence. They are unsuitable in strongly-marked diatheses, for the removal or improvement of which the more heroic alkaline and saline thermals, acting powerfully upon the kidneys and bowels, are required, and contraindicated in hæmoptysis, in conditions predisposing to apoplexy, and in febrile diseases. The principal indifferent thermals are Buxton and Clifton, in England; *Pfäfers* and *Ragaz*, in Switzerland; *Gastein*, *Wildbad*, *Teplitz*, *Schlangenbad*, *Landeck*, *Warmbrunn*, Römerbad, Liebenzell, etc., in Germany; *Plombières*, Dax, and Bains, in France; Alhama, in Spain; Masino and San Martino, in Italy; the Lebanon Springs, in New York; the "*Warm*" and "*Hot*" Springs, in Bath Co., Virginia; the "*Warm*" Springs, in North Carolina, and many others in the United States that enjoy a high reputation, and are successfully employed in various diseases, yet exhibit upon analysis a poor mineral and gaseous impregnation.

Mineral Mud-Baths.—Before concluding this paper, it may be proper to refer in a few words to the so-called "moor" or mud baths that have recently come into use and form already a leading feature in many European watering-places. The mineral mud of which they are prepared is very rich in active substances, chiefly containing the salts of iron, soda, lime, and alumina, sulphuric, ulmic, and formic acids, and many vegetable matters of a gummy and resinous character. They are applied either to the whole body or in the form of fomentations to single parts—the liver, spleen, joints, etc.—and can be used at a much higher temperature than the common water-bath, mud being a bad conductor of heat. The physiological

and therapeutic effects of mud-baths are very marked and powerful; they act, principally by their volatile acids, their solid contents, and high temperature, as unrivalled excitants, stimulating the skin, animating and vitalizing the nervous system, augmenting secretions and excretions, promoting resorption, and improving the tone of the organism. The pulse is accelerated, the bodily heat rises, diuresis is increased, profuse, protracted, peculiarly sour perspirations ensue, and under these effects, by which the most torpid system even is made to react against disease, an alteration in the character of the fluids takes place, and a speedy removal from the organism of the effete constituents of the blood and juices, and with them of many morbific elements. Infiltrations, exudations and all kinds of morbid pseudoplasms not produced by incurable diatheses, that have resisted the curative power of the strongest alkaline, saline, and sulphurous thermals, are thus softened and resolved under the influence of the mineralized hot mud-baths. But, besides being resolvent and catalytic remedials of the highest order, they operate also as leading alteratives, stimulants, and tonics, either directly by the ingestion of their active principles—iron, volatile organic acids—into the blood and tissues through the medium of the cutaneous surface, or indirectly by the effect of their numerous solid and gaseous contents upon the peripheric nerves—reflective action—and secondarily upon the whole system. They are indicated in torpid scrofulosis, anæmia, and chlorosis, in old rheumatic and gouty affections with morbid residua in the muscles, bones, and joints, contractions, tumors, lumbago, sciatica, peripheric palsies, in chronic hyperæmia and hypertrophy of the liver and spleen, in affections of the male and female sexual organs, impotence, spermatorrhœa, sterility, leucorrhœa, in some diseases of the skin, impetigo, chronic urticaria, atonic ulcers, in tubercles of the bone, in old injuries, anchyloses, etc.

The most important and celebrated mineral mud-baths are at *Franzensbad*, Elster, Muskau, Altwasser, etc. (chalybeate); at Karlsbad, Teplitz, Marienbad, etc. (earthy-bituminous, sulphurous, chalybeate); and besides these two classes which are especially designated as "moor-baths," the sulphur mud-baths at Baden, by Vienna, Eilsen, Neundorf, Meinberg, Wipfeld,

Abano, Acqui, St. Amand, etc., and the saline mud-baths at Kissingen, Ischl, Reichenhall, Elmen, etc.

Although greatly differing in composition and the character of the predominating elements, yet some of their leading properties and effects are common to all. They all contain more or less iron, sulphur, magnesia, lime, alumina, soda, potassa, etc.; they are strongly impregnated with mineral and volatile organic acids, are closely united with numerous vegetable substances, and are all alike powerful excitants and resolvents, while many operate also as highly-efficient tonics.

Clinical Records from Private Practice.

I.—*Case of Recto-Urethral Fistula.* By J. C. Nott, M. D., New York.

The subject of this case, W. J. T——, Esq., a gentleman of high respectability, from Kentucky, came to New York the latter part of May, 1870, accompanied by Dr. A. S. Frederick, the family physician of his father, and placed himself under my charge for treatment. The following is the history of the case:

Age thirty-two, tall, spare built, but rather muscular. Had enjoyed good average health until the spring of 1864, when he had a severe attack of typhoid fever, followed by symptoms of stone in the bladder. He continued to suffer from these symptoms for four years, during which time his health became much impaired. On the 1st of December, 1868, a large stone, of irregular shape, weighing five ounces, was removed by the lateral operation, which left a fistulous opening in the rectum, through which the urine passed. I have no note of the case from his surgeon, but, from the size and shape of the stone, the case was unquestionably a bad one, and I presume this accident was unavoidable. A portion of the urine continued to discharge by the rectum up to the time of his arrival in New York, and no attempt had been made to close the opening. Not only did a portion of the urine pass through the rectum, but fecal matter and gas frequently escaped with the urine through the urethra. The fæces sometimes formed an annoy-

ing temporary obstruction to the passage of urine through the penis. The bladder was irritable, requiring the urine to be passed off more frequently than natural. The rectum was also irritable, but less so than is usual in urinary fistulæ opening into it. His general health was delicate, but on the whole pretty good.

Condition when examined.—On introducing my index-finger into the anus and curving it forward toward the urethra, I discovered a fistulous opening, immediately behind the sphincter ani—the opening being just large enough to admit the end of the finger; it was olive-shaped, edges smooth, well defined, of cicatricial hardness, and about the thickness of a piece of sheepskin. The prostate gland could be felt bounding the opening posteriorly, and it was evident that the opening extended the entire length of the membranous portion of the urethra, which occupies about an inch or a little less of the distance between the prostate and the bulb of the urethra.

The ulceration, together with the contraction of tissues, had removed the lower half of the urethral cylinder, reducing the original channel to a gutter, which was overlapped by the parietes of the rectum in which the opening was situated. I next introduced Sims's lever speculum into the rectum, which brought the parts well into view, and confirmed the diagnosis made by the touch. The opening, communicating between the rectum and urethra, was free from inflammation or ulceration, and presented a clean, smooth appearance, resembling a vesico-vaginal fistula of similar dimensions.

I introduced into the urethra a No. 10 silver sound, the point of which passed through the opening into the rectum, but the index-finger of the left hand in the rectum easily gave a proper direction to the point of the instrument, which then passed readily into the bladder. It was evident, from the large space in which the bougie moved at the injured part, as well as from the evidence given by the finger, that the urethra was dilated above and below the opening, and that a sort of pouch was formed by the lax tissues of the rectum supplying the lower wall of the urethra which had been removed. There was such an abundance of tissue to cover over the sound, as to

give fair promise of the success of an operation for closing the fistula.

I at once planned in my mind the operation which I thought suitable to the case, explained it fully to Dr. Frederick and the patient, and they consented immediately to make all the arrangements necessary for carrying it out at an early day.

I proposed to place the patient on a suitable table on his left side, in the semi-prone position recommended by Drs. Sims and Emmet, in the operation of vesico-vaginal fistula, to introduce a No. 10 elastic catheter into the bladder, both for the purpose of facilitating the paring of the edges of the opening and the insertion of the sutures, and at the same time to serve as a guide to direct us in the degree of traction which could be exerted by the sutures, without danger of narrowing too much the channel of the urethra. It was evident that, without some guard of this kind, there was danger of passing the needle through tissues which should not be included; and, without some cylinder to bridge over, it would be impossible to say what outlet would be left for the urine after the completion of the operation.

I proposed, in addition, to divide freely the sphincter-ani muscle in the direction of the perineal raphe. There were two important reasons for dividing the sphincter: 1. The fistulous opening being in a deep pit, immediately behind the sphincter, it would have been, to say the least, very difficult, if not impossible, to pare the opening thoroughly and apply the sutures, until this barrier was removed. 2. It was important to paralyze the sphincter muscle for a time, to prevent the pain, irritation, and motion, which its involuntary and spasmodic contractions would cause. The contractions of the sphincter, moreover, might draw upon the tissues included by the sutures, and thus interfere with primary adhesion. Still another important reason for dividing the sphincter was this: While it was determined to constipate the bowels by opiates, if possible, until the sutures should be removed, the bowels might act in spite of our efforts to prevent it—in this case, the divided sphincter would offer little resistance to the fecal discharge—less contractile effort would be required of the rectum to expel fæces, and the danger of tearing out the stitches would thus be greatly diminished.

This affection had been a cause of much physical and mental suffering to Mr. T.; the case presented points of novelty, as well as difficulty, and altogether was one which excited in me much sympathy and interest. I determined that he should have the best chance for recovery that I could possibly give him. Although I had had some satisfactory experience in vesical and vaginal operations, it occurred to me that more than usual difficulty might present in passing the sutures in this case; and, being familiar with the large experience and remarkable dexterity of my friend Dr. Thomas A. Emmet in operations for vesico-vaginal fistula, elytrorrhaphy, etc., I determined to ask his assistance in the most important part of the operation. I accordingly called on Dr. Emmet, explained the nature of the case, the operation proposed, and requested that he would do me the favor to close the opening for me. He readily consented, and an early day was appointed for the operation.

Dr. Emmet met me on the 28th of May at the room of the patient, and the operation was performed in the presence of Drs. Frederick, B. F. Dudley, Wm. R. Whitehead, and Wm. H. Johnston.

A gum-elastic catheter was passed into the bladder, the patient placed in left semi-prone position on a table, and brought fully under the influence of ether. I then introduced Sims's vaginal speculum into the rectum so as to expose fully the fistulous opening and enable me to see the exact extent of the incision I proposed to make. I then, with a bistoury, made a free incision entirely through the sphincter muscles of the anus down through the tissues enveloping the bulb of the urethra, and extending the incision a little deeper on one side to avoid the hæmorrhage which might follow an incision into the bulb. It was evident, however, as the incision progressed, that the bulb was pretty much destroyed by the previous disease, and that we had little to fear from bleeding—one artery which passed to the bulb from the right, and at the bottom of the incision, required ligature and none other. This incision brought the opening well in view. I then handed the case over to Dr. Emmet, to finish the operation as he thought best. The doctor removed Sims's speculum and replaced it by his

own self-retaining modification of the same instrument, fixed it firmly in position, and thus secured a good and steady view of the parts to be operated on. He then proceeded precisely as he is accustomed to do in his operations for vesico-vaginal fistula. He pared the edges thoroughly with curved scissors, and, with his short needles and needle-holder, inserted nine silver sutures, which were properly adjusted, twisted, and cut off. From the depth of the pit in which he had to work, and the little oozing of blood into it as he went on, the paring and application of sutures were by no means free from difficulty, and one of less experience and dexterity than Dr. Emmet might have failed in bringing the operation to a successful issue. The opening, however, was promptly closed, and every thing seemed perfectly satisfactory.

After the doctor had trimmed off the hard cicatricial edges of the opening, and thus set free the tightened tissues, it became still more evident that a sort of pouch had been formed between the rectal opening and the remaining upper wall of the urethra. The opening, which was comparatively small before the hard edges were removed, presented an aperture so large as to require nine sutures to close it properly; it was also evident that the rectum, by the operation, was made to supply the deficient urethra.

The operation being completed, the patient was put to bed, and, after the effect of the ether had worn off, a dose of elixir of opium was administered to compose him and keep the bowels quiet. About an hour after the operation, the patient passed his water freely without pain or difficulty, and, with the urine, air, which had been enclosed in the bladder by the sutures, passed off; no air passed at any time subsequently.

The progress of the patient after this was remarkable. He had no fever, no pain, no disagreeable sensation in rectum or bladder, slept well without anodynes, had no inclination to stool, passed his water occasionally, took beef-tea, milk, and eggs with relish, and every thing went on smoothly until the eighth day, when he had a smart attack of colic, which was relieved by opium. On the 6th of June, the ninth day after the operation, and the one agreed upon for removal of the su-

tures, Dr. Emmet again met us, all the gentlemen of the previous occasion being present.

The patient was again placed on the table, in the same position as before, and Sims's speculum introduced. The sphincter ani was completely healed, the silver sutures were all firmly in place, and all looked well. The rectum contained no fæces, and, on removing the nine sutures, the closure of the opening was found to be perfect.

Two days after, the eleventh from the operation, half an ounce of Epsom salts and half a drachm of calcined magnesia were given in the morning before breakfast; when it began to move in the bowels, an enema of warm water was given, and he soon had several pretty free evacuations without pain or trouble. The functions of the rectum and bladder both seemed perfect, and the cure complete.

June 12th.—He has been walking out moderately for the last three days without complaint of any kind, and leaves for the country to-morrow in fine spirits, on the fifteenth day after the operation.

P. S.—I omitted to mention one little expedient of Dr. Emmet in the operation, which is too important to be overlooked. After the speculum was introduced, he passed up the rectum a piece of sponge about the size of an egg, with a string attached to facilitate its removal. The object of this was to close the rectum above and prevent the passage of fecal matter, which might interfere with the operation.

II.—*Obstructed Labor from Large Fibrous Tumors; Curious Effect of the Uterine Contractions in causing the Fœtus to ascend; Delivery by the Forceps; Recovery of both Mother and Child.* By A. F. Woodward, M. D., Brandon, Vt.

Mrs. M., aged thirty years, American, resident at Kensico, N. Y.; married in 1867; always in the enjoyment of tolerable health, notwithstanding for many years a morbid growth, or fibroid development, has been easily discernible within the walls of the abdomen. Being anxious about her first pregnancy, she came to Brandon, that she might be in the society of her sisters, and under my care.

April 2, 1870, 5 *o'clock* A. M.—I was requested to visit her, as her confinement was expected. I found her as cheerful and comfortable as the majority of women are in the first stage of labor; skin sallow; and the face, especially about the eyelids, slightly swollen. The pains, which occurred at intervals of from five to eight minutes, were not very strong, and yet there was a peculiar cutting and intense distressing pain, midway between the umbilicus and the pubes. The os, which looked toward the sacrum, first admitted the end of my index-finger, with which I drew the cervix forward toward the pubes. From the anterior wall of the uterus two fibroid tumors projected; the lower and smaller one, about the size of a billiard-ball, held to the womb by a sessile attachment, just above and to the right of the pubes. The larger one, the size of a large tea-plate, was attached over agre at extent of the anterior wall, between a point a little above the umbilicus, and extending within two inches of the pubes, not readily detected as a morbid growth upon a gravid womb by any ordinary examination of the abdomen, usually instituted at the time of labor; the mass being so broad and flattened it could have been easily mistaken for the walls of the womb, especially if the density escaped attention. As the pains were lacking only in strength, as far as I could judge, and the patient in good condition, I left the house, to return at 9 o'clock A. M. The os had gained a size equal to a silver dollar, the pains were stronger and more frequent, and membranes intact. 11 o'clock A. M.—Pains have increased in strength, but not in frequency; dilatation so nearly completed, I found no trouble in pushing the os over the head, which lay at the inferior strait, showing no signs of engaging. 12 o'clock, M.—Pains no stronger, but more frequent, and four teaspoonfuls of tincture of ergot have been given in the last hour. The patient cannot be induced to bear down, in consequence of tenderness, which has made its appearance in the region of the cutting pain before alluded to. The head rides the superior strait, changing its position from time to time. 2 o'clock P. M.—Strength of patient and pains much the same; the head still refuses to descend; indeed, I am satisfied that the head, instead of advancing, recedes with each contraction. Feeling confident that the womb, unaided, could not be made

to empty itself, and that further delay would be attended only by evils usually resulting from unnecessary delay, I applied Hodges's long forceps laterally to the pelvis of the mother and to the sides of the fœtal head, the occiput being directed to the sacrum. Ether was administered by my friend Dr. C. W. Peek. Traction was now used in the usual way for a half hour, without in the slightest degree easing the head to descend, even when the instruments were rotated so as to bring the long diameter of the fœtal head into apposition with the oblique diameter of the superior strait; the forceps were now withdrawn, the hand wholly introduced, and carried up through the superior strait, to discover, if possible, the cause of failure. Nothing whatever was found to account for it. After this exploration was made and no cause discovered, upon reflection it for the first time occurred to me that, possibly, the uterine contractions were antagonistic, inasmuch as they unmistakably caused the child to recede instead of advancing, and were opposing a force just strong enough to baffle me. Acting upon this view of the case, the forceps having been again adjusted, traction was kept up, without once relaxing the effort, for fifteen minutes, when the head descended well into the excavation. Withdrawing the forceps to ascertain, by another readjustment, that they were properly applied, we were much astonished to find, upon the first uterine contraction, that the head was ascending out of the pelvis to a position again at the superior strait. The forceps were again applied, this time as before, laterally to the pelvis, but to the forehead and occiput of the child, the head now lying transversely. This time the head was brought down upon the perinæum so far as to keep its place till the forceps could be removed and reapplied laterally to the fœtal head, when extraction was very soon effected. The shoulders causing considerably delay, it was after a painful struggle that the child was resuscitated. There was a broad welt over one frontal protuberance, the only mark which the fœtus sustained from the forceps. That I might the more fully confirm my opinion of the tumors, I passed my hand into the womb for the placenta, which I pushed out, and then, with one hand on the abdomen and the other within the womb, arrived at the diagnosis as stated above.

Two teaspoonfuls of tincture of ergot were given to insure good contraction. Two hours later I was sent for, because the patient had fainted. I found the womb filled with coagula, which I at once removed, and then introduced a little ice, and upon the abdomen applied alternately ice-water and hot water. Two more teaspoonfuls of tincture of ergot were administered, and the womb firmly contracted, and was good enough ever after to remain so. The child weighed ten pounds. The mother recovered rapidly.

I am of opinion that, owing to the peculiar attachment of the tumors, their size, or the place of attachment, or all of these things combined, the womb, in contracting, so grasped the child, in a sort of hour-glass constriction, as it were, as to raise the child. And further, that this state of things would have continued until the woman became exhausted, without in the least advancing the head; and that, had I persisted in applying force with the forceps only at the time of uterine contractions, I might have continued doing so, if the cervix had not mercifully separated, until the second dentition, without accomplishing my purpose.

III.—*Cases illustrating the Use of Morphia hypodermically.* By L. F. Babcock, M. D., Omaha, Nebraska.

Case I.—*February* 14, 1869. Was called to Mr. H. (colored); found him suffering with facial neuralgia, involving left side of head and face. I used subcutaneous injection, solution sulph. morphiæ ¼ gr. in arm, and in fifteen minutes pain was relieved.

15*th.*—8 A. M. Called at my office, reported no pain since previous morning until 7 A. M. Repeated the injection, ¼ gr., and the pain ceased in a few moments.

16*th.*—9 A. M. Reports no pain since yesterday until about 8 o'clock this morning. Repeated the injection, ¼ gr.

July 30*th.*—Had had no further attack up to this date.

Case II.—*June* 2*d*, 6 P. M. Was called to Mr. L., aged sixty-five; found him suffering with acute articular rheumatism in right knee. Pulse 120, considerable fever, and much prostrated from loss of sleep. Had been under treatment by Dr. A. the past eight days, but without relief, for, as he expressed it, "I have been having excruciating pain ever since I was

taken." I used solut. morphiæ acetatis ½ gr. subcutaneous injection below the knee, and left him for the night.

3d.—7 A. M. Passed a very comfortable night, but pain now increasing; pulse 90. Repeated injection, ½ gr.

6 P. M.—Had considerable pain during the day. Repeated the injection, ½ gr.

4th.—7 A. M. Slept the most of the night; pains coming on again, repeated the injection, ½ gr., and gave hydrarg. sub. mur. gr. viij, pulv. rhei gr. v.

6 P. M.—Has been easy through the day; one evacuation of the bowels.

5th.—7 A. M. Has slept well; pain now increasing, used injection morph. acetatis ¼ gr.

6 P. M.—Considerable pain. Repeated injection, ¼ gr.

6th.—7 A. M. Has slept well, pain and swelling less. Repeated injection, ¼ gr.

6 P. M.—No pain through the day. Repeated injection, ¼ gr.

7th.—A. M. Improving. Used injection, ½ gr.

6 P. M.—Repeated injection, ½ gr.

8th.—7 A. M. Very comfortable. No injection.

6 P. M. Used injection, ½ gr.

9th.—7 A. M. Improving fast; no pain. Ordered stimulating liniment, and left him convalescent.

CASE III.—*July 16th*, 7 P. M. Was called to Mrs. K.; found her suffering hard-labor pains, first pregnancy, five and a half months advanced, labor induced by overwork. Used subcutaneous injection solut. morph. sulph. ¼ gr. in left leg; slight pains occurred ten minutes after using injection.

17th.—9 A. M. Rested well during the night; had slight pains in back.

6 P. M.—Pains increasing. Repeated injection, ¼ gr.

18th.—9 A. M. Pains entirely subsided.

Patient remained in good health, and was confined at full term.

IV.—*A Case of Twin Conception. One Ovum blighted at Three Months, and both carried to Full Term.* By GEORGE G. HOPKINS, M. D., Brooklyn, N. Y.

ON the 15th December, 1867, I was called to see a Mrs. M., about thirty-four years of age, who was then in the latter part

of the ninth month of pregnancy. She was complaining of severe pain in her side, and other symptoms of pleurisy. Physical examination revealed a large amount of effusion in the right pleural cavity. The fluid was readily removed by the usual remedies. But she imagined there would be some unnatural kind of labor. On the 24th I was again called, and, though it was not more than twenty minutes from the time her husband left his house until my arrival, I found the child born, and the placenta partly detached—the patient having been delivered on the floor. As the woman did not appear to be losing much blood, and the child was in a critical position, I turned my attention to the child, which, after much difficulty, was made to breathe. Then, on placing my hand on the mother's abdomen, I found the uterus very much distended. A vaginal examination revealed the placenta detached, which was readily removed. I then introduced my hand into the uterus, and was able to turn my hand about in the cavity, with the fingers fully extended, without inducing any contraction. In so doing, my hand came in contact with an apparently solid, unattached mass about the size of a hen's-egg. This mass I removed, supposing it to be a large clot, but, its appearance being peculiar and more consistent, I reserved it for a thorough examination. The irritation of my hand producing no contraction, I resorted to the cold-water douche, but without effect. The case having now become desperate, I called for some vinegar, and, having saturated a piece of cloth with it, introduced the cloth into the uterus, and squeezed the contents out. The uterus slowly contracted, and expelled my hand, and the hæmorrhage ceased immediately. The patient recovered without any unpleasant symptoms.

The mass found in the uterus was of a yellowish-white color. On section, it was found to contain a turbid fluid, and presented the appearance of a degenerated ovum of about three months, with the membranes thickened. The microscope revealed distinctly the villi of the chorion.

The history of the case showed that this was her fourth pregnancy. At her second confinement she was delivered of twins. When she was about three months advanced in this

pregnancy she fell in the street, striking her left side against a stone; slight hæmorrhage followed, with pain in the side for weeks. Since then she had gone on as usual.

This case might be thought by some to be one of superfœtation, but the whole history disproves any such supposition. And, if many of the so-called cases of superfœtation were more fully studied, I doubt not but that they would be found to be cases of twin conception, in which the development of one ovum has been arrested, while the other has gone on naturally to full term.

V.—*Fracture of the Anterior-superior Spinous Process of the Ilium from Muscular Action.* Reported by S. Joy, M. D., and J. Wallace McWhinnie, M. D., Tillsonburg, Ontario, Canada.

In looking up the literature of fractures of the anterior-superior spinous process of the ilium, we read of their occurrence from direct violence, but not one case is recorded as having taken place from muscular action. Having had just such a case to treat, we have thought it of sufficient interest to report. The patient, Augustus S., aged seventeen, a medical student, was engaged in a foot-race, where a certain distance had to be run, then to turn and run back. In the exertion of turning, he felt something snap in his right hip, walked a few steps, and fell. On examination, distinct motion and crepitus could be felt, by pressure over the process, also by placing the thumb over the origin of the sartorius and rotating the thigh. The fracture extended into the notch below, but there was no great tendency to displacement, save when the leg was abducted, thus placing the sartorius upon the stretch, the process, doubtless, being partially kept in place by the fibres of the tensor vaginæ femoris, arising from this process on the one hand, and Poupart's ligament on the other, when tension was taken off the sartorius. The patient was placed in bed with the thighs flexed and the shoulders raised, a bandage being applied to aid in steadying the fracture. It may be as well to state that this position and adduction of the right leg were maintained by bands attached to the posts of the bed. In two weeks the patient made a good recovery without displacement.

Although the patient was a very muscular young man, yet it is difficult to believe that the sartorius is sufficiently powerful to fracture its point of origin; but the case was examined most carefully both by Dr. McWhinnie and myself, and there was no room for doubt about the diagnosis.

VI.—*Hæmoptysis; Death; Autopsy.* By GEORGE P. SALMON, M. D., of New Lebanon, New York.[1]

June 19th.—I was called to see H. E. D., a man of French birth, by profession a chemist. I found him slightly indisposed, and prescribed for him a mild cathartic, and the bromide of potassium, to produce sleep.

On the following morning I was summoned to his house in great haste. I found him pulseless, and in a complete collapse from a profuse hæmorrhage which had occurred very suddenly. He had lost from six to eight ounces of blood by his mouth. By the free administration of brandy and other diffusible stimulants, combined with friction, and the application of dry warmth externally, after the lapse of three hours, reaction was established.

At 3 o'clock P. M. he had an evacuation from his bowels of more than a quart of dark, dead blood. At 10 o'clock P. M. the hæmorrhage returned, differing but little in character, quantity, and effect, from the preceding one. In a very few moments he expired.

Autopsy—sixteen hours after death. Body was well proportioned. There was a large development of adipose tissue. The stomach contained about two quarts of dark, coagulated blood, which he had swallowed. There was no abrasion of its coats, or rupture of its vessels.

Its mucous membrane appeared somewhat softened. The other abdominal organs were healthy. Heart normal. The pericardium contained one ounce and a half of liquid pus. Its lining membrane was softened. There were no adhesions of the pleuræ. Right lung and superior lobe of left were natural in color and consistence. Neither lung presented any indication of tubercle or pneumonia. The inferior lobe of

[1] Read before the Columbia County Medical Society, at its semi-annual meeting in June, 1869.

the left lung, near its root, for the space of several square inches around the pulmonary vessels, showed an infiltration of its tissue with fresh blood, indicating that peculiar pathological condition described by some authors as "apoplexy of the lungs," which does and must occur before death. This was the seat of the fatal hæmorrhage.

Whether the hæmorrhage occurred from one or many of the pulmonary vessels, it was impossible to determine; but, that it was produced by the giving way of the vascular coats, softened by degeneration of their tissue, there is not the least doubt. The cause of the pus found in the pericardium was the same degeneration of the tissue of its lining membrane. Taking the quantity of blood ejected from the mouth, with that passed from the bowels and that found in the stomach, he must have lost more than one gallon.

Remarks.—It is a fact well known to the profession, that hæmoptysis, independent of organic disease of the lungs, is very rare; indicating, as it usually does, the deposition of tubercle. We hardly expect to find any other local cause for this hæmorrhage. Authors tell us it may occur secondarily from some organic lesion of the heart; yet this is the exception, and not the rule, in cardiac disease. In this case the second hæmorrhage, recurring within twelve hours from the first one, proved fatal in an apparently healthy subject.

He was of full habit, a high liver, and possessed strong intellectual powers. For the past three years he had drunk freely of "absinthe," a very popular drink on the Continent, and also used to quite an extent in this country. *Artemisia absinthium* has long been used by the profession as a remedial agent in the treatment of various diseases. The alcoholic tincture is used in France and Switzerland, and also in some parts of Germany, as a stomachic stimulant, under the name of *absinthe sirop*. Within a few years, this drink has become very fashionable among the higher circles of the American people, and it may be found in many of the first-class hotels. Those who use it are mostly high livers, and, feeling the need of something to stimulate the stomach, they resort before meals to absinthe, either pure or diluted with water. I think it is regarded by the profession as a very po-

tent stimulant, and very likely to produce irritation, inflammation, and chronic softening of the mucous membrane of the stomach. Most certainly will it do so if taken when the organ is empty.

It is said that foreigners who habitually use the tincture undiluted often die suddenly, with indications of softening of the mucous tissues. Might not this drink, which the patient had taken for three years, almost as a beverage, have produced the softening of the mucous and vascular membranes, and caused the hæmorrhage which resulted in his sudden death?

Bibliographical and Literary Notes.

ART. I.—*Regimen Sanitatis Salernitanum. Code of Health of the School of Salernum, translated into English Verse, with an Introduction, Notes, and Appendix.* By JOHN ORDRONAUX, LL. B., M. D., Prof. of Medical Jurisprudence in the Law School of Columbia College, N. Y., etc. Philadelphia: J. B. Lippincott & Co., 1870. Royal 8vo, large paper copy, pp. 166.

WE regret exceedingly the compulsory delay in our notice of this book; and this all the more, because, in the reaction which is now taking place against the so-called "humanities" in education, the superficial observer may take side with the popular opinion, and look upon the book as a useless remnant of an almost valueless literature. The book, it is true, is a remnant of a past age, but it is dear to the heart of every true scholar, and by such is treasured not so much for its present intrinsic merits, as for the fact that it stands out an epitome almost of the medical knowledge of the day, and a connecting link, as it were, between ancient and modern medicine. As evidence of the high esteem in which the book has been held, we have only to state that more than one hundred and sixty separate editions[1] of the Code are known to have been published. "It

[1] Our first acquaintance with the book was so curious as to be worth mentioning. In reading Menière's "Études Médicales sur les Poëtes Latins," we came across the expression—*Semel in mense ebriari*—said (though erroneously) to be one of the maxims of the school of Salerno, and being

was for ages the medical bible of all Western Europe, and held undisputed sway over the teachings of its schools, next to the writings of Hippocrates and Galen. For centuries, the educated world, laymen as well as physicians, pondered over its broad truths, its quaint suggestions, its astute interpretations of physical phenomena, and its aphoristic sayings, as the hoarded wisdom of all preceding time. . . . Not to have been familiar with it from beginning to the end, not to have been able to quote it orally as the occasion might require, would, during the middle ages, have cast serious suspicion upon the professional culture of any physician."

The topics discussed are the important ones of air, food, exercise, sleep, excretions, and the passions, the six *non-naturals*, as they were called by the Galenic school; and it is not a little singular to observe how far the precepts on these subjects coincide with the more advanced knowledge of the present age. Many of the rules laid down in the code with all the authority pertaining to the great school from which they emanated—for Salernum, it will be remembered, was the acknowledged head and centre of medical learning, and the arbiter in medical ethics—could not be improved upon even now. And, although there is much that is crude, quaint, and erroneous, it is a matter of surprise that there is so much of sound sense and truth in the tenets of this school. Were this not so, the book could

at that time engaged in a study of the literature of delirium tremens, the advice to get gloriously drunk once a month sounded so strange and unorthodox in our ears that we concluded to hunt up the original, and see what it meant. To our dismay, there was not a copy to be found in any public library of this city at that time; and, after waiting more than a twelvemonth, we received from Europe a copy of the black-letter edition of 1619, as the only available copy to be had. Still later, we procured a copy of Sir Alexander Croke's (Oxford, 1830) edition—the best in some respects ever published. This edition has been long out of print, and there are probably not a dozen copies in this country. Shortly after this, (in 1861), an edition was published in Paris. The present edition, Ordronaux's, is the first published in the United States. At the time of our original search for the book, there were copies, as we subsequently learned, in several private libraries in this city; and we may mention, with propriety now, those of the late Drs. John Watson and John W. Francis. The completest collection of the book in this country is in the Library of the College of Physicians and Surgeons of Philadelphia.

hardly have retained the hold which we have seen it had for so long a time upon the medical profession.

The poem itself, which consisted originally of only three hundred and sixty-three lines, is written in Leonine verse,[1] which affords such numerous varieties, and which was a favorite style on account of its more sonorous ring than that of simple hexameter or pentameter. The poem has grown, however, by additions and commentaries, so that it now makes quite a respectable volume; but Dr. Ordronaux, with his usual close scholarship, has been careful to preserve the original text intact, and has indicated the sources from which the additions have been made. In his translation he has endeavored, as far as the inflexibility of the English language would permit, to make his renderings accurate, and, taken altogether, his success has been wonderful. Of course, it is easy to criticise such efforts, for there never was and never will be a translation of any magnitude which could be deemed faultless; but some allowance should be made in such matters for scholarly acquirements and refined instincts, and these qualities are splendidly displayed in this translation. To those flippant censors, who condemn a translation on the strength of the rendering of a couple of lines, we would hint that a further examination might discover some merit in the work; or, if insensible to this advice, we would recall to them Horace's famous lines, "Si quid novisti melius istis, candidus imperti; si non, his utere mecum." "Commend it or come and mend it. If thou canst not the latter, nor willest not the former, then keep silence."

As a sample both of the original poem, and as a standard of comparison for the translation, we append the opening lines, with two English versions from the editions now before us, and mentioned in a previous note. It is not, however, exclusively in the translation that the value of this edition lies. Dr. Ordronaux has enriched the volume with a lengthy introductory, giving an historical sketch of Salernum and its famous school; and with his well-known industry he has collated materials the very existence of which was only known to

[1] Our readers will recall some notable and charming instances of the use of this verse in "*Father Prout's Reliques*," "*Noctes Ambrosianæ*," etc.

the curious in such matters. Interested ourselves for many years in this subject, we can say that nowhere, in any thing like equal compass, is there to be found so much interesting material as Dr. Ordronaux has here gathered together:

Anglorum Regi scribit Schola tota Salerni.
Si vis incolumem, si vis te reddere sanum,
Curas tolle gravas, irasci crede profanum.
Parce mero—cœnato purùm, non sit tibi vanum
Surgere post epulas; somne fuge meridianum;
Ne mictum retine, nec comprime fortiter anum;
Hæc bene si serves, tu longo tempore vives.

Si tibi deficiant medici, tibi fiant,
Hæc tria—mens læta—requies—mɔderata diæta.[1]

From the London translation, published in 1607, under the title of "The Englishman's Docter, or the Schoole of Salerne; or, Physicall Obseruations for the perfect Preseruing of the Body of Man in continuall Health."

The *Salerne Schoole* doth by these lines impart,
All health to *Englands king*, and doth aduise
From care his head to keepe, from wrath his harte.
Drinke not much wine, sup light, and soone arise,
When meat is gone, long sitting breedeth smart;
And after noone, still waking, keepe your eies;
When mou'd you find your selfe to *Nature's need*,
Forbeare them not, for that much danger breeds.

Vse three physitians still, first doctor *Quiet*,
Next doctor *Mery-man*, and doctor *Dyet*.

From the London edition of 1617, published with original text, and the commentaries of Villa Nova, translated under the title of "*Regimen* Sanitatis Salerni: or, the Schoole of Salernes Regiment of Health."

All *Salerne* Schoole thus write to *Englands* king
And for man's health these fit advises bring.
Shun busie cares, rash angers, which displease;

[1] Sir Alexander Croke includes these last two lines in the text, while Dr. Ordronaux refers them to the Commentary of Arnaldus de Villa Nova.

Light supping, little drinke, doe cause great ease.
Rise after meate, sleepe not at after-noone,
Vrine, and Natures need, expell them soone.
Long shalt thou live, if all these well be done.

When Phisicke needs, let these thy Doctors bee,
Good dyet, quiet thoughts, heart mirthful, free.

From the present (Dr. Ordronaux's) edition:

Salerno's school, in conclave high, unites
To counsel England's king and thus indites:
If thou to health and vigor wouldst attain,
Shun weighty cares—all anger deem profane,
From heavy suppers and much wine abstain.
Nor trivial count it, after pompous fare,
To rise from table and to take the air.
Shun idle, noonday slumber, nor delay
The urgent calls of Nature to obey.
These rules if thou wilt follow to the end,
Thy life to greater length thou mayst extend.

Shouldst doctors need, be these in doctors' stead—
Rest, cheerfulness, and table thinly spread.

We cannot close our notice of this medical classic without publicly expressing to the publishers our thanks for the liberality they have displayed in giving to this volume so sumptuous a dress. It was fitting that this choice morsel of mediæval medical literature, so dear to every true scholar, should be preserved in appropriate garb, and in this instance Mr. Lippincott has made that garb simply and severely faultless, and for this he deserves and will receive, we trust, the heartfelt congratulations—to say nothing of the more solid commercial recompense—of every classically-educated physician in the land, for every such should be proud to have this volume on his shelves.

ART. II.—*Eczema, its Nature and Treatment.* By TILBURY FOX, M. D. London: Henry Renshaw, 1870.

This little work comes to us to swell the list of dermatological monographs, and recommends itself by the clearness and simplicity (so well known in this author's style) with which the subject is treated. The book is a reprint, from the *Lancet*, of three lectures, being the Lettsomian Lectures for the session 1869–'70.

Of course, the author indulges at the start in the usual little tirade against the modern complications of nomenclature. Hebra and Wilson come in for their share of blame, while the French school is ignored. The author proclaims himself a pure Willanist, but he comes out strongly in his statements that diatheses, "gout, struma, syphilis," modify the course and appearance of eczema. Bazin has said that he was proud to call himself a Willanist!

The author, further, does not believe that eczema can be produced upon a healthy person, and discards all Hebra's croton-oil experiments. He states that eczematous subjects are always possessed of "nutritive debility." He considers exudative phenomena of the greatest importance as typical of the disease. He believes eczema to be a neurosis, "the nerve irritation being persistent and moderate. . . . An impressionable condition of the nervous system, or a lowering of nerve-tone is an essential condition in the evolution of eczema." He simplifies classification by bringing all eczemas into three classes—*E. simplex*, *E. rubrum*, *E. impetiginodes.*

The therapeutics are admirably laid out, the different indications being grouped, and each of the series disposed of in succession, the why and the wherefore of each remedy being laid down in its place. Great stress is laid upon not irritating the early stages, and upon looking out in the chronic stage, especially in old persons, that the kidneys functionate properly. Very little faith is put in arsenic. Nothing strictly new in remedies or methods of treatment appears, but the arrangement of the therapeutic indications is a most happy one. The book itself is compact and neatly gotten up, and will prove particularly valuable to the general practitioner.

ART. III.—*A Treatise on Medical Electricity, Theoretical and Practical, and its Use in the Treatment of Paralysis, Neuralgia, and other Diseases.* By JULIUS ALTHAUS, M. D., etc. Second edition, revised and partly rewritten. Philadelphia: Lindsay & Blakiston. 1870. 12mo, pp. 676.

IN a review of the first edition of the work before us, published eleven years ago, the writer said: "No work covering the whole ground of medical electricity has, prior to the publication of Dr. Althaus's volume, issued either from the American or English press. Aside, therefore, from any intrinsic merits of the book, the fact that it is the pioneer in this species of literature should insure for it the attention and respectful consideration of the medical profession. It is only by the dissemination of works such as that before us, that medical electricity can be taken entirely out of the hands of the charlatans and placed upon its proper footing as a therapeutical agent."

The second edition of Dr. Althaus's treatise is very greatly improved, and we can reaffirm all that is contained in the foregoing extract. But, since that opinion was written, many works on medical electricity have appeared both in this country and in Europe, and several, we are bound to say, are superior to the one now under notice. The author has for several years devoted himself to the study of nervous affections, and, though his investigations have not been characterized by much originality, he is, nevertheless, a painstaking and careful observer.

The thorough study of electricity in its physiological and therapeutical relations is indispensable to any physician who undertakes to treat affections of the nervous system. And yet, notwithstanding this fact, they as a class know little or nothing about this powerful and frequently efficacious agent. If they use it they do so in a hap-hazard sort of a way, and are just as likely to do harm as benefit with it. Undoubtedly, however, much good has been accomplished in this country by the publication of Althaus's, Morgan's, and Meyer's monographs, and the circulation of such works as those of Remak, Duchenne, Benedict, and others. That the present treatise is capable of

accomplishing much for the sciences of electro-physiology and therapeutics is very evident, and we therefore commend it to all who require enlightenment on the subjects, or who wish a good guide in their practice.

In the printed "Minutes" of the Commissioners of Public Charities and Correction of this city, dated June 23, 1870, there is published a very important paper; and, inasmuch as the committing of the paper to the medium in which it is printed will probably prove the surest means of consigning it to entire oblivion, we shall endeavor to do what we can to rescue it from so undeserved a fate.

It is a report by Dr. Jacobi, of this city, to the Medical Board of the Infants' Hospital, on the subject of "*The Raising and Education of Abandoned Children in Europe.*" This report being transmitted by the Medical Board to the Commissioners of Public Charities and Correction—under whose authority the Infants' Hospital is placed—they have with a wise liberality printed the same in their minutes, though we presume they are not authorized to publish it at large. But, even for putting the report in this shape so as to make it available for those especially concerned with it, the Commissioners deserve great credit, and should receive the thanks of the profession.

The paper is of such a character that it is impossible to make any analysis of it. We therefore content ourselves with stating merely its plan and giving its conclusions. The object of the paper is to draw from the experiences of Europe some inferences which may be of service to us in this country, respecting the rearing of infants; and Dr. Jacobi, in a visit to Europe last year, made it his special business to examine into the methods adopted there, and to gather statistics and results. As is well known to the profession here, the plan of collecting infants in large asylums or hospitals is universally abandoned in Europe, experience having shown that the results thereby gained were immensely more disastrous than by the method of boarding out. Now, in this paper Dr.

Jacobi details the methods, experiences, and results, arrived at in the important centres of Paris, Naples, Rome, Florence, St. Petersburg, Moscow, Vienna, Prague, Munich, Hamburg, Berlin, and London. Of course no one for a moment will suppose that the question of caring for the young infant, whether of legitimate or illegitimate extraction, in these monarchical countries, is to be an absolute guide to us. For many elements, which there fix the status of the child, and enable the ruling powers to secure ample provision by boarding out, are wanting here. But the lesson to be learned is in the result arrived at. The means for accomplishing this result will, of course, be modified with the changed conditions and surroundings of the infant in different countries.

Now, the result arrived at in Europe, where the experiments have been tried on a scale of sufficient magnitude to entitle them to reliability, argues directly against attempting to rear babies in institutions either by hand-feeding or nursing. For the purposes of education, however, the necessity for massing of children *after five years of age*—when the danger of that frightful mortality peculiar to these first years of life is passed—is equally well demonstrated.

The unsatisfactory experiences in this country of the asylum plan lead us to venture the wish that the European method, under strict and wise supervision of competent authority, may be attempted on a more liberal and extended scale than yet adopted. The results, no matter what they may be, can scarcely prove more disastrous than the present.

Paulet & Sazarin's splendid work on Topographical Anatomy, which has been three years in course of publication, is now completed. The text, containing 1,048 pages, is by Paulet, and the drawings—an atlas of 144 plates—are by Sazarin. The book is not merely a descriptive anatomy, but embraces the principal relations of topographical anatomy to pathology and to surgery.

Messrs. Wm. Wood & Co., of this city, announce as now ready a Treatise on the Theory and Practice of Obstetrics. By Prof. W. H. Byford, of Chicago. Also ready in Septem-

ber, Epilepsy, Anatomo-Pathological and Clinical Notes. By M. Gonzales Echeverria, M. D., of this city. This work contains notes based on the history of four hundred and forty-three cases.

Messrs. John E. Potter & Co. announce Diseases of the American Horse, and Cattle, and Sheep; their Treatment, with a List and full Description of the Medicines employed. By Prof. Robert McClure, M. D., V. S.

Books and Pamphlets Received.—Summer Mortality in the Cities of the United States. By Stephen Rogers, M. D. Pamphlet, reprint from the Transactions of the New York Academy of Medicine. (From the Author.)

Annual Report of the Officers of the Alabama Insane Hospital, at Tuscaloosa, for the Year 1869. Pamphlet, pp. 24.

An Address on the Natural History and Pathological Osteology of the Horse, delivered before the Annual Meeting of the Connecticut Board of Agriculture, at Middletown, January, 1870. By H. Cressy, M. D. Pamphlet, pp. 16. (From the Author.)

Circular, University of Michigan: Memorial on Female Medical Education, being a Report to the Regents of the University of Michigan. By a Committee of the Faculty.

Annual Announcement and Catalogue of St. Louis Medical College, St. Louis, Mo.

Annual Announcement and Catalogue of the National Medical College, Washington, D. C.

Second Annual Announcement and Catalogue of the Kansas City College of Physicians and Surgeons.

Annual Circular and Catalogue, School of Mines, Columbia College, New York City.

Proceedings of the American Pharmaceutical Association, at the Seventeenth Annual Meeting held in Chicago, Illinois, September, 1869. Also, the Constitution and Roll of Members. Philadelphia: Merrihew & Son. 1870, 8vo, pp. 468.

Nearly one-quarter of this pamphlet is taken up with the valuable Report on the Progress of Pharmacy for the year, by F. Hoffmann, Ph. D., of this city. This report we have already noticed and quoted from at some length. The whole volume is replete with information most important, not alone to the pharmaceutist, but to the physician.

Reports on the Progress of Medicine.

OBSTETRICS AND DISEASES OF WOMEN.

1.—*Cæsarean Operation; Proposed Modification.* [Lancet, April 16, 1870.]

Seeing how often women perish after this operation, from hæmorrhage into the peritoneal cavity, or from penetration into the latter of the lochial fluid, M. Tarnier proposes, before incising the uterine walls, to apply seven sutures on each side between the lips of the abdominal wound and the uncut uterine walls. The latter are then to be divided, and the operation to be concluded in the usual way. M. Tarnier, who brought this proposal before the Surgical Society of Paris, found much opposition; it was shown that the dangers of hæmorrhage are not so great as he supposes, and that death is mostly due to inflammation of the peritonæum unconnected with effusion of fluid.

2.—*Normal Position of the Uterus.* [Boston Medical and Surgical Journal, June 2, 1870.]

The following remarks are the conclusion of an elaborate article in the last number of *Archiv für Gynäkologie* of Berlin on the normal position of the uterus, by Carl Credé, of Leipsic.

1. Anteflexion in a varying degree is the physiological condition of the uterus in nearly half of all women.

2. The uterus has its correct physiological position, which is exactly perpendicular to the floor of the pelvis, only in a third of women.

3. Retro-displacements of the uterus, as retroflexion and retroversion, are the rarest forms of displacements, and therefore of the most pathological importance.

4. Versions and flexions of the uterus, which can be called physiological in half the cases, are very slight.

It is to be strongly hoped that more numerous and more exact observations will confirm these results of our own researches.

The modern mechanical treatment of versions and flexions of the uterus has far outstripped anatomical and physiological observations, and has, according to our deliberate and unprejudiced decision, indecently overstepped its proper limits.

As we are convinced that anteversions and flexions are normal positions of the uterus, that the pathological conditions accompanying these are essential, and that these displacements are of no importance, we hope that the at least superfluous and in many cases dangerous mechanical intra-uterine treatment with probes and pessaries will be in great part abandoned, and such a course will certainly benefit the women.

Only where the anteflexion is extreme, so that the escape of fluids from the uterus is prevented, and we have symptoms (often due also to narrowing of the cervical canal) of menstrual colic, retention of mucus and blood, sterility, etc., is there any indication for the repeated reposition of the uterus, or an operation for enlarging the narrowed cervix, measures sometimes of the greatest benefit. But, for ante-displacements, vaginal and intra-uterine pessaries are mostly quite superfluous.

On the contrary, in cases of retroversion, and especially retroflexion, there is full justification for mechanical treatment.

Here, however, first remove all attendant complications, for in many

cases after the cure of all such complications, in spite of retro-displacement persisting in a greater or less degree, the former bad symptoms of any importance disappear.

In such cases all preliminary mechanical treatment can at least be dispensed with.

3.—*Removal of the Entire Uterus.* [Medical Times and Gazette, December 18, 1869.]

At the meeting of the Académie de Médecine, December 7th, M. Péan presented a patient who excited great interest on account of the nature of the operation she had undergone. Indeed, M. Péan, one of Nélaton's most distinguished pupils, has already established a high reputation as a famous operator. First coming forward to establish, what had long been denied, the possibility of performing ovariotomy with success in Paris, he next introduced a patient to the Academy whose spleen he had removed, and now exhibits another, not only as an example of success in a complicated case of ovariotomy, but of the far more remarkable fact of having undergone the removal of the entire uterus and its appendages. The case was, indeed, a complicated one, for there was a very large cyst of the left ovary, the uterus was greatly hypertrophied, mounting up above the umbilicus and containing a cyst, while a fibrous tumor occupied the right ovary, and a cyst the right tube. The existence of a movable fibrous tumor, independent of the cyst and of hypertrophy of the uterus, was recognized prior to the operation; but in what proportions these lesions existed could not be ascertained, by reason of the adhesions which united the various tumors to each other. Having exposed the ovarian cyst by a long incision, M. Péan commenced, as is his custom, its removal piecemeal (*morcelant*), employing his long cauterizing irons heated to whiteness. Having in this way removed a notable portion of the cyst, he came upon the uterus, enormous in size, soft, fluctuating, and adherent on every side. The adhesions were very vascular, and any rupture of these gave rise to hæmorrhage, which had to be arrested by heated irons. The only thing that seemed feasible was the removal of the diseased uterus at the same time with the other tumors. M. Péan would not cut through the cervix, as this was excessively hypertrophied, equalling a fist in size, but carried his incision through the vagina. He next passed a double thread by the abdominal wound through the vagina from before backward, by means of which he practised two ligatures. That on the left side comprised the great ovarian cyst, and the other embraced all the portion of the vagina corresponding to the uterus, together with the right ovary and tube. An incision was made just above the ligatures, and the parts comprised were removed by a considerable amount of traction, the double pedicle thus formed being brought in contact with the abdominal parietes. This portion of the wound was not united, three caoutchouc tubes being inserted. The adhesions were too intimate to allow of the separation of the fundus of the cyst from the wall of the lesser pelvis. It was left *in situ*, but was spontaneously discharged on the thirtieth day, by which time solid adhesions had closed up the vaginal incision, without leaving any perforation where the ligatures had been. The recovery was complete, and when the patient was presented the operation had been performed three months.

4.—*Removal of a Horseshoe Pessary from the Female Bladder.* Reported by B. T. Buckley, M. D. [Chicago Medical Examiner, December, 1869.]

On the night of the 28th of February last, was called to visit Mrs. B., a young married lady, residing about two miles from the city. Found her

suffering severely from pain in the region of the bladder. She informed me that her father's family physician had visited her on that day, and, after an examination, told her that she was laboring under anteversion of the uterus, and that it would be necessary to introduce some instrument to keep the organ *in situ*. Her physician, being in very poor health, was taken worse at this visit (and it was the last one he ever made), went home, took to his bed, lingered about five weeks, and died. Apprehending that there was some retention of urine, I introduced the catheter, but found the bladder empty, or nearly so. Examined the vagina, but found no pessary. There was slight prolapsus, with anteflexion. She had become pregnant just previous to this occurrence; and I supposed that these paroxysms of pain were the result of increased sensibility of the uterus and urinary organs, consequent upon partial displacement, and such as we sometimes meet with in cases of recently-married women, without any displacement of the uterus whatever. I visited her two or three times a week, for a short time, without any benefit. Drs. DePuy and Mease were called in consultation. After receiving a history of the case, and making an examination, concurred in my opinion or diagnosis of the case. I carried out the suggestions as to treatment, made by the consulting physicians, a short time, without any improvement. The paroxysms became more frequent and severe. By this time, the patient was suffering from constipation, dysuria, and more or less tenesmus. The uterus had passed down considerably below its normal position. I several times attempted to put her under the influence of chloroform, for the purpose of making a more thorough examination, but the effect upon the patient was so distressing, that I was compelled by patient and friends to desist. She gradually grew worse; the symptoms became somewhat alarming, from almost constant pain. Dr. J. B. Lyman, of Rockford, was called as additional counsel. She now consented to the use of anæsthetics, and accordingly was put under the influence of chloroform. Dr. Lyman introduced a sound into the bladder, and, by digital examination, ascertained that there was some foreign substance in that viscus; and we came to the conclusion that it was a pessary. Upon further consultation, the patient was allowed to rest for the night, and Dr. Wm. H. Byford, of Chicago, was sent for, who, without much difficulty, effected its extraction.

There were present Drs. Lyman, DePuy, Mease, and myself. The patient was placed under the influence of chloroform, and another thorough examination made. The removal was accomplished by dilating the urethra, and extracting it with forceps. The little finger of the left hand was first passed into the bladder, and search made for the instrument, but it was beyond reach of this member. The forefinger of the left hand was next introduced, and the pessary could be felt so remote as to make it impossible to seize hold of it or exactly determine its position. The bladder contained several ounces of urine, and the instrument was easily displaced by the motion of the finger. After the urine was drawn off by a catheter, the index-finger was again inserted into the bladder, when, in consequence of the contraction of that organ, the pessary was brought down close to the pubis, at the opening into the urethra, and was easily controlled. By the forefinger, the pessary was drawn close up to the urethra, with the open end at the right hand of the operator, and the end of one of the branches placed as nearly as possible to the entrance of that canal. Ricord's phymosis forceps was next passed into the bladder, the end of the bar seized, and extraction commenced; but very soon the hold upon it gave way, and the instrument returned to its old position. It was again properly placed by the introducer's index-finger, and a second time taken hold of by the forceps. The bar was easily drawn out this time to the external orifice of the urethra, and, by turning strongly down toward the vaginal opening,

one-third of the instrument showed itself, and the balance quickly followed.

The time occupied by the efforts at extraction was about ten minutes. All present were surprised at the ease with which the fingers were passed through the urethra and the dexterity of the manœuvre that brought that disagreeable occupant of the bladder to light. As before remarked, the patient was a young married woman, and the genital organs were of virgin, etc., while the pessary was tolerably large. It measured one and three-quarter inches across from one side to the other, and was two inches and a half long. The diameter of the rod was three-eighths of an inch. The extracted instrument was encrusted with the urinary deposits pretty much all over. It had been in the bladder about three months. The patient promptly recovered, with no treatment, save the use of some light anodynes, and is progressing favorably in her pregnancy.

There can be no doubt, now, that this pessary was introduced into the bladder by mistake, instead of the vagina, which, I think, might very easily be effected. The physician, who was a man of experience, and had used the pessary frequently before, was sick, and laboring under the effects of opium, to such an extent as to be easily confused; and, in fact, though the pessary had disappeared, so that he could not find it, was entirely unable to account for its loss. Dr. H. R. Storer, of Boston, records the only other case, so far as I am informed, of this singular accident, and gives a very graphic description of the difficulties he met with when extracting it, in the *Medical Record* of July 15, 1868. Dr. H. W. Jones, of Chicago, a short time since, saw a case in which the pessary was accidentally introduced into the rectum, instead of the vagina.

5.—*Extra-uterine Pregnancy.—Cæsarean Operation made with Caustics.* [Lyon Médicale, February 13, 1870.]

M. Depaul communicated to the *Société de Chirurgie* (December 8, 1869) a case of this kind, and has published the same at length in the journal above mentioned:

A woman was brought to the hospital as laboring under an abnormal conception. The time when delivery should have taken place was long since passed, and it was easy to determine that the case was one of extra-uterine pregnancy.

This woman had already had several attacks of peritoneal inflammation, and the doctor witnessed another. When this had subsided, says Dr. Depaul, I thought it necessary to intervene for fear of new accidents which might prove fatal. I therefore placed upon the median line a train of Vienna caustic, in order to destroy the skin in all its thickness. After twenty-four hours I dissected off the scab, and applied a new coat of caustic, which this time took effect upon the muscles and aponeurosis. Two or three days after, the eschar was again dissected off. The next day I saw, oozing out through a small aperture, the size of a pin's-head, a liquid, and in the liquid a soapy matter, which I recognized as the sebaceous matter covering the fœtus. I enlarged the opening, and immediately ascertained the presence of a child. I made another incision from above downward, taking great care not to pass the limits of the adhesions. The opening was still too small, for the child was the size of a fœtus at term. Then, with strong scissors, I made a section of the child in several fragments, which were easy to extract. The sac was destroyed by suppuration; it retracted by degrees, and there remained only a minute fistula leading to a cavity the size of a small apple. The cure, although certain, was not yet complete, when, on the eighteenth or nineteenth day after the operation, this woman died in a few hours of cholera, which had made its appearance in the hospital.

6.—*Influence of Electricity upon Uterine Contractions.* [Chicago Medical Journal, April, 1870.]

M. De St. Germain presents to the same society the results of twelve experiments upon the influence of electricity upon parturition, as follows:

1. In no case could uterine contractions be induced, unless they had already occurred spontaneously.

2. In each case in which the contractions, having already commenced, recurred at intervals of fifteen or twenty minutes, the application of the conductors to the lateral regions of the abdominal surface was followed in about ten minutes by a considerable acceleration in the uterine contractions.

3. Each contraction induced by electricity was of much longer duration and much more severe than the others.

4. The dilatation of the neck appeared to proceed constantly with rapidity under the influence of galvanic excitation.

5. In all the cases observed by us up to this time, the expulsion of the placenta has followed immediately that of the infant.

It was either projected spontaneously outside of the vulva immediately after the expulsion of the fœtus, or was found in the vagina, and withdrawn without the least traction.

6. Twice only was a slight bluish discoloration observed upon the infant, and in one of these the cyanosis could be attributed to the closely-encircling cord.—*Gazette des Hôpitaux.*

7.—*The Indication of Sex afforded by Beatings of the Fœtal Heart.* By James Cumming, M. B. [Edinburgh Medical Journal, June, 1870.]

Table I., Males.

The first case was one of twins, the heart of the one fœtus was heard in the right groin beating 110 in the minute, and on delivery it proved to be a male; the second heart was heard in the left hypochondrium beating 154, and on delivery it was found to be a female.

2.	Fœtal pulsation,	138	per minute.	15.	Fœtal pulsation,	116	per minute.
3.	" "	138	"	16.	" "	120	"
4.	" "	135	"	17.	" "	120	"
5.	" "	130	"	18.	" "	138	"
6.	" "	130	"	19.	" "	125	"
7.	" "	132	"	20.	" "	140	"
8.	" "	132	"	21.	" "	140	"
9.	" "	140	"	22.	" "	137	"
10.	" "	132	"	23.	" "	140	"
11.	" "	140	"	24.	" "	141	"
12.	" "	136	"	25.	" "	122	"
13.	" "	133	"	26.	" "	120	"
14.	" "	134	"				

Table II., Females.

1.	Fœtal pulsation,	150	per minute.	9.	Fœtal pulsation,	140	per minute.
2.	" "	142	"	10.	" "	152	"
3.	" "	140	"	11.	" "	140	"
4.	" "	150	"	12.	" "	143	"
5.	" "	144	"	13.	" "	144	"
6.	" "	140	"	14.	" "	141	"
7.	" "	140	"	15.	" "	160	"
8.	" "	144	"				

From these two tables it seems that when the pulsation varies from 120 to 140, the probability is that the fœtus will be a male, and when the pulsation varies from 140 to 160, the fœtus will likely be found to be a female. But there are some exceptions to these facts. In three cases in which the pulsation was from 150 to 160, the fœtus proved to be a male; and in fifteen cases in which the pulsation varied from 116 to 138, the fœtuses were found to be females. It therefore appears that there is less frequent variation in the pulsation in the male fœtus than in the female; or rather that there are fewer cases in which the heart's action exeeeds 140 in the male, than that it falls below that number in the female.

These tables are exceedingly interesting, however, *so far as they go;* and the subject is well worthy further attention.

8.—*Gangrene of the Vagina following Application of the Perchloride of Iron.* [Boston Medical and Surgical Journal, December 9, 1869.]

The *Bulletin Général de Thérapeutique* quotes the case from the *Gazette des Hôpitaux.* A lady, forty years of age, of excellent constitution, and usually enjoying good health, having gone through a natural and easy labor eight months previous, had been suffering from slight metrorrhagia of three weeks' duration, when she consulted Dr. Tessier at the eommencement of March, 1867. The 15th of March there suddenly occurred, without discoverable cause, a discharge of sanguinolent serum, with clots intermingled, from a litre and a half to two litres in quantity. This was attended with paleness, cold sweats, and chilling of the extremities. The pulse was imperceptible, the action of the heart feeble and slow, the voice extinct. Dr. Tessier having been ealled in haste, covered the abdomen with eold eompresses, and introduced into the vagina, without the speculum, a tampon consisting of dossils of "eharpie" dipped in pure perchloride of iron; and, in addition other masses of the same kind of tampon, soaked in an aqueous solution of the perchloride in the proportion of one part to four. At the same time he gave, at intervals of ten minutes, powders of ergot of rye, eonsisting of twenty-five centigrammes each; cold beef-tea, ice, and subsequently tea eontaining rum. In two hours the flux was arrested. The next day the more superfieial layers of charpie were removed; and the remaining ones—those soaked with pure perchloride of iron—were taken away at the end of forty-eight hours, without the patient eomplaining of the least pain. Five days after, there was a feeling of burning in the vagina. Emollient injections brought away mucous *débris.* The seventeenth day after the plugging, a piece of mucous membrane six centimetres long and two broad was discharged. The patient had a slow eonvalesceence.

About six weeks afterward, the menses being pale and scanty, M. Tessier made a digital examination, and detected, at a distance of four eentimetres from the vulva, a very fine fibrous ring, scareely admitting the passage of the finger. Two eentimetres farther there was a second ring, upon which the cervix uteri rested.

In communicating the case to the *Société de Médecine de Paris*, Dr. Tessier added that he knew of two other instances of introduction of perehloride of iron into the vagina, with the same accident resulting. And Dr. Léon Gros, who was appointed to make a report upon the subjeet, concluded, from his survey of the facts, that in cases of uterine hæmorrhage, where it may be thought necessary to apply pure perchloride of iron within the vagina, certain precautions are necessary. These precautions eonsist in beginning by filling the *culs-de-sac*, by means of the speculum, with "charpie," either dry, or soaked in a solution of the perchloride; in limit-

ing the application of the undiluted styptic of iron to the neck of the womb; and in surrounding the latter organ with a sufficient quantity of charpie to prevent the contact of the agent with, and its caustic action upon the vaginal mucous membrane. This is the more important if the vagina be at any point bare of epithelium.

9.—*Pregnancy with Hymen unbroken.*

Dr. H. L. Horton, of Morrisania, N. Y., records, *Medical and Surgical Reporter*, an interesting case of this uncommon condition. On attempting to make a vaginal examination—the patient being then in labor—no opening whatever could be detected by the sense of touch. An ocular inspection was then made, and the obstruction presented the appearance of a dense, whitish, fibrous structure, merging into the surrounding tissue guarding the entrance to the vagina, so gradually, that no distinct line of demarcation could be observed. About the centre of the lower half of the obstruction, the patient being upon her back, I detected a small spot of reddish, tenacious mucus, which could not be detached by the cotton, but, upon taking hold of it with a pair of forceps, it was found to connect through a small, round opening with something inside. A small silver probe, whose bulb point was exactly one-sixteenth of an inch in diameter, could, with a slight degree of force, be passed through the opening, the border of which appeared to be somewhat thicker than the surrounding structure, so that the probe passed with something of an elastic spring. By bending the point of the probe nearly to a right angle and passing it through the opening, I could, by depressing well the outer extremity, observe the bulb move along the inner side of the obstruction, which I now made out to be about the thickness of an ordinary dressed sheepskin. Seeing my way clear, I at once introduced a bistoury, and made a crucial incision, after which I introduced my finger, and very much enlarged the opening by tearing, so as to avoid any hæmorrhage, should there be any blood-vessels in the structure. After the escape of a few ounces of dark, ropy-looking fluid, on introducing my finger I could now distinctly feel the bag of waters, which I at once ruptured, after which there could be distinctly made out a vertex presentation, with a L. O. I. position, anterior variety. The labor was completed in seventeen hours from the time that the pains first set in.

10.—*Dropsy of the Fallopian Tube.* [Medical Record.]

At the March meeting of the Pathological Society, Dr. E. R. Peaslee presented a specimen of intra-abdominal tumor, with the following remarks:

Mr. President: I bring this preparation for two reasons: in the first place, it is interesting in point of diagnosis; and, secondly, it is in itself a preparation of very rare occurrence.

The patient, a lady, forty-one years, first came to me from the country, last May. I saw her on board of one of the North River steamers. She had an abdominal tumor, which was supposed by the physician who sent her to me to be ovarian in character. The question was in regard to the propriety of removing the growth. I found the uterus completely retroverted, so that the os was on a level with the symphysis pubis, was very high up, and I could with difficulty reach it with the index-finger. There seemed to be continuously in structure with the posterior wall of the uterus a solid tumor about the size of the fist. I could get no fluctuation in the mass; the whole was impacted in the pelvis so completely that it could not be moved at all. I could with difficulty pass the sound in the uterus to

the depth of just three inches, but could not move the organ to the right or left. The tumor rose a little above the umbilicus, to the right side and to the middle. This upper portion evidently contained a fluid, and fluctuation was very distinct.

The tumor had been detected, for the first time, ten years ago. She menstruated regularly, and had never suffered from menorrhagia. She had been gradually failing in health, became quite thin, and was also anasareous in her lower extremities. I regarded the growth as a fibro-cystic tumor of the uterus, and advised non-interference with the case until the sac should become so large as to require tapping, which operation in itself would enable us the better to determine its real character. She was first tapped about the first of October, and fifteen pounds were drawn off, and, refilling, was tapped again in December, when ten pounds were evacuated, leaving as large a mass as before the operation. Still the physician persisted in the diagnosis.

I saw her again about two weeks ago, she having come to me then with the intention of having it decided whether she actually had ovarian tumor or not. She had filled again, perhaps to a greater extent than before; so that it became very necessary to tap her again, and I did so with a view of determining the precise condition of things, in order afterward to decide what should be done. I removed eighteen pounds of fluid. It resembled precisely the usual ovarian fluid, especially that taken a second time, except that it was slightly opalescent, giving the appearance as if mixed with a small quantity of milk. I tested it with heat and nitric acid, and found that it contained about half its bulk of albumen. After the sac was evacuated, it was very easy to find that the tumor was quite adherent to the lower part and on each side above. On passing the finger into the vagina, however, the solid mass which I expected to find had entirely disappeared; it was a mass, as I said before, so very solid that, to my sense of touch, it was clearly a fibrous mass and part of the uterus, more especially the fundus. That had entirely disappeared; I could not reach any sign of the existence of such a mass. The abdominal wall had been so distended that I could easily fold it over the fundus (as is my custom in such cases), and fairly grasp the organ. I could not feel any tumor there; in fact, I could find nothing but the sac which I had evacuated, and of course this gave the idea that, after all, it was an ovarian tumor, and a single sac probably. I then introduced the sound in the uterus, and, bringing it forward upon the instrument, produced an anteflexion. I could then with ease bring the organ forward, and could feel very distinctly the fundus and both the horns. Then I could feel that something extended down from the right side, leading to a solid mass, which I had felt before. There was a sac that had not yet been touched, or solid mass, but I could also feel, passing off from the left side of the uterus, a pedicle which was evidently continuous with the large sac which I had evacuated, which, of course, made it at first very certain that we had an ovarian tumor, rising from the left side. One thing made me doubt my diagnosis, and that was the extreme thickness, roundness, and evenness of the pedicle. I could not find its lower edge; it was of an even thickness, equal to that of the two fingers, all the way down. I was forced to doubt very much that it was an ovarian tumor at all, but I nevertheless considered it proper to advise the patient to have an incision made when her health should be sufficiently improved.

She went on well for three days after the tapping, when she began to lose her appetite, and all that I could do had no effect upon this condition. She had no fever at any time, neither signs of inflammation. She lived until the ninth day, and died of exhaustion.

At the time of the autopsy, Dr. Peaslee stated that the cavity of the uterus was but three inches long, as previously made out. On the right side a true ovarian cyst existed, but on the left was a *bona-fide* tumor of the Fallopian tube of very large size, the upper rim of which was the large, even, and round mass of tissue which aroused the suspicion of a pedicle. It seems that the tube had become occluded at the very commencement of the uterus; accumulation took place beyond, until the tube itself was distended into a sac with the capacity of eighteen pounds. The whole was adherent to every thing in its neighborhood, rectum, sigmoid flexure, and to both iliac fossæ. As the sac contained half a pint of blood, which, in her condition, was an enormous amount to lose, Dr. Peaslee concluded that death was the direct result of hæmorrhage. As it was evident that the interior of the sac was uninjured during the manipulations of tapping, the doctor concluded that the blood oozed into the sac after the pressure was taken off. In answer to a question, he stated that the patient had been the mother of three children.

11.—*Accidental Wound of an Artery during the Operation for Vesico-Vaginal Fistula; Fatal Result.* [L'Union Médicale and Boston Medical and Surgical Journal.]

M. Paul Horteloup communicated the case to the *Société Impériale de Chirurgie.* He was operating at the Hôpital Beaujon for vesico-vaginal fistula, and was just making the last cut with the bistoury, when a jet of blood struck his face, and the vagina was filled at once by the hæmorrhage. Neither ice nor the tampon stopped the flow, which was, however, controlled by seizing the posterior lip of the fistula with a screw forceps and a polypus forceps. The tampon, injections of ice-water into the bladder, compresses wetted with cold water to the abdomen, were used, and wine, beef-tea, and ice, administered. A few days after, the forceps were detached in the movements of the patient, and a new hæmorrhage set in, to be controlled as before, with the forceps. The patient, however, had lost so much blood, that she sank five days subsequently.

At the autopsy there was found general acute peritonitis, and a division through two-thirds the diameter of the left utero-ovarian artery.

12.—*The Treatment of Post-partum Hæmorrhage.* [Medical Times and Gazette, November 20, 1869.]

Dr. Robert Barnes, at a recent meeting of the London Obstetrical Society, read a paper on Uterine Hæmorrhage after Labor. The following abstract of the paper, and the discussion thereon—although it contains nothing novel—will, from the peculiarly practical nature of the procedure, and the authority of the eminent men taking part in the discussion, prove both interesting and serviceable to our readers:

The author endeavored to define the conditions upon which arrest of hæmorrhage after labor depended, the action of the remedies in common use, and the indications for resort to particular remedies. The remedies almost exclusively used depended for their efficacy upon their power of exciting contraction of the uterus. This presupposed nerve-force enough to respond to excitation; but, when this was exhausted, remedies failed. It became then necessary to seek a new power that would act under the condition of exhausted contractility. This was found in styptics like perchloride of iron, which acted by coagulating the blood in the mouths of the

open vessels, and corrugating the inner surface of the uterus. Acting exactly where ordinary means failed, it was a new power to save women from dying of hæmorrhage. Examining the action of ergot, compression of the uterus, and cold, he urged that these should not be trusted if they failed to act quickly; for, if they so failed, it was probably because contractility was gone. If persevered in beyond this point, they did harm. Ergot and cold added to the depression; kneading might bruise the uterus; all were apt to occasion some form of puerperal fever. The perchloride had in several cases been followed by death when used for injecting nævi; but this case was essentially different from that of injecting the uterus. In his own practice he had observed three orders of cases. In the first all recovered well, the hæmorrhage being immediately stopped; in some of these death would almost certainly have ensued but for the remedy. In the second series recovery occurred, phlegmasia dolens supervening; but phlegmasia dolens was not unusual after severe hæmorrhage, and some of these cases would have died but for the remedy. In the third class death followed, but the patients were moribund when the remedy was applied—it came too late. Here the remedy was transfusion. The practical lesson resulting from a review of these cases was, to observe the rule he had laid down—not to persist too long in the use of cold, kneading, and other remedies, but to resort to the perchloride before collapse had set in. Dr. Barnes showed a convenient case, constructed by Krohne & Sesemann, containing a set of his dilators, a Higginson's syringe with uterine tube, and a bottle for perchloride of iron.

Dr. Rogers could most cordially agree with every word of Dr. Barnes's admirable paper. He (Dr. Rogers) had first used the perchloride some fifteen years ago in post-partum hæmorrhage, having failed with a strong solution of alum. He had since then employed it five or six times, and, in every case, successfully. He thought Dr. Barnes had omitted the mention of galvanism, on which he placed some reliance, and which had been advocated by his late friend Dr. Mackenzie.

Dr. Cleveland thought one of the difficulties in the treatment of post-partum hæmorrhage consisted in determining when the means in general use should give way to the remedy recommended by the author. It was difficult, too, when single-handed, to leave the patient, for ever so short a time, to prepare an injection. He had himself used an eight-ounce india-rubber bottle, to which was easily attached a flexible male catheter. This could be used more readily than a Higginson's syringe, and with less risk of injecting air. He would inquire if the author had used emetics, as he had himself witnessed the good effect of vomiting on more than one occasion. He would also ask if the free use of stimulants, especially at the commencement of flooding, was not open to objection.

Dr. Wynn Williams was hardly prepared to hear that the knowledge of perchloride of iron as a stypic in these cases was as limited as the author supposed. He himself had used it for a long time, although not exactly in the same manner as the author of the paper, but in a way which he might call the ready method. This consisted in taking a sponge, on which some of the tincture of the perchloride had been poured, and passing it into the uterus through the hollow of the hand already introduced, after, of course, previously emptying the uterus of clots, and then sponging the interior of the uterus with it, leaving it in the uterus, if seen fit, with a string attached. He thought this plan less objectionable than injecting a considerable quantity of fluid. The stains on the hands of the operator were readily removed by a solution of oxalic acid or salts of lemon.

Dr. Braxton Hicks most cordially agreed with the whole paper. He wished to add, however, a few remarks. In the first place he thought

there was a considerable difference in different cases as to the condition of the internal surface of the uterus after expulsion of the placenta. In some uteri examined after death, the large apertures of the sinuses described by many authors were absent. There were of course the arterial openings and those of their return veins—of considerable size certainly, but not very large. In others it would be found that the sinuses, in their oblique passage through the uterine walls, occasionally abutted on the line of separation of the placental decidua. When the placenta was removed, then the feeble wall gave way, and severe loss would result, unless the uterus contracted quite firmly. In the former case it did not require that severe uterine contraction, and the perchloride would readily act; in the latter it would probably be found that even the perchloride would fail to arrest this great stream. Enormous gushes he believed to be the result of a preaccumulation which had been going on unobserved. To one class of cases Dr. Barnes had not alluded—viz., placenta prævia, where the cervical zone was relaxed after delivery. In these the perchloride applied to this surface was of much value. In severe cases also of abortion, when the uterus had been emptied, he had used it frequently with complete success, and without any untoward result. He used a somewhat weaker solution than Dr. Barnes.

Dr. Hall Davis could add his testimony to the value of the iron solutions. He had used them for several years among his hospital patients; scarcely a week passed without his resorting to them. He had used the pernitrate, the persulphate, and the perchloride, and had found them about equally efficacious. It was of the utmost importance before using them to empty the uterus of any contained clots, that the styptic might fairly come into contact with its internal surface.

Dr. Playfair referred to the importance of aiming at the prevention of post-partum hæmorrhage, and urged the careful following down of the contracting uterus with the hand. On the subject of the value of the perchloride, he could but add his testimony to that of the previous speakers.

Dr. Tyler Smith, after eulogizing the paper of Dr. Barnes, said that he believed but few cases of dangerous flooding would occur if in all cases a full dose of ergot were given immediately after the birth of the child. It would, in his opinion, be a vast improvement in obstetrics if the forceps could be substituted for ergot as now often given during labor, and if the ergot were administered habitually at the moment of birth, or while the head was passing the vulva. Besides the prevention of hæmorrhage, subinvolution of the uterus would become less frequent. This rule of giving ergot had been extensively followed by his advice, and with the best results, in India, where flooding was still more common than in this country.

Dr. Aveling feared that the styptic fluid might enter the circulation and produce thrombosis. He thought the principle good, but that the sponge plan of Dr. Williams might be safer than Dr. Barnes's. He would have liked to have heard some reference to transfusion.

The president (Dr. Graily Hewitt) thought the profession would be gratified in hearing, through the medium of this Society, the opinion of so many distinguished men on this important subject. After the decided opinions expressed in favor of the perchloride of iron, its use, so ably advocated by Dr. Barnes, would probably become more extended. As preventive of hæmorrhage he had great belief in pressure, and in fact the only cases in which he had seen hæmorrhage fatal under his own care were cases in which, unusual attention to the child being required, the uterus had not been uninterruptedly watched over. Transfusion, to which Dr. Aveling

had alluded, was adapted for cases of a somewhat different nature, where the hæmorrhage had ceased.

Dr. Barnes, in reply, said he had not forgotten either the subject of transfusion or prevention, but the problem set in this paper was how to deal with hæmorrhage when present. With regard to electricity, he had preceded his friend, the late Dr. Mackenzie, in proving the power of faradization in causing uterine contraction, but he had abandoned it because it was inconvenient, often intensely distressing to the patient, and inferior to other means. As to Dr. Hicks's remarks upon the frequent absence of large openings of sinuses on the inner surface of the uterus, he reminded the Society that the obliquity of the openings rendered it very difficult to find them; and that Dr. Chowne and others, by injecting the vena cava backward, showed that water would escape in torrents on the uterine surface. With reference to priority, he must say that he was surprised to hear such very general expressions of approval of the treatment; but that it was not yet a recognized plan was proved by the absence of mention of it in our text-books. It appeared to have been first used by D'Outrepont; it was pointedly recommended by Kiwisch in 1840; his own first published recommendation of it was in his Lettsomian Lectures on Placenta Prævia in 1857, and of course he had used it before that date. In conclusion, he expressed his belief that the perchloride of iron would come into general use as a recognized plan of treating uterine hæmorrhage.

13.—*Unique and Remarkable Case of Extra-Uterine Fœtation.* [Medical Press and Circular, December 8, 1869.]

Dr. Lecluyse gives a remarkable case of this accident. A woman of twenty-eight, with deformed pelvis, was operated on, and delivered by Cæsarean section, August 15, 1866. She again became pregnant and in labor on March 23, 1868. On examination, the fœtus could be felt beneath the abdominal walls; but the pains shortly ceased, and it was determined to postpone the operation of section. In a few days a vaginal discharge of menstrual or bloody character appeared; no motions of the fœtus were felt, and the lower portion of the abdomen formed a kind of sac for the fœtus.

Cæsarean section was now performed with every care, and a seven or eight months fœtus removed, which was well developed, and dead. The placenta was adherent to the intestines. The wound was closed by sutures, save at the lower part, from which the umbilical cord was allowed to depend, as it was not thought possible safely to detach the placenta by reason of its vascularity. On the fifth day the placenta was decomposed, and part of it removed; the patient died on the tenth day. On examination after death, it was found that the intestines bore no imprint of the placental attachment; but, what was most remarkable and interesting, the uterus, about the size of a goose-egg, was found in the right iliac fossa held by strong adhesions, and on its anterior aspect, and a little to the left of the mesial line, was the open wound left by the incision made in the former Cæsarean operation. The sides were cicatrized separately, and left a hiatus through which the ovum had escaped, and formed this remarkable and perhaps unique example.

14.—*Difficult Labor from Locking of Twins.* [Lancet, July 2, 1870.]

Dr. Rinter was called by a midwife to a woman twenty-eight years of age. In this case the child's head, after a breech presentation, was locked by complete absence of uterine contraction. Dr. Rinter found the whole

child born save the head, the uterus inert, and the mother very feverish. The child was dead, and in vain did the accoucheur try to find, with his finger, the chin, or the mouth; he could only feel the cranial bones without succeeding in making out the sutures. By the hand laid on the abdomen the presence of a second fœtus was made out. Tractions on the trunk of the child already extruded were unsuccessful. At last the forceps were used, and with much difficulty the head was extracted; but the operator was dismayed on seeing that it belonged to the *second* fœtus. The cord was soon divided, and a living boy handed to the nurse. The head of the *first* child was now sought for, the chin and mouth easily found, and the extraction effected. The placenta followed immediately; it was very large, and common to both children. The mother did well. Happily Dr. Rinter did not resolve to *diminish* the head when he found it so completely locked, and the child dead.—*Gaz. Méd. de Strasbourg.*

15.—*Obstruction of the Vagina with Retention of the Menstrual Fluid for Two Years.* By W. L. Appley, M. D. [Medical and Surgical Reporter, July 30, 1870.]

I was called October 1, 1868, to visit a widow lady aged forty, whose husband had been dead three years. She had given birth to a large child about twenty years ago; she had a tedious labor; I had not seen her since the death of her husband; I found her suffering (as I supposed) from retention of urine; she told me she had not voided urine in twenty-four hours. I advised the use of the catheter; she said she was willing to submit to any treatment that would relieve her of any of her suffering. I introduced the catheter into the bladder and drew off a large quantity of urine, which relieved her very much, although the abdomen was yet much distended. I could find neither labiæ, nymphæ nor clitoris; the vagina was imperforate; she told me she had not menstruated for about two years; since then she had complained of pain in the back and lower part of the belly, with regular monthly exacerbations of these symptoms, and at each period had observed a distinct increase in the size of the abdomen.

The abdominal tumor, in size, situation, and consistency, resembled the uterus at full time of pregnancy.

October 2d.—I was called again to see her; I found her suffering very much as the day previous, except the pain was more periodical, resembling labor-pains; her pulse small and frequent; skin cold and moist; features sunken; from her symptoms and appearance I thought her case alarming. The catheter was again used, and a large quantity of water passed off, which relieved the pain partially for a short time; I concluded that the only permanent relief was in opening the vagina, and that her life depended upon the operation; and that it must be done immediately. My assistants were three elderly, common-sense women; we placed the patient cross-wise of the bed so as to have the light of a window, each leg supported by an assistant, the third assistant administering the chloroform. I found the orifice of the vagina was obstructed by a dense thick membrane through which a fluctuation on the inner side could be felt like a flat, elastic tumor in the perinæum, feeling very much like an abscess. I determined to open the vagina with the scalpel; this I accomplished with some difficulty; first introducing the catheter into the bladder as a guide to prevent injury to that organ; and the forefinger of the left hand to guard the rectum; I made an incision with the scalpel as large as the meatus urinarius and the rectum would admit, without injury to those parts.

I found the obstructing membrane thicker than I supposed, and tough. I explored with the finger and cut with the knife, so as to enlarge the

opening the full size of the vagina, until I felt something like the distended membranes in a case of labor just before they are ruptured. I held my finger against this membrane, as I discovered a contraction of the uterus and abdominal muscles returning, which caused a sudden rupture, and a gush of restrained menstrual fluid took place, to the amount of one gallon or more, and very fetid, so much so that the assistants left the room. The uterus seemed to contract periodically, and the contents would issue in a stream. I made pressure over the uterus until the discharge ceased, then injected warm water freely and continued the injection for several days. The patient had no difficulty in voiding urine. After the operation she took light tonic and nourishing diet, and recovered rapidly without any unpleasant symptoms. She is now a healthy and fine-looking lady for one of her age.

A few days previous to my being called, and after her situation became very distressing, she applied to the nearest physician, who claimed to have experience and skill in treating female diseases. He, without examining the parts, gave her emenagogues and diuretics, furnished her a female syringe, and advised her to use vaginal injections. The medicine could do her no good, but might do harm, and the syringe she could not use.

Now, admitting the above case is no novelty, and that closure of the vagina is common, I think it shows, at least, the importance of physicians being on their guard, and of examining women carefully whose menses are obstructed.

16.—*Double Uterus and Vagina.* Reported by Mr. James Lane, of the Female Lock Hospital, London. [Lancet, July 16, 1870.]

M. S——, aged eighteen, was sent to the hospital from Woolwich on the 6th of January, 1870, under the Contagious Diseases Act, for a purulent vaginal discharge. On examination with the speculum, the vagina was found to be divided into two by a thick, strong, vertical septum, complete throughout, commencing immediately behind the urethral aperture, and extending upward to the uterus, with which it became continuous. There were, therefore, two vaginal canals, the rugæ of each being continued round the corresponding side of the septum. At the end of each was seen an os and cervix uteri, of normal appearance in every respect, but somewhat smaller than usual. A probe could be passed readily into the cervical canal of each. The external parts presented nothing unusual; and the girl was unaware of any peculiarity in her conformation. The right vagina was somewhat larger than the left, and in a rather more direct line with the vulvar aperture. She said she had menstruated regularly from her fifteenth year. While in the hospital she was examined with the speculum during a menstrual period, and the menstrual discharge was ascertained to proceed equally from both sides. She stated that she had been a prostitute for a month only. She was suffering from a purulent discharge and vaginitis in both vaginæ; for which she was treated in the usual way, and was discharged cured on the 23d of February.

This case was probably an extreme instance of that class of malformations in which there is a deficiency in the union of the two halves from which the uterus is originally formed. Non-union of the *body* of the uterus constitutes the uterus bicornis analogous to that found in animals; but here the division was continued through the cervix also, and in the form of a central septum through the whole length of the vagina. A drawing of a precisely similar malformation, after Busch, will be found in the article Uterus and its Appendages, by Dr. Arthur Farre, in the "Cyclopædia of Anatomy and Physiology," vol. v., p. 679.

17.—*Case of Inversion of the Uterus, treated by Elastic Pressure.* By W. H. Byford, M. D. [Chicago Medical Examiner, August, 1870.]

Mrs. H. N. H., aged twenty-two years, was confined with her third child at half-past eight o'clock A. M. on the 9th of March, 1870. The labor was about four hours' duration. The placenta was expelled spontaneously, in about half an hour after the child. Very little blood accompanied the placenta. As usual, the hand was placed over the hypogastric region, in order to ascertain the condition of the uterus. The organ was large and soft, and, in fifteen or twenty minutes after the delivery of the placenta, a copious hæmorrhage commenced, but was easily controlled by grasping the uterus through the abdominal wall. The contractions resulting from this treatment were prompt and obvious. I remained with the patient something like an hour and a half, when the hæmorrhage was completely controlled and the uterus well contracted. At twelve o'clock I was summoned by a messenger from the patient, with the information that she was flooding copiously. When I arrived, I found her prostrated very decidedly by loss of blood, and still bleeding. The uterus was large, reaching above the umbilicus, and very soft. Pressure and grasping caused it again to contract and throw out a large quantity of coagula and fluid blood. Fluid extract of ergot was administered as soon as it could be procured, cold applied to the urethra, and continued pressure kept up. The hæmorrhage soon entirely ceased, the uterus contracted well, and the contractions were painful more than ordinarily. The hæmorrhage did not return, but the patient had already lost so much blood that she was very greatly prostrated. The pulse was weak and rapid, perhaps one hundred and twenty strokes to the minute. Upon the slightest exertion, a sense of fainting was produced. She remained prostrated, so as to require stimulation and concentrated nourishment for thirty-six hours. From this time gradually rallied, and in twenty days was able to sit up some, while the pulse had regained its volume and usual frequency. From this time she improved quite rapidly, and in four weeks was riding and even walking about the streets some, with no special discomfort. The lochia was still somewhat copious, but colorless and "watery," as she expressed. On the 25th, the lochia was so abundant that I was led to make an examination. I found the cervix large and soft, but otherwise there was nothing unusual. The uterus could still be felt above the pubis. On the 28th, I left the city for two months, and, consequently, did not know any thing of her condition personally, until I returned on the 5th of June, and, consequently, rely upon her account of the progress of things.

She informed me that she continued to improve, and, as above stated, in about four weeks was riding out, and walking about the house and on the street, without inconvenience, except such as arose from debility, and that was not very considerable. On the 14th or 15th of April, while sitting on the vessel vomiting, she experienced slight tenesmus, and felt something pass out between the labia. Placing her hand upon the parts, she discovered a protrusion. She passed it back and sent for a physician. It was through the examination made at that time that she was found to have an inverted uterus. She was treated with sitz-baths and astringent injections into her vagina, for three or four weeks, when she was pronounced cured, and discharged. When I returned home I saw her on the 5th of June, and found the uterus inverted. It was about the ordinary size of the unimpregnated organ, and inverted all but the vaginal portion of the cervix. The density of the anterior walls and cervix seemed rather less than natural. Since she first discovered the protruding organ, the

patient had been subject to small losses of blood, and between these a serous or watery and sometimes mucous discharge from the vagina. Her general condition was tolerably good, although she had not entirely recovered from the debility caused by the copious hæmorrhage.

After lifting up the uterus as much as I could with two fingers, I placed an elastic bag under it, so as to make pressure upward and slightly forward, in the direction of its axis, and filled with tepid water, until the patient complained of severe, inconvenient pain, from distention. She was directed to remain in bed, and the instrument was left in place until the next day. The water was then allowed to flow out and the parts examined. I could discover no change in the condition of the uterus. The bag was again filled and the distention made as great as the patient could well bear. Upon emptying it again, on the third day, relaxation of the cervix was quite evident, and I felt encouraged to expect success. On the fourth day, the relaxation was so decided, that the fundus could be almost passed up into the os with the fingers. On the fifth day, when the water was again allowed to flow off, the uterus was found to have returned to its natural position. The patient was directed to remain in bed still, and the instrument removed from the vagina. On the sixth day, I passed my probe through the os uteri, two and a quarter inches, showing that the fundus was thoroughly restored to its shape and position. The patient remained in bed for two days more, and then gradually resumed her exercise until, on the 22d of June, she attended the wedding of one of her friends.

This case is remarkable from the manner of occurrence and for the ease with which the reduction of the inversion was effected. I think the last fact shows a very pliable condition of the organ, and, to some extent, explains the method of the accident. With reference to this, it is quite evident that the time of the completion of the inversion must have been the time of its discovery; for if the process of involution, at that late period, was so imperfect as that the uterus was large enough to pass, in considerable size, beyond the labia, it is reasonable to suppose that, had it been completely inverted before, it would have made its appearance before, and hence attracted the attention of the patient. When I first saw her upon my return, the involution appeared to be complete, and the organ was distant from the vaginal orifice. It certainly was not inverted at the end of three weeks from labor, and it was unquestionably larger at that time than usual. I do not believe that there was indentation, or any thing indicating the commencement of the process of inversion, on the 25th of March, when last I saw her before the accident. I am glad to have an opportunity of recording this case, as showing the great efficiency of elastic pressure, in the correction of the condition. It was very evident, from the daily observation of the case, that the reduction was effected, not by indenting the fundus, but by the relaxation of the cervix, and the passage of the whole body and fundus through it, and that the fundus was the last part to be rectified. The last labor of the patient, previous to this, was attended by very copious hæmorrhage and almost as great prostration as stated in this; and I think it would not be unreasonable to infer that my patient only represents a class of patients in whom the habitually flaccid condition of the uterus predisposes them to the accident.

This case, in many respects, is quite similar to one that occurred in the practice of Dr. A. Fisher, of this city, an experienced, intelligent, and careful practitioner. It is recorded in the October number of the *Chicago Medical Journal* for the year 1858. Dr. Fisher discovered the inversion on the 18th of May, thirty-eight days after delivery. No symptoms, except slight hæmorrhage, indicated any thing wrong. The doctor says:

"I made a digital examination, and, to my utter astonishment, found the uterus completely inverted, the fundus resting on the peritonæum." Dr. N. S. Davis, who was called to see the patient, in consultation with Dr. Fisher, regarded it as a case of spontaneous inversion, and said, in reference to it, in an editorial, in the same number of the *Journal:* "I questioned both the patient and her mother carefully and minutely, in regard to what transpired at the time of confinement, and I elicited no facts differing from the statements given by Dr. Fisher."

Miscellaneous and Scientific Notes.

The London committee on the Simpson Memorial has unanimously decided that the scheme of the erection of a hospital for the diseases of women, as a memorial of the late Sir James Y. Simpson, be acceded to, but that its erection be in accordance with Sir James's well-known and recently-expressed views.

Sir William Ferguson, Bart., has been elected to the presidency of the Royal College of Surgeons, London, thus breaking through the hitherto scrupulously-observed practice of selecting no one but an Examiner of the college for this post. The precedent thus established is a good one, and meets with the general approval of the medical press.

Prof. Brandt, of St. Petersburg, has just been elected corresponding member of the Academy of Sciences of Paris, in the section of Anatomy and Zoology, in the place of M. Garus, of Dresden; and Prof. Lebert, of Breslau, in the section of Medicine and Surgery, in the place of the late Sir William Lawrence, Bart.

A New Method of applying Intestinal Sutures.—Dr. Béranger-Férand, of Paris, chief physician to the French navy, describes in the *Lancet* the following handy device for applying intestinal sutures. The necessary materials consist of eight or ten ordinary pins nine millimetres in length, two corks, and a piece of sealing-wax. The way in which this simple apparatus is prepared is as follows: Each cork is cut out in the form of a quadrangular prism, of about six millimetres on each side, and of the length of the intestinal wound. Four or five pins are driven into each of these prisms, which they traverse

so that the points issue at the opposite surface, while the heads are brought down close to the cork. The heads are then embedded in a coating of sealing-wax, and the whole presents the appearance of two little combs. (See Fig. 1.) These combs are then employed in the following manner: The body of the cork prism being in contact with the mucous surface, the points of the pins are made to traverse the intestinal wall from within outward, at a distance of one or two millimetres from the lip of the wound. When they have all traversed the tissues, the two prisms are turned so that the points of the pins correspond, and then, on exerting upon them, through the intestinal wall, a slight pressure between the thumb and the index-finger, the pins of the right prism are made to penetrate the left prism, and *vice versa*. The intestinal wound is thus exactly united, so that no foreign body can appear at the peritoneal surface, and the intestine may then be left at rest in the abdomen.

Fig. 1.

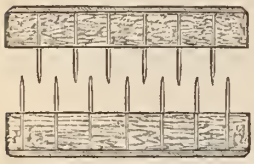


Fig. 2 represents a schematic section, which shows that the two prisms when united form a small oblong body without any outer roughness, and of a size to allow the free circulation of intestinal matter. A few days after the operation, when the circulation of the intestinal wound is complete, the portion of the tissue traversed by the pins detaches itself, the cork falls into the intestine, and is carried out with the fecal matter. The cork being dry at the moment when it is introduced into the intestine, it results that the humidity to which it is subjected afterward causes it to swell around the pins, and thus increases the solidity of union. But, if any fear is

Fig. 2.

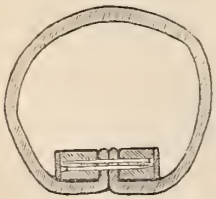
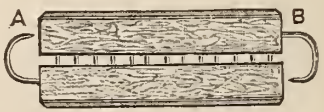


Fig. 3.



entertained lest the movements of the intestine should bring about the separation of the two pieces of cork, it is easy to introduce into each prism a curved pin of which the head has been previously cut off (Fig. 3); and when once the intestinal wound has been closed, by pressing slightly between the thumb and index-finger at A and B through the intestinal

wound, a union would be obtained which nothing could destroy in the bowel. But this last precaution is believed to be altogether superfluous.

If the intestinal wound is very extensive, two or more of the prisms which have been described may be placed end to end. The present proceeding is especially indicated for oblique and longitudinal wounds, but may also be applied to transverse wounds. In this case the prisms should be shorter, so that it would take six of them to occupy the entire circumference of the tube. They should first be placed in position separately upon each intestinal segment, and their union effected afterward.

Inman's Formula for Cases of Phthisis.—Thomas Inman, of Liverpool (*The Medical Mirror*), states that his favorite formula for cases of phthisis, or general debility, is this: "Keep the stomach for food, the rectum for physic, and the skin for oil." It is a homely saying, but not the less true on that account.—*New York Medical Record.*

Suppression of Pain after Operations.—At the last meeting of the Imperial Academy, M. Sedillot submitted a note on "The Suppression of Pain after Operations." He observed that a patient may undergo an operation in a state of absolute insensibility, but a state of suffering awaits his arousing from this condition, which it should be our object to avert. Opiates, refrigerants, chloral, etc., have been tried with this object without attaining it. The various kinds of cauterization render traumatic surfaces insensible and exempt from accidents. The actual cautery effects this, but the rapidity with which it cools, and the superficial character of its action, much restricts its employment. M. Nélaton tried the gas cautery, but the eschars this produces are too superficial, and the same may be said of those induced by a flame of oxygen and hydrogen experimented on by M. Sedillot. Of all measures of this kind the electric cautery, as perfected by the late Prof. Middledorpff, of Breslau, is the best and most certain. The degree of heat can be instantly varied as desired, rendered intermittent or continuous, and directed into the deepest cavities, or employed for the division of every description of tissues. To prevent loss of blood, it must be employed at a white heat, taking care to divide or destroy the tissues with extreme slowness. In this way M. Sedillot has performed numerous operations without loss of blood, and with great success. Burns, he observes, of the third degree cause but little pain; and he has seen persons mortally burnt preserving for several days their appetite and sleep and hopes of cure.

This absence of suffering in the severest burns is explained by the destruction of the nerves. And in the same way the electric cautery renders the wound it causes insensible, so that persons operated upon by its agency under chloroform experience no suffering on awakening. Later, at a period varying from the third to the ninth day, an inflammatory reaction is set up, but it is generally very slight, fever either being entirely wanting or soon ceasing.—*Medical Times and Gazette*, May 14, 1870.

Double Retinal Hyperæsthesia cured by Hydrotherapic Treatment.—Drs. Gaget and Toutan report (*Lyon Médicale*, December 5, 1869) a remarkable example of pure retinal hyperæsthesia, unattended by any other pathological complications.

Miss D., aged twenty, always enjoyed good health when a child; she menstruated at the early age of ten years and a half; when twelve years old she had an attack of pneumonia, followed by frequent angina, anæmia, palpitations of the heart, and all the manifestations of hysteria. Three years ago she felt some neuralgic pains upon the summit of the head, with sensations of very intense cold, and was obliged to cover her head with several thicknesses of flannel. Six months afterward, without having had any remission in the preceding phenomena, some symptoms appeared involving the eyes.

In the month of May, 1868, notwithstanding the use of very dark-blue spectacles, the patient could not go out in the sun without intolerable dazzling. This condition kept increasing until September, especially during the menstrual period. At that time the patient was obliged to confine herself to a dark room, the mere light of a candle producing extreme sensitiveness. This state lasted all the winter. In awaking, the patient perceived a very bright-yellow light. She occasionally attempted to look out-doors, but the sight of snow produced in her an excessively painful dazzling, followed by a muscular tremor of the lids and face, and a prickly sensation in the lips, and at the emergence of the nerves of the fifth pair, and upon the *trajet* of some of their branches; in a word, a sort of neuralgia of the face.

Toward the first few days of March began an improvement which continued until Easter. On that day, which was very cold, the patient, having attempted to go out of doors, had a relapse of all her troubles, but this time with a greater intensity. Confined in a completely dark apartment, having upon her eyes four silk bands lined with pasteboard, and the head buried in both hands, the patient had intolerable luminous phantasms. To the pricking sensations was added tinnitus aurium. In the middle of obscurity she perceived incessantly

a bright-red color; and on the least motion of the head, or the slightest pressure upon the eyes, she saw dazzling lights on a red sky full of stars, and furrowed, as it were, by lightning. At other times she saw stars, oval or round in shape, upon a black ground lined round with a very bright, clear, yellow light. These lights, four in number, were of the size of a ten-cent piece, disposed at the extremity of the horizontal and vertical diameters of the orbit, and appeared trembling. Often in the midst of the usual red light she used to see various hideous forms and phantasms.

After all means of rational treatment had been exhausted, she was taken to M. Gaget, of Lyons, for consultation. This physician diagnosticated a pure retinal hyperæsthesia, and advised the hydrotherapic treatment:

1. Ocular douche of half an hour, three times a day, *en pluie*, first with tepid and afterward with cold water.

The ocular douche was first given in quite a dark room, and by the light of a candle. After each douche, the patient kept cold compresses upon her eyes.

2. Morning and evening, general douche, lasting two minutes, and derivative douche *en jet* upon the vertebral column, the legs and feet.

3. Cold foot-bath of three to five minutes.

4. A few dry cups to the nape of the neck and between the shoulders.

After the first ocular douche, the patient could slightly open her eyes; on the third day she could open them entirely. The improvement was gradual, and at the end of one month and a half she was completely cured. The ophthalmoscopic examination, made by M. Gaget as soon as the patient could bear it, did not show any appreciable lesion of the retina. Vascularization was normal as well in the fundus of the eye as in the exterior.

The Female Anatomist.—A young woman may be seen daily, at half-past twelve, and for some hours thereafter, dissecting in one of the pavilions of the École Pratique. She seems to be about twenty-five years of age, and wears (when seated at the dissecting-table) a lady's round hat, and a blue garment having the general effect of a Frenchman's blouse. On Friday last, she was dissecting the thigh of a female subject, while at the same time a male fellow-student was dissecting the opposite limb. Several young men were engaged in dissecting other parts of the same subject.

The anatomical scene now described takes place daily in Dr. Fort's pavilion. A punning friend, when there with me the other day, said, pointing to the professor, "*C'est Fort;*"

and then added, pointing to the mixed dissecting group, "*Et c'est trop fort.*"

The female anatomist is said to be an *étrangère*—American, Prussian, or Scottish.—*Paris Correspondent British Med. Jour.*

The *Cincinnati Lancet and Observer* says of Dr. Landon C. Rives, who died June 3, 1870, in that city, at the age of eighty years: "He was one of the great professional men of his time. He came from Philadelphia, where he studied medicine, to this city in 1830, and practised up to 1857, when he retired from active life.

"He was one of the faculty in the Cincinnati College with Drs. Drake, Gross, Parker, Rogers, Harrison, and McDowell, the most able and reputable association of medical professors the West ever had, and he stood with them and maintained his position with uniform honor and ability.

"Of that faculty there are only two now living, Drs. Gross and Parker. Dr. Rives subsequently occupied a chair in the Medical College of Ohio, and was distinguished for a large sympathy with the young men in the profession of medicine.

"He was social, genial in disposition, devoted to his profession, and left no stain upon the record of his long and honorable career as a physician."

Sir James Young Simpson.—Much has been written regarding this distinguished man, and we had ourselves in preparation a sketch of his life and character collated from the numerous notices we have read and marked, but the following, from the *Edinburgh Medical Journal*, appears to us so just and so complete an estimate of the man that we present it to our readers in lieu of our own more desultory and less appreciative remarks: The son of a baker in a country town in Scotland, and the grandson of one who, we have often heard him say, worked as a quarryman in winter and a day-laborer in summer, Sir James raised himself by his own indomitable perseverance to the foremost place in the science which he adorned. Since the days of Boerhaave—who once received a letter from a Chinese mandarin, addressed "Boerhaave, Physician, Europe"—no physician has ever been more widely known; and even Boerhaave's name, learned and distinguished though he was, could never have been such a household word throughout the world as that of Simpson; for then we had no railways nor telegraphs, and, above all, we had no chloroform; neither the means nor the inducement in his days was equal to those in ours. But if no physician was ever more widely

known, it is still more true that no man, since the world was, was ever more greatly loved. Humble-minded, kind-hearted, and benevolent to a fault, it would have been strange had it been otherwise. He had his enemies, undoubtedly, as every one so restlessly active, so energetic, and so successful in enforcing his own views, must have; but even they could not help regarding him

> "With that stern joy which warriors feel
> In foemen worthy of their steel."

And his very antagonisms were productive of good to mankind by drawing forth the best energies of his opponents.

The greatness of our loss obscures our judgment and prevents us as yet from clearly discerning how great our Simpson was, and how irreparable to mankind is his premature removal; yet, some things we can discern through the mists of our grief. Augustus found Rome brick, and left it marble—Simpson adopted obstetrics when it was the lowest and most ignoble of our medical arts; he has left it a science numbering among its professors many of the most distinguished of our modern physicians. He found the surgical theatre a pandemonium resounding with groans and yells; he has left it a comparative elysium, where, amid happy dreams, the sufferer is painlessly relieved from his woes. He found medicine laboring under a curse of preventible disease, which no one was able or willing to remove; and his writings have done much to prove the possibility of stamping out such diseases, and to encourage the hope that mankind will yet relieve themselves of the incubus of woe and pauperism supinely permitted to exist. As members of a profession placed in the fore-front of the battle which science is ever waging with death and disease, and suffering more than all from those zymotic diseases which cut down the very flower of our youth, we owe Sir James a deep debt of gratitude for the energetic manner in which he has advocated the possibility of stamping out these diseases. And even as mere political economists our thanks are due to him; for it is to these diseases that a very large proportion of our pauperism is due.

But there is indeed no department of the medical art which has not received an impulse to progress from the restless genius of Simpson, and space would fail us were we to attempt to mention even a tithe of what he has done, or to recount the many novelties he introduced into obstetrics, medicine, and surgery, whether these were actually new remedies or merely novel applications of old remedial agents. Some of these, as his "air-tractor," and the inhalation of carbonic-acid gas, were ultimately found wanting and were dropped; others, as "acu-

pressure," are still *sub judice;* but cerium, chloroform, the stamping-out process of zymotic diseases, and a host of minor but scarcely less important improvements in therapeutics, still remain to attest his energy and success as a reformer in medicine.

In practical obstetrics his skill and enormous experience made him *facile princeps;* in surgery he was a mere ingenious theorist; while in pure physic his success lay in his *savoir faire* and his unrivalled fertility of resource, in his quickness to perceive the salient points of a case, and in his singular power of adapting his remedies to his patient, rather than in any great or accurate powers of diagnosis: thus, without being defective as a scientific physician, his greatest powers were displayed as a skilful practitioner.

At the meetings of medical and scientific societies, where controversy is life, the coolness of Simpson's temper, his unrivalled memory, and the extent and variety of his information, always enabled him to hold his own, and generally, in appearance at least, and often in fact, to come off the victor; and from his earliest to his latest days there could be no greater intellectual treat than to hear him pour forth, with sweet, persuasive eloquence, those masterly impromptu essays with which he was wont to delight the members of the Royal Medical, the Medico-Chirurgical, and the Royal Societies of Edinburgh.

As a writer, Simpson has produced no great work; his writings have been mainly a series of masterly but desultory essays, short but exhaustive, and all displaying in an eminent degree his power, singularly his own, of viewing things from all sides, and of supporting the view he wished to enforce by a vast amount of crudite and recondite lore. His extra-professional labors have been mainly antiquarian; and, while his writings on these subjects have been most ingenious and speculative, and have displayed a singular amount of curious learning and of diligent and untiring observation and inquiry, and have consequently excited a great amount of interest among the votaries of that science, they have been too purely speculative, and have belonged too much to that *terra incognita* where speculation alone avails, to be of much interest to the uninitiated in this fascinating pursuit.

As a man, however, we all meet him on common ground, and we do not exaggerate when we say that we never knew a more lovable man. His temper was almost imperturbable; in spite of his keen feelings he had it always in subjection; he never, in all his controversies, forced things to the bitter end —he was always ready to forgive and forget; and, when confined to what proved to be his death-bed, he exchanged pleas-

ant messages of mutual good-will and condolence with one of his oldest and most worthy antagonists,[1] who was also laid aside by serious illness. To his enemies he was forbearing, to his friends he was the very impersonation of kindness, ever ready to use his great influence for their advantage, ever willing to advise, and to employ his valuable time in their behalf, whether in furthering their temporal views, in relieving their sufferings, or in soothing their sorrows; and very many of his professional brethren have grateful occasion to recollect his unwearied, devoted, and unrewarded attention to themselves and their families in times of suffering and distress; while none of us can ever forget the pleasant smile and kindly grasp with which he was wont to greet us.

As a Christian, we believe him to have been an humble follower of his Lord. This phase of his character is, however, too sacred to be enlarged on here, and would not have been alluded to but for a mistaken part which his impulsive nature led him for a time to play. *Laborare est orare;* and Simpson was too true a man not soon to discover that the faithful discharge of duty, and the bearing of our cross for Jesus' sake, is a surer proof of our love to Him, and a more certain means of doing good to our fellow-men, than mere preaching and praying in public, however eloquently or impressively these services may be performed. With all his faults, no man ever possessed a larger share of the confidence of his fellow-men; and the grave has never closed over one who will be more widely or sincerely mourned.

Long a martyr to rheumatism, Sir James was about two months ago laid aside from active duty by a severe attack of *angina pectoris*, which recurred at uncertain intervals, and was accompanied by dyspnœa, and latterly by some degree of dropsy. Though great danger was apprehended from the first, the issue was long doubtful, and, up to a few days before his death, it was hoped that his valuable life might still be spared for some time, though a restoration to perfect health could not be expected. The end, however, was nearer than supposed; and, after a few days of unconsciousness, he quietly breathed his last at ten minutes to eight on the evening of Friday, the 6th of May. At the necropsy, the source of his sufferings and cause of his death was found to be a large, dilated, fatty heart, globular in shape, and weighing eighteen ounces. At the apex of the left ventricle, the wall of which was thinned, an aneurism, about the size of a pigeon's-egg, was discovered; all the other organs of the body were fatty. The

[1] Prof. Syme, of Edinburgh, who died a short time subsequently to Simpson. The estrangement between them had been of long standing.—[Editor New York Medical Journal.]

arteries of the brain were atheromatous in a high degree. The brain itself, that imperial source of all his restless mental activity, was found to be by no means large; it weighed only fifty-four ounces, and was consequently but little above the average of forty-nine and a half ounces. It may be remembered that the brain of Cuvier weighed sixty-four ounces, and that of Abercrombie sixty-three; so that Simpson's brain forms rather an exception to the rule, that mental power depends upon size of brain. On the other hand, it formed a remarkable example of the perhaps more incontrovertible fact, that mental vigor depends upon the number of the convolutions and the quantity of gray matter; for, on being exposed, the brain presented an appearance not soon to be forgotten by those who were privileged to see it, in the apparently increased number of the convolutions and their great size and development.

Though offered a tomb in Westminster Abbey—an honor but charily bestowed on the members of our profession—his friends, we think rightly, preferred to lay him to rest beside his children on the green slopes of Warriston Cemetery; and thither the remains of Simpson were conveyed in the afternoon of the 13th of May, amid all the pomp and ceremonial of a public funeral. The simple forms of Presbyterianism, and the stern reticence of Scotchmen, are not favorable to impressiveness on such an occasion, but no similar event has ever so deeply stirred the heart of Scotland; and the dense crowd collected from all parts of the city and neighboring country, and ranged along the route of procession, the number and influential character of the public bodies composing that procession, and the number of private carriages which followed in its wake, sufficiently attested the depth and extent of the feeling evoked. Never, since the days of Heinrich Frauenlob, could it be so truly said, as on that last sad occasion when James Young Simpson, who entered Edinburgh a friendless and unknown baker's son, and was conveyed to his last resting-place by the *élite* of his country, that instead of the busy hum and pattering feet of city life—

> "Nur Glockentöne schwirren gar bange durch die Luft
> Nur eine Strasse füllt sich und die führt in die Gruft;"

lines which the readers of German will pardon us for thus feebly translating—they describe the scene most effectively—

> "And only from the steeple sounds the death-bell's sullen boom;
> One street alone is crowded—it leads but to the tomb."

James Copland, M. D., F. R. S.—This well-known physician and author died in London, July 12th, of an attack of hæmaturia, connected with prostatic disease, followed by

retention of urine, and symptoms of uræmie poisoning, at the age of seventy-eight. He graduated in medicine, at the University of Edinburgh, in 1815; and soon afterward accepted an appointment on the Gold Coast, Africa, where he remained about a year; he next spent two years in Franee and Germany; and, returning to London in 1820, beeame a Licentiate of the Royal College of Surgeons, and settled down to praetice, which he eontinued almost to the time of his death. He was for many years a teaeher of medieine in the Middlesex Hospital; a Fellow of the Royal Soeiety (1833), and of the Royal College of Physieians (1837), President of the Royal Medical and Chirurgical Soeiety (1853). He delivered the Gulstonian Leetures in 1838, the Croonian Leetures in 1844–'46, the Lumleian Leetures in 1854–'55, and the Harveian Oration in 1857. In 1828 he became editor of the *London Medical Repository*, in eonjunction with the late Prof. Robley Dunglison, and in 1825 projeeted an "Eneyclopædie Dietionary of the Medieal Sciences," in whieh he was to have been aided by Drs. Dunglison and Gordon Smith, the first part of whieh appeared in 1832; and on this wonderful work, the labor of thirty years, his fame as one of the most remarkable eharaeters among medieal men ehiefly rests. A eontemporary well remarks: "That one man should have undertaken, and laboring single-handed, or nearly so, completed such a work, is indeed a memorable fact. It is a monument of calm energy and self-reliance, such as is but rarely met with." This eyclopædic *résumé* of all snbjeets of practieal medicine, with their history from the earliest times to the present day, with a full bibliography of eaeh, and the author's own opinions, is a marvel of researeh and perseveranee. Every line of it, he says in his prefaee, was written with his own hand, and all the proofs were read and eorreeted by himself. He survived its completion twelve years, and during that time made, assisted by his nephew, Mr. J. C. Copland, an excellent abridgment of it. He was, besides, a eonstant and copious writer.

Again we are ealled upon to annonnee the loss of another of the brightest ornaments of the profession, Prof. Albrecht von Graefe, who died in Berlin in the latter part of July. The *Lancet* says of him: The actual achievements of Von Graefe

for his beloved science were like those of the Emperor Augustus, who found Rome of brick and left it of marble. His first contribution to the *Archiv* was upon the physiology and pathology of the oblique muscles; and it will give some idea of the versatility of his powers to say that the same number also contained papers from his pen upon double vision after squint operations, upon diphtheritic conjunctivitis, upon cases under his treatment, and upon the effect of the most refrangible of the solar rays upon sensation. A few years later came his great discovery that the glaucomatous process could be arrested by iridectomy; and, after announcing this to the Ophthalmological Congress at Brussels, he published in the *Archiv*—vols. iii. and iv.—the two essays upon iridectomy that were translated for the Sydenham Society by Mr. Windsor. After a time his attention was much given to the investigation of the cerebral causes of blindness, on which he wrote several papers; and his last great work was to introduce and bring to perfection the "modified linear extraction" of cataract. In this operation many of the details on which Von Graefe dwelt were, perhaps, only of personal importance, since details of manipulation must vary with the dexterity of the surgeon; but the principle of the small external wound and the iridectomy has now been almost universally accepted, and must already have saved from destruction many hundreds of eyes that would otherwise have perished, as a matter of percentage, by some of the accidents incidental to the earlier method of operating. In the mean while, and interspersed among the greater monuments of his fame, the successive volumes of the *Archiv* contain his contributions to almost every branch of ocular pathology and therapeutics.

Besides the *Archiv*, Von Graefe was a frequent contributor to the Medical Society of Berlin, and to various medical journals. His method of cataract extraction was ferociously attacked in a pamphlet by Von Hasner, of Prague, whose future fame will probably rest upon this circumstance, and be kept from oblivion by the singular felicity with which Von Graefe demolished his statements and disproved his arguments.

In person the professor was of striking aspect—tall, slight, with long dark hair and beard, large lustrous dark eyes, and an expression singularly blended of mildness and dignity. He spoke English well, French and his native language with great animation and fluency; and his exhaustive knowledge of his ordinary subjects of discourse enabled him at once to enchain the attention and win the confidence of a listener. His personal ascendency over his patients, pupils, nurses, was that of a man whose innate gifts fitted him to rule. In the narrow sense of the word he was no specialist; and it was difficult to

say which was the most marvellous—his perfect mastery of every principle and detail of ophthalmology, or his command of illustrations from other departments of medicine, and his readiness to apply general principles to the cases that came under his care.

Von Graefe was married to a Danish lady, and leaves two children. He died of phthisis, under which he had been laboring for some years, and which appears to have followed an attack of acute pleuro-pneumonia, by which he was for several months disabled, and to which, as well as to the chief points of his career, allusion is made in the dedication to him of Donder's book on Astigmatism. At the time of his death his age could scarcely have exceeded forty-five years; and, for the last nineteen of those years, he has been to the human race one of the greatest of its benefactors. It is perhaps not too much to say that there can hardly be, either in Europe or America, a community of ten thousand people which does not contain at least one individual who is in the enjoyment of vision that has been preserved by irideetomy, and who, if Von Graefe had not lived, would now be unable to see the sun.

Appointments.—Prof. A. B. Crosby, M. D., has been appointed Professor of Surgery in the Long Island Medical College, *vice* Prof. Frank H. Hamilton, resigned. Prof. Crosby already holds the same chair in the Medical Department of the Universities of Vermont (Burlington, Vt.) and Michigan (Ann Arbor, Michigan). Prof. Hamilton has held this chair at Brooklyn since the organization of the college. Prof. Crosby, we learn, will hereafter make Brooklyn his permanent residence.

Prof. W. T. Lusk, of Long Island College, has been appointed to deliver the course of lectures on Physiology, in the Massachusetts Medical College (Medical Department Harvard University), during the ensuing winter. The compliment thus paid by this venerable institution to Prof. Lusk is as handsome as it is well merited.

F. S. Bartlett, M. D., of Chicago, has been appointed Professor of Inorganic and Analytical Chemistry, and H. P. Merriman, M. D., of the same city, Professor of Organic Chemistry and Toxicology, in the Chicago Medical College. These two chairs have been held by Prof. E. G. Wheeler, who has resigned. A new chair of Ophthalmology and Otology has

been created and filled by the appointment of S. J. Jones, M. D., of Chicago.

In the *Leavenworth Medical Herald* for August, Dr. L. L. Bedde publishes a case of "protracted gestation," in which the child was born three hundred and twenty-two days after the disappearance of the catamenial flow. The doctor seems to have entirely overlooked the recognized fact that a fruitful intercourse, just previous to the expected appearance of the catamenia, may arrest the hæmorrhage; and, deducting therefore thirty or even twenty-eight days (for we are not informed in this case what was the usual duration of the catamenial cycle), the term of gestation may be assumed to be only two hundred and ninety-two or two hundred and ninety-four days.

Death by the Guillotine has usually and rightly been regarded as one of the most speedy and painless modes of exit from this world. Quite recently, however, about the time of Tropp-mann's execution for a series of horrible sensational murders, which had excited the nervous system of the world to an almost unbearable degree, a medical man named Pinel took upon him to cap these horrors by making the startling announcement that death by the guillotine was one of the most horrible of deaths, because, by reason of the suddenness of the process, life was retained in the head for at least three hours after death. This statement, garnished by equally logical and rational physiological explanations, and accompanied by a host of sensational stories, went the round of the newspapers, and startled the public mind not a little. In a recent communication to the Société de Médecine Légale, M. le Docteur Evrard (de Beauvais) and M. le Docteur Beaumetz have related a series of experiments which they had made upon a head which was delivered to them five minutes after decapitation. The head was placed upon a table, covered by compresses to absorb the blood which might flow from it. The face was of one dull, uniform, waxy hue, the lower jaw fallen, and the mouth open. The expression was that of stupor, not of suffering. The eyes were open, fixed, looking straight before them; the pupils dilated; the cornea had already commenced to lose its lustre and transparency. A few particles of sawdust stuck here and there upon the face, but none were to be found inside the lips or on the tongue. The external meatus was carefully cleansed, and the experimenters, bringing their lips as close as possible to

the ear, thrice called out the criminal's name with a loud voice. No movement of the features or eyes resulted. A piece of charpie saturated with caustic ammonia was next placed under the nostrils; neither the alæ nasi nor any of the facial muscles moved. The conjunctiva of each eye was deeply and successively cauterized with nitrate of silver; the flame of a candle was brought within the distance of two centimètres from the cornea, yet no contraction was observed in the eyelids, eyeball, or pupils. The organs of sense absolutely refused to give any response, either by their functional or more purely physical sensibility. Various incisions were then made through sundry nerves and muscles. The muscles alone gave signs of life; they contracted energetically under the knife, but no grimace, no reflex action, no sign of nerve-life, was observed. And the muscular contractions were produced by galvanism even so long as half an hour after the brain was extracted, and when the skin was already cold, but no one could suppose that psychical life then existed; and we think our authors perfectly justified in the conclusions they have arrived at, which are, moreover, identical with those attained after a similar series of experiments by the Medical Association of Mayence in 1803, —viz., that "the sensation of external impression does not persist for one instant after decapitation;" and there can be no doubt of its truth. Without following our authors into their researches into the state of the thoracic organs, which present nothing bearing upon this point at all, and nothing, at any rate, either novel or important, we would only wish to record further that they found no fluid in the arachnoid cavity; that the vessels of the pia mater were almost bloodless, and filled with aëriform fluid; the lateral cavernous sinuses were absolutely bloodless; the ventricles contained scarcely a teaspoonful of fluid; and in no part was the brain injected.

The falling of the lower jaw, and its subsequent closure by cadaveric rigidity, is, in our authors' opinion, quite sufficient to explain the horrible stories of heads biting one another, as related by Sanson and other executioners, so far as these stories are not mere lies. Heindreich, the present executioner, has never observed any other sign of life then two or three slight movements of the lower jaw, similar to those so often seen at the last in those dying from other causes.

Those who are acquainted with "Les mille et un Fantômes" of M. Dumas will be at no loss to account for the sensational stories of M. Pinel, and will readily trace the source of his physiological reasoning. But Dumas goes a little beyond Pinel, because he makes a head, two hours after decapitation, not only call out the name of its lover, but actually recognize him by dim candle-light through a "sac," while the eyes dropped

tears of sorrow! Our authors, in an historical introduction, establish the rights of Dr. Guillotin to the resurrection of the fatal instrument named after him, but claim our Scottish Maiden as its earliest prototype; this, they say, was in use in a "Scottish elan" in the sixteenth century. — *Gazette Hebdomadaire*, February 18th, and *Edinburgh Medical Journal.*

Feeding by the Nose in Fever.—Dr. G. P. Tennent, of the Glasgow City Fever Hospital, in a paper communicated to the *Glasgow Medical Journal* of November, 1869, after noting the various expedients usually resorted to for the purpose of sustaining the strength of fever patients by the forcible introduction of food into the economy, says:

The method which I prefer to all these and recommend is that of nasal feeding, by passing a gum-elastic catheter through the nares into the œsophagus, and then using an ordinary glass syringe. The nasal passages present an entrance over which the patient has no control whatever, either during or after introduction; and generally, when the slight amount of preparatory struggling has been overcome, he resigns himself contentedly to such measures, the hopelessness of resistance being evident. It has now been employed at the Fever Hospital for some time with the most pleasing results, and is found to be at once easy of execution, entirely devoid of danger, and thoroughly effectual. A catheter and syringe are always at hand, and they can be used with so little trouble that when the symptoms arise no time is lost; and so the rapid and irretrievable sinking which ensues when no food is being taken is avoided.

In the *Lancet* of March 20 and 27, 1869, Dr. Moxey contributes some interesting remarks on nasal feeding, in which he affirms that this method is still insufficiently recognized, and highly commends its comparative excellence in insanity and some other diseases. He, however, uses a Wedgewood funnel, introducing the end of it into one of the nostrils, and then pouring into the funnel, from a cream-jug or other vessel, the fluid nutriment.

In fever, at any rate, I consider that the employment of a catheter is to be preferred. With the latter there is no need for watching the respirations, as there must be with the former; but what is of still greater importance is that in cases of typhus the reflex sensibility is much diminished, and the epiglottis is often held vertical by agglutinated secretions, or, at all events, closes imperfectly, so that there would with the funnel be very considerable risk of some portions of the fluid passing into the larynx. This with the catheter is impossible. The only con-

ditions to be attended to in its use are: 1. To oil it. 2. To see that it is not too flexible, as, if so, it is apt to bend in all directions, and thus be more difficult to pass. 3. To remember that it may be passed into the larynx; its presence there generally produces irritation and coughing; and, moreover, air passes through the catheter. 4. After the catheter is introduced, to watch that it does not slip back through the nares. This may seem an unnecessary caution, but where the nasal passages are large, the patient breathing heavily through the nose, and involuntary deglutition occasionally occurring, it might happen. In the event of its slipping too far back to be laid hold of in the nares, it will be no easy matter to extract it by the mouth. A string attached to the catheter will guard against this possibility. 5. If the catheter is not readily passed by the one nostril, try the other.

Dr. Alfred Swain Taylor, so well known in this country by his work on Medical Jurisprudence, has resigned his professorship (Medical Jurisprudence and Chemistry) at Guy's Hospital, London.

M. Trouve's New Polyscope.—This instrument, which serves for a laryngoscope, ophthalmoscope, otoscope, and urethroscope, represents when closed a case seven inches long by one inch and a quarter in diameter. The two parts composing it carry each a lens at their opposite extremities—the one two and a half inches, and the other three and a half. In the lids which close the case, two mirrors are placed, the one plane the other concave, both being pierced in the centre. The case contains—1. Two larynx mirrors with handle. 2. Three ear-speculums. 3. A photophor or candlestick with three branches, terminating on the side of the light by a vent, which at the same time does for a reflector; the photophor can ascend to the height of fifteen and three-quarter inches.

Effect of Electricity on the Uterine Contractions.—Dr. de Saint Germain has proved conclusively, from his recent experiences, that electricity does not provoke uterine contractions when they have not yet spontaneously appeared, but that it quickens them when the pains have begun, the placenta, as a general rule, being immediately expelled after the birth of the child. This rapid expulsion of the after-birth appears to constitute one of the most important applications of the electric current. Dr. Radford had already used this means to arrest hæmorrhages connected with delivery, likewise Dr. Barnès to counteract the effects of uterine inertia.

Rarissimum Peritonæi Receptaculum.—Under this name Neubaüer describes an excessively rare disposition of the peritonæum, which has since been observed only once by M. Cruveilhier. An analogous case has recently been observed at the Hospital Beaujon, by MM. Montard Martin and Mathis, and is described by them in the *Union Médicale*, No. 93, 1869.

In making the autopsy of a man dead of typhoid fever, they saw, after opening the abdomen, a bladder of ovoid form, and of the size of the head of a six-months child, entirely free from adhesions. This bladder, surrounded by the large intestine, presented a very thin, smooth, and perfectly transparent coat, presenting to the eye all the characters of the peritoneal membrane; it was open, and was found to contain all the small intestines, from the pylorus to the point where it emerges into the large intestine. The intestine, with the mesentery, was lying free and without adhesions. At the same time, in attempting to carry the finger into Winslow's hiatus, to penetrate in the posterior cavity of the omentums, it was ascertained that this hiatus was absent.

Preparation of Chloral.—We find in the *Gazette Médicale de Paris*, March 12, 1870, a communication made by M. Adrian, to the *Société de Thérapeutique*, regarding the difficulties he had encountered in the preparation of chloral, in following all the indications given by Dumas in his "*Traité de Chimie.*" He thinks that, before studying the therapeutical properties of this new medicament, we should know some uniform process which will always give the same product. He presented to the Society several samples of chloral, some of which are in small friable crystals, fatty to the touch, of a sweet smell, reminding one of acetic ether, exhaling no vapor, and having no action upon litmus-paper. Other specimens on the contrary are in crystalline masses or cakes hard to break by the fingers; of acid reaction and sharp, pungent odor, and producing abundant vapors in the air.

To explain the difference existing between these products, M. Adrian gives the details of the manufacture of chloral, which he divides into three phases: 1. Action of chlorine upon alcohol. 2. Rectification and purification of the anhydrous chloral. 3. Preparation and purification of the hydrate of chloral.

Chloral is obtained by causing a rapid current of chlorine to pass through anhydrous alcohol until the excess of gas is no longer charged with chlorhydric acid vapors. The oily and complex liquid resulting from the reaction of chlorine upon alcohol is distilled with lime. The anhydrous chloral thus purified is hydrated by adding to it 12 per cent. of water, and

then crystallized hydrate of chloral is obtained by cooling. Such is the preparation of chloral reduced to its simplest expression; but the practical execution of it presents great difficulties. Indeed, all chemists know that it is not always easy to obtain completely anhydrous alcohol, and, under the name of absolute alcohol, we most frequently have a liquid marking ninety-eight to one hundred centesimal degrees with Gay-Lussac's alcolometre. Now, if dry chlorine is made to react upon alcohol still containing about 1 per cent. of water, the product remains constantly liquid; while in operating upon perfectly anhydrous alcohol the mixture takes on the form of a solid mass on cooling, and the action of chlorine seems to be stopped in leaving a portion of the alcohol which it is very difficult to transform completely. In this last case, a crystalline compound which seems to be a mixture of hydrate and alcoholate of chloral soiled by a chlorinated liquid of an oily consistence is produced. By expressing this mixture to separate the oily portions of it and by distilling the solid body, a crystallized compound having all the appearance of the hydrate of chloral is obtained. But let us suppose for a moment, as most commonly occurs, that the action of dry chlorine should take place upon alcohol at only 98° or 100°. Then results a complex liquid beginning to boil at 60° Cent., and is distilled at 98° Cent. In the rectification by sulphuric acid, a very abundant escape of chlorhydric gas is observed in the beginning of the distillation. This gas ceases very soon, but reappears toward the end of the operation.

Finally, the author concludes by saying that to obtain pure chloral it must be made in small quantities; when operating upon three or four pounds of alcohol at once, the purification becomes much more difficult, and the hydrate of chloral does not possess all the qualities above mentioned.

Production of Bone from Medulla.—An interesting "provisional communication" appears in No. 24 of the *Centralblatt*, from the pen of M. Baikow, on the effects of transplantation of medulla. M. Baikow made two series of experiments. In one set, which were thirty-eight in number, the medulla from the femur or tibia of a dog was placed under the skin of the back of another dog; while, in a second set, twenty-eight in number, the marrow was inserted beneath the skin of the back of the same individual. The first set of experiments all failed; bone was formed in none. In the second set fourteen cases succeeded—i. e., bone was actually formed; while in the remaining six cases the changes that occurred in the early stages were followed. The remaining eight cases were unsuccessful. In the fourteen successful cases bony masses were found in

various stages of development, from the earliest rudiments to complete formation, with Haversian canals, lamellæ, stellate lacunæ, and medullary cavities filled with medulla. Up to the present time, M. Baikow's experiments extend only to the seventy-sixth day. In one case, at the sixty-first day, not only was complete bone present, but fibro-cartilage. The results of examinations showed that the medulla, after transplantation, first passed into the condition of fibrous tissue, from which, by the proliferation of the cellular elements, bone or cartilage was developed. M. Baikow's results are in opposition to those of M. Ollier, but corroborate those of M. Goujon.

In the *Abeille Médicale*, Paris, June 20, 1870, we find the report of a case of stricture of the urethra, treated by internal incision, by M. Tillaux. We give the following abstract of the case, with remarks and quotations:

A., aged thirty-five, entered the Hospital St. Antoine, September 8, 1869, with a stricture, in the bulbous portion of the urethra, so narrow that the urine constantly dribbled, and no instrument could traverse it. On the 18th, however, a bougie of one-third of a millimetre was introduced, and a chill ensued. Every new attempt at catheterism was followed by urethral fever, until November 4th. On December 5th, M. Tillaux decided to perform internal division with Maisonneuve's urethrotome, but had to employ a modified instrument made by Messrs. Robert et Colin. A whalebone guide was substituted for the soft gum conducting bougie, and the grooved steel conductor was tunnelled so as to slide upon the whalebone bougie, then the blade was introduced, and the operation done with success, and much to the satisfaction of M. Tillaux, who remarked that M. Maisonneuve, in constructing his instrument, had rendered a great service to surgery; thanks to him, the operation has become easier and more efficacious. It can be employed in the great majority of cases, and, when it is not applicable, no other instruments are. However, under certain circumstances, its use is very difficult, if not impossible, as shown by the case in point.

It is not stated whether M. Tillaux, or the surgical cutler, claims the device, or whose it is.

We beg leave to inform our transatlantic brethren that the invention is American, and belongs to our countryman

Prof. Gouley, of the University of New York. This method of internal urethrotomy was first proposed and practised by Prof. Gouley in 1866, and the following extract, with an illustrative case, from the *Medical Record* of April 15, 1870, p. 76, will establish his claim to priority:

The difficulties which I had experienced, in the two cases just related, suggested to me a device by which they might in future be obviated. The first and really difficult step of Maisonneuve's operation is to pass the gum conductor. I have seen the attempt made by clever surgeons, without success; and have often witnessed bending of the bougie in front of the obstruction, so that its point would appear at the external orifice. My success with capillary whalebone bougies induced me to employ them as conductors in urethrotomy, and I had but to adapt Maisonneuve's blade to the vesical end of my smallest-tunnelled sound, and I had a urethrotome of the simplest construction for cutting from before backward. The blade being sharp, both in front and behind the blunted summit, it could also be used to cut from behind forward.

Case.—John G., aged fifty-three, entered Bellevue Hospital, March 7, 1866. Gonorrhœa ten years previously. Narrow stricture in the region of the bulb. Dysuria. Frequent micturition. Retention relieved spontaneously. Dilatation persistently tried without success. On May 5, 1866, after exploration, I injected half an ounce of oil into the urethra, passed a capillary whalebone bougie, introduced the tunnelled urethrotome, and divided the stricture freely. No anæsthetic. No catheter retained. Sound No. 18. Hæmorrhage very moderate. Hip-bath, rest, diluents, quinine, and iron. Slight febrile reaction on the following day, none afterward. Catheterism every second day. Patient discharged on the 20th of May, and advised to continue the use of his sound.

In the same journal (p. 75), while speaking of Charrière's urethrotome, he says: "I would suggest the *tunnelling* of the point of this instrument, and that the whalebone guide be substituted for Maisonneuve's gum conductor."

The following is extracted from an article of Dr. Gouley's, which appeared in the *Medical Record*, May 15, 1869, also in the *Lancet*, June, 1869. The same article was reprinted in the New York Medical Journal, August, 1869, and largely circulated in pamphlet form, both in London and Paris:

The guide may be kept in position after the withdrawal of the catheter, and dilatation carried on by the successive intro-

duction of larger-sized catheters of similar construction; or divulsion may be resorted to by means of Mr. Holt's or Sir Henry Thompson's instrument, modified by means of the terminal canal for the passage of the guide; or *internal urethrotomy* may be practised *with any* of the various urethrotomes, having only this simple modification.

With a final quotation from the *Medical Record*, March 15, 1870, we trust we shall have shown to whom belongs the credit of having introduced a valuable improvement in urethral catheterism. At p. 32, Prof. Gouley says:

This preliminary dilatation is, I believe, best accomplished by the aid of the grooved steel staff—devised by me seven years ago—two millimetres in diameter at its point, which is tunnelled for one-eighth of an inch. If the free end of the guide-bougie, which already occupies the whole length of the urethra, be passed through this tunnel or canal, the staff, as it advances, must follow the guide-bougie.[1]

Temperature of the Cranial Cavity.—The temperature of the cranial cavity has lately been made the subject of investigation by M. Mendel, of Pankow, near Berlin. Fick had already found the normal temperature of the cranial cavity to be lower than that of the body generally. Jacobson and Bernhardt had likewise noticed the inferior temperature of the blood arriving at the heart by the superior vena cava, as well as the depression it produces in the right cavities. M. Mendel corroborates these results, and finds constantly that in health there is a difference amounting to seven-tenths, or even to one degree Centigrade, between the temperature of the cranial cavity and the rectum in the rabbit; and that in the dog the difference is almost as well marked. Duméril and Demarquay have shown that the temperature of the body is lowered by the action of chloroform. Bouisson arrived at the same

[1] This method of catheterism is, I believe, an improvement on the old French mode of catheterism upon a conductor, devised by Desault, or on the method of Wakley, or the more modern device of Maisonneuve, which he names "cathétérisme à la suite," with a small gum bougie, which very often coils up in front of the stricture instead of entering it. This very flexible guide has been adapted by Maisonneuve to his urethrotome, and is very liable to be cut across by the blade of the instrument. Voillemier has also adapted it to his divulsor. Here again it has similar disadvantages, and will meet with very little favor. But the whalebone guide-bougie adapts itself admirably to the inflections of the urethra, and is applicable to the catheterism of strictures situated either in the pendulous portion or subpubic curve of the canal. I have sometimes used the fine English bougies as guides to the steel staff. They are stiffer, and therefore better than the French.

results, as have also Sulzynski and Scheinnesson, the experiments of the latter having been performed upon man. The differences observed by Mendel between the temperatures of the cranium and the rectum are much more clearly marked when the animal is under the influence of chloroform than when in a normal state. Chloroform lowers the temperature generally, but especially that of the cranial cavity. The effects produced by chloral on the temperature of the body generally have been already studied by Demarquay. This author has found that the temperature of the body falls several tenths of a degree. M. Mendel arrives at the same results in regard to the temperature of the cranial cavity, except that he has observed it to fall to a still greater degree than the general temperature. Deguix, Dupuy, Leuret, and Gscheidlen have found that, after a moderate or therapeutical dose of morphia, the temperature of the body rises; though when administered in a poisonous dose it falls. Mendel again arrives at the same law, viz., that the depression of temperature is more marked, and occurs more rapidly, in the cranial cavity than in the rest of the body. In poisoning by alcohol, the temperature of the cranial cavity rises to such a point that it exceeds the temperature of the rectum.—*Lancet*, July 9, 1870.

Dr. Edwin Lee, the well-known author of the "Hand-books upon the Baths and Watering-places of the Continent," died, at the age of forty-one years, on the 4th of June, from cancerous stricture of the rectum, from which he had been suffering for several years. He was also the author of the Jacksonian prize essay, "On the Comparative Advantages of Lithotomy and Lithotrity," but was perhaps best known by the hand-books above referred to.

The *British Medical Journal* expresses the hope that "it will not be long before every intelligent mother of a family is familiar with the use of the thermometer for the discovery of disease. In many respects, it is far more reliable than the tongue or the pulse. As a means of ascertaining when it is desirable to consult a doctor, and when advice may be deferred with safety, it would be invaluable. By its aid the difference between insignificant skin-rashes, which will disappear in a day or two, and those which imply a constitutional fever, may usually be satisfactorily determined. Under many circumstances, the early discovery that a child was sickening for scarlatina or measles might be of great importance. We hope that before long a few brief rules adapted for home employment will be prepared, and that, aided by them, the mothers

and nurses of our land will at once commence the acquisition of a kind of experience which will become every year of increased importance. In addition to its practical value in reference to the health of their households, we must also add that all who become familiar with the facts of human thermometry must learn some very interesting lessons in physiology."

The Treatment of Sciatica.—Mr. J. Waring-Curran, in the *Medical Press and Circular*, says:

In my student-days the over-estimated iron of Sir Dominic Corrigan was in constant requisition by the Dublin Hospital surgeons. In practice, I have obtained nothing but vexatious disappointment in its use, as a counter-irritant in the treatment of sciatica. The numerous cases recorded by the Dublin men, wherein Corrigan's iron was employed with so much benefit, were cases wherein change of diet, rest, and warmth, and a suitable internal treatment, contributed as much to benefit the patient as the counter-irritants. Blistering along the course of the nerve is very uncertain. The hypodermic injection of morphine lulls the pain for a time, which only begins with unusual severity, and the strong liniments of aconite and belladonna, when applied to the surface, I have ever found inert. Accordingly, I have adopted the following treatment: I have employed it now for some years, and can confidently recommend it as being safer, surer, and more satisfactory, than any treatment, or method of treatment, I have anywhere observed, or that I have myself ever employed.

In a small porcelain vessel I mix one grain of morphine and three grains of extract of belladonna with six drops of creosote. I get my patient out of bed, standing as erect as the nature of his disease will permit him, and began making small incisions, half an inch long, with an intervening space of three inches between each incision, cutting only through the skin and subcutaneous cellular tissues. I make the incisions alternate on each side of the nerve, beginning underneath the fold of the *gluteus maximus*. Having wiped off the effused blood, I quickly rub in the composition. The morphine and belladonna allay the pain, and the creosote sets up, if properly applied, a certain amount of local irritation, which is very desirable. M. du Chaillu, in his exhaustive and popular work on the gorilla, records a somewhat similar procedure existing among the Celond races. If my memory serves me, caustic lime is the agent he records as being employed.

To every patient suffering from sciatica I exhibit iodide of ammonium, and I have remarked, as I hope soon to show, that its therapeutic power is superior to the iodide of potassium, but in no complaint will this be appreciated more than

in the *eruption* stages of syphilis and in diseases of the glandular system. The patient, bent double with acute pain, will be found, after the incisions are made and the morphine composition rubbed in, able to move his leg freely in any direction. There is, of course, a numb feeling experienced, but the liberation from acute suffering provokes an expression of gratitude, which is conclusive evidence of the value of the plan of treatment advocated.

The Therapeutics of Chronic Constipation.—Dr. J. K. Spender, of Bath, England, in a paper upon this subject contributed to the *Medical Times and Gazette*, says:

The plan which I propose comprises four therapeutic factors: (*a*) minute and frequent doses of watery extract of aloes, very rarely of extract of colocynth; (*b*) a dose of sulphate of iron (gr. jss or ij) always combined with each dose of the direct aperient; (*c*) regulation of the diet; (*d*) constitutional exercise. I have to write chiefly of factors (*a*) and (*b*). The quantity of extract of aloes, in all but extraordinary cases, should not exceed one grain. It is conveniently given in the form of a pill. With this pill there should always be mixed a dose of sulphate of iron varying from one to three grains; this is the essential point of the treatment. Any other tonic of the neurotic kind cannot supply the place of the iron; for the purpose I am now relating, iron is not only *facile princeps*, but is not interchangeable by any thing else. Extract of nux vomica may be added, if the prescriber pleases, as an ornamental appendage or as a means of blending the other constituents together; and belladonna is a remedy of definite auxiliary power, but both these drugs, *quoad* constipation of the bowels, are uncertain or unsatisfactory, and rarely do permanent good. I begin, then, by desiring an adult patient to take a pill composed as above three times a day, immediately after the principal meals. He is cautioned that at first there will be probably no apparent effect, and that two or even three days may pass before any medicinal evacuation of the bowels takes place, perhaps even then difficult and discomforting. But within the next forty-eight hours there will be most likely an evacuation of the bowels once, or possibly twice in the day; *but nothing approaching to purgation ought ever to be permitted*, and therefore the patient must be instructed, on the occurrence of the first loose motion, to withhold a pill, and to take only one in the morning and one in the evening. He then continues for a time his morning and evening pill, and is pleased to discover that so slender a medicament has such a decided effect. Not improbably, at the end of another week

or fortnight, he is compelled, by the same reason as before, to drop another pill, and the same result is now brought about by one pill daily, as was originally produced by three pills. Within another month, he may reduce his allowance of medicine to a single pill once or twice a week; and, finally, his whole scheme of medical treatment becomes merely preventive in its design and scope, and he takes a pill occasionally for the sake of maintaining health and warding off old troubles.

Amputation during Anæsthesia with Chloral.—Dr. Noir (of Brionde, France) has published, in the *Gazette des Hôpitaux* of December 23, 1869, the case of a man, aged sixty-four, suffering acutely from osteosarcoma of the leg. The patient was very anxious to have the limb taken off; and, as a trial, he took about sixty grains of chloral, dissolved in two ounces of simple syrup, at 8 A. M. Up to nine o'clock, he frequently made efforts at vomiting, and had defective vision; after this came violent excitement, which lasted two hours; he then fell asleep, and soon was so insensible that he could be moved about without waking. This sleep lasted about an hour and a half, and the patient, on coming to his senses, said that he felt very well, and asked for food. Pain had of late deprived him of sleep, and he was overjoyed to have had some rest.

Two days after this, the man took seventy-five grains of chloral at eight in the morning, and was uncomfortable for two hours, when he fell into a deep slumber, and underwent amputation of the leg without moving or uttering a sound. After being placed in bed, the patient sank into an alarming coma for one hour; after which, on waking, he was seized with violent delirium and severe vomiting. These fearful symptoms lasted about seven hours, when the poor man passed into a state of complete prostration, and recovered his senses; but did not recollect any thing of what had passed, and could hardly speak or move. He took some beef-tea, had a sleepless but quiet night, and the next day all the effects of the chloral had passed off.

Dr. Noir remarks that, in this case, delirium, prostration, and coma, were so alarming that it would be imprudent to use chloral as an anæsthetic in operations if further experience prove that these dangerous symptoms regularly present themselves. There can, however, be no doubt, he adds, that insensibility was complete during the operation.—*Lancet*, January 1, 1870.

Subcutaneous Division of the Thigh-bone.—Subcutaneous surgical practice has made a remarkable advance during the

present month. In the latter part of November a man was admitted into the Great Northern Hospital, under the care of Mr. Wm. Adams, with anchylosis of the hip-joint, the result of a rheumatic fever suffered seven years ago. The limb of the patient being so deformed as to be utterly useless, Mr. Adams determined to make a subcutaneous division of the neck of the thigh-bone, within the capsular ligament. He performed the operation on the 1st of December, piercing to the bone with a long small knife, and dividing the bone itself with a fine saw. The leg was brought, immediately after the division of the neck of the bone, into a straight position, and fixed into a long splint, and the case has progressed with not one bad symptom, and the wound has closed without any inflammatory action or suppuration. The splint has been removed, and the man can move the thigh to a limited extent. Whether motion of the limb can be preserved remains to be proved, and, if it cannot, the limb will be transferred from a useless to a useful condition; but the great value of the case is that it establishes as a fact the possibility of performing so important an operation subcutaneously, and without an untoward symptom as a result. The operation will be a mark, in the year now nearly over, of the triumph of subcutaneous surgery.—*Lancet*, December 8, 1869.

Small-pox in Paris.—As supplementary to the note published in our last number, we quote the following paragraph from the *Lancet*, of July 23d: "The fatality of the small-pox epidemic in Paris continues to be alarmingly excessive. The reported deaths last week were, it is true, only 225, as against 267 in the week preceding; but the weekly fluctuations are less significant than the maintenance during the last seven weeks of so high an average as 216 deaths per week from this malady alone. Since the beginning of the present year—that is, in twenty-eight weeks—the total number of deaths returned in the *Bulletins Hebdomadaires* from small-pox has been 3,674, yielding an annual rate of mortality equivalent to 36 deaths to every 10,000 of the Parisian population. In other words, supposing the epidemic to decline from the present moment to the end of the year at the same rate as it has risen from the commencement of the year to this time, no less than 6,800 persons will have fallen victims to the disease in the twelve months. It may be interesting as well as useful to state that the greatest number of deaths from small-pox registered in London in any year since the passing of the Vaccination Act in 1840 has been 1,996; and that in the pre-vaccinal year 1838, when small-pox visited England with terrible severity, the fatal cases in the metropolis amounted to 3,817, or to only a

few more than have died in Paris during the last six months. The present population of Paris is 1,889,842, and of London 3,214,707. Small-pox caused 711 deaths in the French capital in 1869, 638 in 1868, 324 in 1867, 581 in 1866, and 765 in 1865.

Carbonic Acid.—In a late lecture Dr. Benjamin W. Richardson took for his subject some new and curious points, relating to the physiological action of carbonic acid. After briefly describing the chief physiological facts ascertained since the discovery of carbonic acid as a product of the respiratory process by the illustrious Black, the lecturer proceeded to illustrate the effect of carbonic acid on animal and vegetable fluids. He said that his friend, the eminent chemist, Dr. F. Versmann, in studying the manufacture of some medicinal waters, had found, much to his annoyance, that when carbonic acid, with a little soda, was brought into contact under pressure with some vegetable infusions, the gas was fixed to a large extent, and the infusion was quickly transformed into a thick, glairy fluid. Some infusion of orange and gentian treated in this manner was shown: the liquid was beautifully transparent, but glairy and thick, and, when transferred from one vessel to another, it turned out in a mass like albumen. This observation suggested to Dr. Richardson the importance of experimental inquiry as to the influence of carbonic acid on animal fluids, on the mucous secretion of the air-passages, on albumen, on serum, on solution of muscle, on fibrine, on blood, on blood-corpuscles, on bile, milk, and other animal secretions. He now showed some of his results, especially those relating to the precipitation of colloids. Albumen was shown as precipitated from serum, fibrine from a solution of muscular fibrine, and fibrine from a solution in blood. Next it was demonstrated that the blood-corpuscles by exerting a condensing effect on the acid prevented it by their presence from precipitating the colloids; and lastly, it was demonstrated that freshly-drawn defibrinated blood, subjected to carbonic acid under pressure, while it was rendered very dark by the process, on being exposed to the air at 60° Fahr. gave up the acid and seized oxygen in place of it with such avidity that a surface of blood a foot square was changed almost instantaneously from deep-black into bright-red arterial blood. Thus, the lecturer reasoned, carbonic acid on the blood side of the pulmonary vesicular surface is as important a necessity for respiration as is oxygen on the air side.—*Medical Times and Gazette*, May 21, 1870.

Erratum.—In August number, p. 87, beginning of second paragraph, for "Dr. Nott" read "Dr. Newman."

NEW YORK

MEDICAL JOURNAL.

A MONTHLY RECORD OF

MEDICINE AND THE COLLATERAL SCIENCES.

VOL. XII.] OCTOBER, 1870. [No. 3.

Original Communications.

ART. I.—*Sympathetic Ophthalmia.*[1] By THOMAS R. POOLEY, M. D., Assistant Surgeon to the New York Ophthalmic and Aural Institute; Clinical Assistant to the New York Eye and Ear Infirmary.

MR. PRESIDENT AND GENTLEMEN: The subject I have selected to speak upon this evening is of importance not only to those engaged in the special practice of ophthalmology, but also to the general practitioner, since he may be called upon at any time to treat injuries of the eye, and should always be on his guard against this insidious affection. I refer to sympathetic ophthalmia.

I shall speak first of the early history of these affections, then of the causes of sympathetic disturbances, the forms of sympathetic disease, their pathogenesis, and lastly, their treatment.

Some isolated cases of one eye being sympathetically affected, after the loss of the other by injury, are mentioned in the early history of our profession, but they are of such an un-

[1] Read before the New York Medical Journal Association, March 18, 1870.

certain character that we can hardly with justice class them under the head of what is now understood by sympathetic ophthalmia. As early as the year 1696, Thomas Bartholinius communicated, in the third volume of the *Bibliotheca Medica*, a case in which he states that, after the complete recovery of the injured eye, the formation of a cataract was observed in the second eye. The second case is mentioned by Bidloo, 1713, and referred to by Jobert, in his work, *Plaies par Armes à Feu*, p. 137. The case here mentioned is one in which a large irregular splinter of wood entered the cornea, and as it could not be removed was cut off close to the same, in hopes that the ensuing inflammation would bring away the remaining piece. The account innocently adds that, in this expectation, the surgeon was cruelly deceived; the inflammation was extreme, it extended to the other eye, and it was only with great difficulty that it was saved. It is quite improbable that either of these cases was sympathetic inflammation. In the case just mentioned, it does not seem at all likely that the opacity of the lens had any connection with the injury of the first eye. We can only admit the possibility of an influence, there is no fact to prove it.

The other case is still less likely to have been sympathetic inflammation. For a piece of wood cut off in the cornea, as described, would produce panophthalmitis, which, Mooren says, never produces sympathetic inflammation, but only transitory œdema of the lids of the second eye, with some photophobia and lachrymation; in this sense, therefore, the sentence, "the disease was communicated to the other eye," is to be interpreted.

The merit of first describing the destroying effects of sympathetic inflammation upon vision belongs to Démour, who first described it in 1818, in his "*Traité de Maladies des Yeux.*" He mentions two cases in which injury of the first eye produced incurable blindness in its fellow. In a third case blindness was only averted by precautionary means. Literature does not show that the French utilized the observation of their countryman in practice. The statement of Démour seemed, however, to have found more favorable soil in Great Britain.

MeKenzie, the renowned Seoteh oeulist, first deseribed, in 1844, the existenee of sympathetic iritis. The disease had even then been known for some time to this acute observer, as may be inferred from the following remark, whieh I will give in the author's own words: "Whenever I see sympathetie ophthalmia in its first stage, I know that I have to contend with an affeetion whieh, no matter how slight its present symptoms may be, is one of the most dangerous affeetions to which the organ of vision is exposed."

These observations of McKenzie seem to have early ereated a sensation in Franee, for Laugier, the translator of McKenzie, was already able to refer to a case observed by him in January, 1843, in whieh a piece of percussion-eap entered the eornea of the right eye at its outer margin, and separated the iris throughout its whole extent, from the periphery to the pupiliary opening. Three weeks after the injury, Laugier made, being constantly on guard against the probabilities of sympathetie inflammation, an enlargement of the original wound, and sueceeded in removing the foreign body, so that the patient was fully restored to sight, and able to leave the hospital Beaujon in the beginning of Oetober.

About five years later (1849), Tavignot deseribed sympathetie iritis in the *Gazette des Hôpitaux;* he aseribes the inflammatory phenomena to the ciliary body.

Although sympathetie iritis was eonsidered by him as a speeial form of the disease, he nevertheless did not believe in its great danger, but eonsidered it nothing more than sympathetic neuralgia, followed first by eongestion and later by inflammation. Nélaton was also at this time aequainted with the danger of this form of iritis. He ealls it "*une ophthalmie d'une mauvaise nature*," which seems to start from the iris.

The very praetical nature of McKenzie's remarks, strange to say, did not immediately eall forth similar observations in England, for it was fully ten years later before any faets eorroborative of these statements were brought before the public.

In 1854 White Cooper published an artiele on lacerations of the sclera, in whieh he states the frequency of the appearance of sympathetie affection of the other eye in the form of ehorio-iritis. He laments the futility of all treatment, and se-

riously proposes the question whether in all such cases the injured eye had not better be removed as soon as its fellow becomes the seat of inflammation. About the same time (October 6, 1854), Augustine Prichard, surgeon to the Royal Hospital at Bristol, gave a *résumé* of twenty cases observed and treated by him.

He had put in practice Cooper's proposition of extirpation, for he says: "The treatment was extirpation of the injured eye as soon as the other showed serious signs of inflammation. My opinion needs confirmation; nevertheless, as far as I am concerned, I shall advise every one, who applies to me under such circumstances, to submit to the operation."

One year later, R. Taylor communicated eight cases of sympathetic disease; the first four were reported by Walton, the last by himself. He rejects extirpation, and thinks that simple ablation of the cornea would meet the indications. Although Taylor's cases were not numerous, he makes the very valuable observation that bruises, lacerations of the anterior segment of the eye, and also idiopathic lesions of one eye, may lead to products which operate like a foreign body, as, for instance, calcified lens.

It is remarkable, notwithstanding the importance of the subject, that, until quite lately, hardly any of the text-books speak of the occurrence of sympathetic ophthalmia.

Wharton Jones, in his "Principles of Ophthalmic Medicine and Surgery," correctly ascribes the starting-point of the disease to the ciliary body, but he speaks only superficially of it. Sympathetic inflammation was not unobserved in Germany, although we find no observation referring to it at this time. Mooren, in his excellent monograph on this subject, says: "I can testify that the disease was estimated at its true importance by Graefe. If we take into account that even at this time iridectomy in his hands found its application in certain forms of irido-choroiditic diseases, it will be but natural to infer that this great oculist already appreciated this form of disease, and, distrustful of enucleation, sought for a remedial means in iridectomy. As soon, however, as he became convinced that it proved insufficient, he unhesitatingly decided in favor of enucleation."

But the importance of Graefe's observations on this subject is that he has by them put an end to wavering opinions, and established a more sure stand-point for future observation, for by him, more than any other observer, the destructive course of the disease has been placed in a clear light. Pagenstecher, in a publication of twelve cases, in 1862, brought prominently before the public the very important fact that it is almost solely those parts of the eye (iris ciliary body and choroid) which are supplied by the ciliary nerves which produce sympathetic inflammation.

In the fall of 1863, Critchett, at a meeting of the Ophthalmological Congress, in Heidelberg, read a paper on sympathetic inflammation; he describes the disease in the following words:

"What in such cases especially claims the attention is, the slowness, insidious and destructive character of the inflammation, the ruinous influence which it exerts upon vision, the obstinacy with which it resists all treatment, both local and general, as well as all surgical means."

In his opinion, sympathetic ophthalmia is any inflammation which arises in one eye from injury or disease of the other. In the remarks which Graefe made at that time on Critchett's lecture, he mentioned, as conditions for the production of sympathetic inflammation besides traumatic influences, frequently-recurring hæmorrhages with increase of intraocular tension; likewise the deposit of calcareous matter when it retains sensibility. I will now pass on to speak of the causes of sympathetic affections.

Causes.—Mooren says that every inflammation of the uveal tract, no matter what its cause may be, has the power of producing sympathetic ophthalmia, if it appear from the beginning as eyelitis, or as soon as it assumes this character.

Mooren presents a statistical table of all the affections, both traumatic and non-traumatic, of one eye capable of giving rise to accidents in the other. One is struck at once with the variety of forms in which injuries or various inflammatory processes affecting one eye may give rise to sympathetic accidents in the other. Most fortunately, however, affections of a sympathetic nature are rare in comparison with the frequency of the lesions that are capable of producing them.

The different parts of the eye have a very great difference in relation to the frequency with which they produce sympathetic affections; we shall speak first, very briefly, of non-traumatic causes. In the table already referred to, sympathetic accidents followed affections: Of the conjunctiva, once; of the retina, 4 times; of the sclerotic, 4 times; of the cornea, 8 times; of the iris, 10 times; of the choroid, 14 times; of the ciliary body, 26 times; the atrophy of the globe, 18 times.

Iritis of a specific character may take on the type of cyclitis and then give rise to sympathetic trouble in the other eye. In the same way non-traumatic detachments of the retina, when they assume this character, may endanger the other eye; this, however, is only an exceptional accident. Mooren mentions only seven such cases out of several hundred cases of detached retina.

Graefe and Jacobson have shown that the presence of a cysticercus within the eye may in an analogous way give rise to secondary affections.

The injurious effects of atropine in cases of total synechia have induced Mooren to attach great importance to dragging upon the ciliary body.

It is this influence upon the ciliary body that makes prolapses of the iris so dangerous. It is not even necessary that the dragging upon the ciliary body, thus induced, should be sufficient to cause cyclitis, *the simple traction upon a ciliary nerve is often sufficient to cause sympathetic inflammation.*

That such a traction may take place has been anatomically demonstrated by Ivanhoff. In an eye which had been enucleated by Mooren, he found the ciliary body caught in the sclerotic. Anterior staphyloma of the cornea and sclerotic rarely gives rise to sympathetic troubles.

Spontaneous luxations of the lens are inoffensive while the lens lies in the vitreous, but they become a source of danger as soon as the lens is caught in the anterior chamber, and thus causes irritation of the ciliary region; this is especially the case when the lens undergoes calcareous degeneration.

Traumatic luxations are vastly more dangerous, for here the ciliary body is often wounded, and thus rendered liable to inflammation. The depression of cataract is a fruitful source

of sympathetic inflammation. Mooren has often seen sympathetic destruction of an eye follow this operation. The pressure of an artificial eye is frequently followed by sympathy, especially when the wasted globe contains a calcareous cataract, or transparent corneal tissue. Mooren does not permit his patients to wear an artificial eye unless he is sure of the absence of the lens.

Let us pass now to speak of the effects of wounds in causing sympathetic disturbances. I can only stop to mention the more important, which most often give rise to these affections. Let me say, however, that any wound that is capable of producing inflammation of the ciliary body may also give rise to sympathetic inflammation. Those situated in the proximity of the ciliary body are by far the most dangerous, more especially when they penetrate the ciliary body itself; this remark will hold true, whether the wound be large or small. Wounds involving the parts situated immediately behind the globe often heal with astonishing rapidity; it is not, however, necessarily to be inferred that all danger is past: it must not be forgotten that the cicatrization of such wounds may give rise to cyclitis, which is, as we have seen, so important a factor in the production of sympathetic ophthalmia.

Foreign bodies that penetrate the eye may become encysted, remain for a long time quiet, but, if not fixed in the back of the eye, may become dislodged and irritate a ciliary nerve in such a manner as to provoke sympathetic trouble in the other eye. A remarkable case of this kind is related by Lawson, in which, fourteen years after the loss of sight in the right eye from an injury by a piece of gun-cap, the left eye became sympathetically affected; the right was excised, and on section a small chip of a gun-cap, embedded in lymph, was found lying on the ciliary processes. Wounds which induce suppuration are not apt to be followed by sympathetic inflammation, unless a foreign body remain in the eye.

The list of traumatic causes, as given by Mooren, which are capable of producing sympathetic accidents, embraces nearly all the forms of wounds which may be inflicted on the organ. No wound of the eye, no matter how apparently trivial, that the possibility of such an occurrence should escape our notice.

Different Forms of Sympathetic Affection.—Sympathetic affections show themselves under different forms. We may speak of them as *inflammatory* and *functional*, without material alterations in the eye secondarily affected.

Among the inflammatory alterations the most frequent and without doubt the most destructive is *irido-choroiditis plastica* or *irido-cyclitis*. More rarely we see irido-choroiditis of a serious character; it is generally less dangerous than the plastic form. Several other forms of sympathetic inflammation have been described, but their existence does not seem to be well established: thus Rheindorf mentions a sympathetic irido-keratitis, which, however, has not been observed by other authors. Graefe describes a retino-choroiditis with excavation of the optic nerve as a form of sympathetic affection. I have observed myself in one instance well-marked plastic neuro-retinitis occurring among the complex array of symptoms in a case of sympathetic inflammation, which condition I do not find anywhere mentioned in the literature of the subject.

Independent of these lesions, there exists a number of functional symptoms of sympathetic irritation, of which we shall speak, such as feebleness of the accommodation, photophobia, lachrymation, and amblyopia without abnormal ophthalmoscopic appearances. Liebreich mentions a periodic interruption of vision. These functional symptoms may exist as such only, or they may be but the precursors of the graver troubles we have mentioned.

Plastic Irido-Choroiditis.—The symptoms of this form of sympathetic inflammation have been minutely studied and described by Critchett, Donders, Graefe, and others, and are known to all who have seen any number of wounds of the eye. Let us briefly enumerate the more prominent of them. Some time after the wounding of the first eye, while it is yet sensitive, at least to the touch, the patient suffers from lachrymation, photophobia, and difficulty of accommodation, also occasionally from supra-orbital pains. A slight iritis is developed, which gradually assumes the character of irido-cyclitis or exudative iritis.

It sometimes, though rarely, happens that it is developed

all at once. Laquer, Liebreich's assistant, mentions two cases where irido-cyclitis declared itself suddenly, without the least premonitory symptoms.

As the inflammation increases, the neuralgia becomes more and more intense; sometimes, however, there is not the slightest pain, and this invests the disease with a peculiar danger, as it is apt to pass for a long time unnoticed. Soon there appears more or less conjunctival and sub-conjunctival injection; the aqueous humor loses its transparency; the iris swells, becomes discolored, engorged, vessels are to be seen running over it; the anterior chamber diminishes in depth, the border of the pupil is irregular, exudation takes place, and the iris becomes attached to the lens capsule, sometimes leading to complete occlusion of the pupil.

Vision, which from the commencement has been diminished, becomes more and more affected by the exudation and synechiæ. The exudation is not confined to the pupil, it extends to the posterior part of the iris and ciliary processes. If the refractive media remain sufficiently clear, we shall notice turbidity of the vitreous, sometimes inflammatory changes in the retina and choroid. Occasionally the disease is arrested; this, however, is exceptional, more often it augments in intensity, resists all methods of treatment, and goes on to complete destruction of the eye by atrophy of the globe.

The following cases, which came under my care, may serve as a type of this form of sympathetic inflammation:

July 26, 1869.—J. McG., a boy aged nine years, was struck upon the left eye by a clam-shell, thrown at him by a comrade, with considerable force.

The following day I saw him. There was a wound on the lower and inner sclero-corneal margin, in which the iris was caught, covered by conjunctival tissue. Hæmorrhage into the anterior chamber obscured the lens, and prevented illumination of the fundus; vision reduced to quantitative perception of light. Atropine was ordered, and a compress bandage applied.

The following day the blood had so far absorbed that he could count fingers at 2′.

The eye continued to improve, and vision increased to $\frac{2}{3}$, until August 24th, when I first noticed some irritation of the other eye; his parents were warned of the danger of sympathetic ophthalmia, but unfortunately delayed bringing him to me again until the 28th, four days later. The injured eye was

now hyperæmic, painful upon pressure, and by reflected light an exudation behind the lens, in the immediate location of the wound, was distinctly to be seen. The right eye was injected, the pupil sluggish, and under atropine showed a synechia toward the nasal side. The following day, with the concurrence of Dr. Knapp, who was asked in consultation, I enucleated the injured eye. Notwithstanding this precaution, and strict antiphlogistic treatment, the sympathetic inflammation steadily progressed. The iris became attached to the lens, the vitreous cloudy, exudation into the pupil took place, the anterior chamber decreased in depth, and exudation also occurred on the posterior surface of the cornea. Vision reduced to $\frac{5}{200}$.

Dr. Knapp has kindly made an examination of the globe for me, the results of which I will now give. The eye had lain in Müller's fluid since enucleation. Anterior posterior diameter of globe 23 *mm.*, transverse 23½ *mm.* The lower and inner inferior part of the globe is distended.

Meridional sections show all the membranes attached, except the choroid just behind the scar, which is detached; there is, however, no fluid between it and the sclerotic conditions, which shows the detachment to be due to the opening of the globe. The scar commences at the median line, on the lower portion of the globe, extends 8½ *mm.* in a direction upward, inward, and backward, from the sclero-corneal margin through the ciliary body.

The vitreous, coagulated like jelly, by the effects of the hardening fluid, detaches readily from the retina in the posterior portion of the globe, but is united to it inseparably in the anterior and ciliary region, the union being densest at the place of the scar.

Microscopic Examination.—In the posterior portion of the vitreous, lymphoid and larger irregular cells were scantily scattered; moreover, a net of very pale, large stellate cells, with many anastomosing offsets, were discernible; more anteriorly the same elements increased in number, and became more distinct (less pale).

Retina.—Sections of posterior portion showed all layers perfectly normal. Further sections showed that the retina continued normal throughout its entire extent. At the orra serrata the intumescence, which the retina shows in its normal condition, was increased. Its ciliary region was very much enlarged, and thickly strown with lymphoid cells. The fibres of the zonula zinnis were very distinct, and likewise densely crowded with lymphoid bodies, without any new-formed blood-vessels.

Filaments, connective-tissue cells, and lymphoid cells, extended from the zonula into the vitreous, behind the lens.

Choroid.—Shows throughout its whole extent circumscribed foci of infiltration with lymphoid bodies, which were more or less densely embedded in the interstitial places of the choroidal stroma, leaving the white as well as the colored stellate cells unchanged.

The infiltrations only took place in the vascular and capillary layers of the choroid, swelling them to about double their normal thickness, while the hyaline and pigmentary layers were quite intact.

There was no visible change in the walls or contents of the choroidal blood-vessels (indicating phlebitis, thrombosis, or other changes). The choroid readily detached from the retina and sclerotic. The loose cellular tissue between it and the latter showed the usual sparse net of large anastomosing stellate cells, with here and there a scanty amount of lymphoid bodies scattered among them.

Iris.—The iris presented in its whole extent a thick and uniform infiltration with lymphoid bodies, without alteration of its blood-vessels and pigment layer. The same infiltration existed in the ciliary processes. The pigment layer of the latter was lacerated in some places; the cells strown out into the proliferating ciliary part of the retina, as has been above described. The ciliary muscle presented no abnormality whatever; the cornea was quite normal. Transverse sections through the region of the wound showed the posterior portion of the iris and the anterior portion of the ciliary processes caught within the scar, and their elements compressed and distorted. In the closest neighborhood of the scar, cornea, sclerotic and ciliary muscle proved normal, while the iris ciliary proeesses and choroid exhibited the inflammatory processes described.

A ciliary nerve taken from behind the scar, placed under the microscope, did not exhibit any abnormality of structure, except some very few lymphoid cells, which were seen between the fibres. The above conditions may be summed up as follows:

A perforating wound at the corneo-scleral juncture gave rise to implication of the iris in the cicatricial tissue, and chronic exudative irido-choroiditis of partly plastic, partly purulent character.

A direct cause of production of sympathetic irritation of the other eye could not be anatomically demonstrated, and must be sought for in the physiological connection which exists between both eyes. If we endeavor to explain it by nervous action, we may assume that the nerves of the iris caught in the wound were compressed by the contraction of cicatrized tissue.

Irido-cyclitis of a serous character is far less frequent. Mooren has only seen it once in one hundred and sixteen cases, while Laquer has observed it once in thirty cases. It has, however, been often enough noticed to deserve a place as an independent form of the disease.

The symptoms do not differ from those of ordinary serous irido-choroiditis. This form of sympathetic disease usually begins by opacities in the vitreous, troubles of vision, sometimes restriction of the visual field. Later the iris becomes discolored, and forms some syncchial attachments to the lens capsule; the pupil dilates only slowly under atropine, and, with the aid of oblique light, little depots of fibrine can be

seen upon the posterior surface of the cornea. The tension of the globe is augmented, and excavation of the optic disk may ensue, the disease assuming a glaucomatous type. This form of inflammation is generally less destructive to sight, and more under the surgeon's control, than the plastic variety.

Functional Troubles without Material Changes in the Eye secondarily affected.—These affections may be called nervous sympathetic troubles; among them we may mention—

I. *Asthenopia caused by Feebleness of the Accommodation.*—Patients affected in this way cannot use their accommodation for any length of time without fatiguing their eyes, and severe ciliary neuralgia often occurs, compelling the patient to rest the eyes for some time before resuming work. In certain cases the latitude of the accommodation is lessened, but never paralyzed. The symptoms are explained by the fact that there exists an insufficient innervation of the ciliary muscle, which will not permit it to keep up a state of contraction for a length of time without fatigue.

II. *Photophobia and Lachrymation.*—These troubles are extremely frequent, and nearly always exist in the inflammatory affections, however they may exist, without any inflammatory state, greatly to the annoyance of the patient. Sometimes the intolerance of light is so great that the patient is absolutely unable to use his eyes, not only for work, but even to walk about. Donders has observed such cases where the patients actually believed themselves to be blind, and where the enucleation of the eye primarily affected entirely restored the function of its fellow. I have observed these symptoms in several cases, where the wounded eye was hyperæmic, without any inflammatory complication.

III. *Ciliary Neuralgia.*—This not only follows the effort of accommodation, but may exist independent of this act, as a direct phenomenon of sympathetic irritation.

The three affections above mentioned are often found united, and together constitute what is called *sympathetic nervous irritation*. Laquer mentions a very interesting case, in which these symptoms occurred periodically. A young man, twenty years of age, had lost one eye by a wound at the age of nine years; had been affected since that time with a

nervous irritation of the other, which returned regularly twice a year, in the spring and autumn.

IV. *Sympathetic Amblyopia and other Troubles of Vision.*—These conditions are rare manifestations of sympathetic affections, unless induced by inflammatory changes. The acuity of vision slowly diminishes, without any perceptible change in the fundus of the eye.

Pagenstecher and others have seen aggravations of the amblyopia during exacerbations of inflammation in the injured eye. The enucleation of the injured eye ordinarily gives rise to amelioration of the sympathetic troubles, and White Cooper cites numerous examples where the operation has been followed by a complete cure.

The amblyopia may disappear, as has been observed by Laquer, spontaneously. In some cases the failure of vision is associated with cloudiness of the visual field, obscurations, and also central scotomata.

V. *Periodical Interruptions of Vision.*—Liebreich was the first to call attention to this phenomenon, in the Heidelberg Ophthalmic Congress, in 1863. He describes it as a temporary interruption of central vision, which lasts for a minute or two, and is due to an obscuration of the visual field. Laquer, his assistant, has also noticed this symptom in several cases, and describes it more minutely in his "*Étude sur les Affections Sympathiques*," p. 36, to which I must refer those interested in this subject.

Pathogenesis.—Under this head I have very little to say, because very little is known, and I do not care to waste your time by entering into the domain of mere hypothesis. The older writers on this subject supposed that sympathetic extension from one eye to the other always took place through the optic nerve, by way of the optic commissure. This theory is now pretty generally abandoned.

Henri Müller was the first to insist upon the importance played by the ciliary nerves in producing these affections. It is now generally admitted that the sympathy is propagated in this manner, and there are many clinical facts which go to prove it.

Bowman and Graefe have shown that the starting-point of

the pain and inflammation in the second eye frequently occurs at a spot of the ciliary region which corresponds symmetrically to that of the injury in the other eye. Again, when suppuration of the eyeball occurs, and the ciliary nerves are destroyed, there is no tendency to sympathetic inflammation.

The way in which the sympathy extends from one eye to the other is yet unknown; and, as I have said, I shall not trouble you with the various theories which have been advanced to explain it; suffice it to say, that none of them are either satisfactory or conclusive.

Treatment.—Mooren gives an exceedingly interesting historical review of the different operations which have been resorted to, to combat sympathetic accidents. I can, however, only hastily glance at the more important of them.

The very severe method, recommended by Wardrop, of destroying the eye primitively affected, by caustics, has been abandoned. The proposition of Graefe, to induce panophthalmitis by passing a thread through the globe, has not found many partisans; the same may be said of section of the optic nerve, recommended by the same author. Recently Graefe has recommended section of the ciliary nerves. Meyer, of Paris, and Secondi, an Italian oculist, have practised the operation; however, in spite of favorable results reported by them, the operation has not come into general use.

Mooren questions the value of this operation, for he thinks that the nerves not cut may continue the irritation. Iridectomy, both upon the injured eye and the one sympathetically affected, has been strongly recommended, and often put in practice. However, the weight of more recent authority is against any operative interference upon the second eye during the progress of the sympathetic inflammation, not only because it does no good, but there can be no doubt hastens the destructive process.

Von Graefe mentions a case in which an early iridectomy exerted a favorable influence upon the character of the inflammation; he, however, deprecates any operative interference after the inflammation is fully declared. My own firm conviction is, that the operation is never advisable, and in the few cases which I have had to deal with I have never resorted to

it. I have seen the result in the hands of others, but with such uniform want of success as to deter me from ever undertaking it myself.

If we accept the theory that the sympathetic inflammation is propagated through the medium of the ciliary nerves, it is very difficult to imagine how the disease can possibly be arrested by iridectomy of the injured eye, as such an operation does not remove the source of irritation. The operation, perhaps too generally performed to-day for the arrest of sympathetic inflammation, is enucleation of the primarily-affected eye, first put in practice by Prichard in 1854. The hopes which have been founded on the efficacy of enucleation of the globe have not been entirely realized. It is very true that the operation has been followed by the most excellent results in merely functional or sympathetic irritation; but does the same remark hold true in the inflammatory affections? Let us see. Out of fifty-five enucleations, Mooren only reports *one complete success.* Thirty-two enucleations were made in cases where the sympathetic disease already existed; and in others was considered imminent at the time of the operation. His results were excellent in the functional forms of sympathetic disturbances. In the inflammatory forms, on the contrary, the operation was not followed by such good results. In four cases the operation could not prevent complete amaurosis from irido-cyclitis. In other instances the progress of the disease was only checked.

It is evident that the epoch in which the operation is made is of great importance, and that the chances of success are far less when the disease is more advanced. There can be no doubt about the propriety of removing an eye which has been so badly injured as to have lost its sight, or to have no hopes for its restoration to useful sight, as soon as the slightest evidence of sympathetic irritation declares itself in the other, or without even waiting for such evidence, for, by so doing, we can only insure the patient against sympathetic ophthalmia. The case is far different, however, when useful vision still exists in the injured eye. A case came under my own observation, which was published in the last number of the "Archives of Ophthalmology and Otology," where, after complete

loss of the eye sympathetically affected, very good vision—two-fifths—was preserved in the injured one.

The results obtained by enucleation may be summed up as follows:

1. Enucleation is a sure preventive against sympathetic accidents.

2. It always cures the sympathetic affections of a functional character only.

3. It usually has a favorable effect in arresting the intensity of serous irido-cyclitis.

4. The operation is rarely crowned with success in plastic irido-cyclitis.

ART. II.—*Embolism in its Relation to Disease.*[1] By WALTER COLES, M. D., Parkersburg, West Virginia.

THE subject of embolism and thrombosis, while not novel as a pathological condition, has, up to a comparatively recent date, attracted but little attention in its relations to disease and death. The first key to the interesting developments in regard to embolism which have of late years thrown a flood of light upon many hitherto enigmatical conditions, was furnished by Saunders, Gaspard, and Cruveilhier, who, after injecting foreign particles into the veins of animals, discovered that they were carried along with the current of circulation until at length they formed lodgments in the small vascular twigs of some remote part, and there set up certain secondary manifestations, which are thus described by Cruveilhier: "If," says he, "I inject mercury into the jugular, or into the femoral vein, you will see, if the mercury is in large quantity, that the animal will become extremely oppressed, and succumb in twelve, eighteen, or twenty-four hours. You find the whole of the mercury in the *lungs*, which are not inflamed, but loaded with serum which you can express, so as to make it overflow. If the quantity of mercury is less, the animal will survive a longer time after the experiment, and you will find then a focus of red induration around each globule of mer-

[1] Read before the Wood County Medical Society, Parkersburg, West Virginia.

eury; later, purulent collections, and, still later, tubercular masses, or, for the most part, a mixture of pus and tuberculous matter; at least, when the animal survives two or three months, you will find tubercles, in the centre of which is a globule of mercury."

Mechanically speaking, the terms *thrombus* and *embolus* apply to different phases of one condition. So long as a clot of fibrine remains in the locality of its original formation, it is termed a *thrombus*, and the occlusion of the vessel is designated as *thrombosis;* but, when the coagulum is transported to distant localities, it is called an *embolus*, and the resulting obstruction to the circulation, in parts removed from their primary site, is termed *embolism*. The difference in these terms, therefore, merely indicates their relationship with the localities where the coagula are found.

We will first allude simply to the literary history of thrombosis and embolism; after which we purpose to examine these conditions in reference to some of their causes, and finally, attempt to trace their relationship to certain pathological phenomena frequently met with at the bedside.

The experiments to which we have alluded led Cruveilhier to promulgate the proposition—since discovered to be untenable—that incipient phlebitis is *invariably* attended by a coagulation of fibrine within the vessel, and on this hypothesis he founded a theory of inflammation peculiarly his own. The occurrence of autochthonous clot as the accompaniment of certain pathological conditions, we perceive, therefore, to be by no means a new discovery; but the plugging of a blood-vessel by a coagulum derived from a distant source is of more recent knowledge. The first treatise which we have upon this subject was written in 1821, by Dr. Degen, of Croppenstadt. Dr. Oke, of Southampton, England, described a case of what we now call embolism, in a puerperal woman, in 1831. M. Legroux related a similar case to the French Academy in 1837. Such cases were isolated, however, and fruitless of practical value until 1844, when Paget published his observations on the obstructions of the pulmonary artery, and the sudden death to which they gave rise. Subsequently this subject has been elaborated and imbued with a practical

interest, formerly little dreamed of, by Virchow, Kirkes, Richard, Simpson, Meigs, Goodfellow, Druit, Richardson, Wilks, Church, and many others.

The *causes* of coagula within the vascular system during life may be briefly summed up as follows:

1. *Phlebitis;* frequent, but not invariable cause of clot.
2. *Arteritis.*
3. *Endocarditis*, and valvular vegetations, which, becoming detached, are washed along in the current of blood. Under this head may be enumerated also portions of detached valves, or aneurismal sacs, and foreign bodies.
4. Retardation of blood-current either mechanically or by syncope.
5. Roughened valves or endangium from any causes whatever, whether calcareous, atheromatous, or inflammatory.
6. Detached clots from uterine sinuses, hæmorrhoids, traumatic injuries, etc.
7. Accidental cohesion of blood-corpuscles.
8. Certain toxæmic and other abnormal conditions of the blood which predispose it to coagulation, such as hæmorrhage; the puerperal state; diphtheria; certain eruptive diseases, etc.

In discussing this subject in its clinical bearings, we have first in point of frequency that group of affections comprehended under the generic term *metastatic dyscrasia*—such, for example, as secondary abscess and fibrinous deposits in the various tissues and organs—as in the lungs, liver, spleen, kidneys, brain, etc., together with other intercurrent accidents which spring up suddenly and unexpectedly in the midst of ordinary disease, and which are too often dismissed under some stereotyped and time-honored phrase, that fails to convey a true idea of the nature of the case in hand. The frequent occurrence of secondary abscess is within the knowledge of every physician; in former days it was a common thing for even well-informed pathologists to refer such complications to a peculiar hypothetical condition comprehended under the vague designation of pyæmia. It was supposed that by some means pus became intermingled with the blood, and was deposited in various depots throughout the body. Many theories have

been addueed to aeeount for this so-ealled pyæmie eondition of the blood—from the pus-secreting property of the inner lining of the blood-vessels, promulgated by John Hunter, down to the suppurative hæmatitis of Piorry. The two ideas most prevalent in the profession touching this subjeet are: 1. Either that pyæmia results from suppurative phlebitis, or, 2. That pus is absorbed or admitted through the gaping orifice of some vein. The developments of modern pathology, however, prove very eonelusively that in future we must employ the term pyæmia in a mueh more restricted sense than formerly, for it may now be eonsidered as an established proposition that pus as sueh, i. e., pus possessing all of its morphologieal elements intact, eannot enter the eireulation as the result of phlebitis; that it eannot be absorbed, and only in the rarest and most exeeptionable eases does it find its way into a blood-vessel through a breaeh in its walls; and even if it did, and the pus were laudable, no evil would ensue, for healthy pus eontains no noxious properties. And while it is true that in the coagula, often aeeompanying phlebitis, and in other eases of venous clot, we find a pus-like fluid in their centre; yet it was long sinee shown by Gulliver, and subsequently eonfirmed by Virehow and Humphrey, that this puriform mass does not originate in the wall of the vessel, but is produeed by a *transformation of the central layers of the clot itself*. Virehow has gone still further, and demonstrated that these clots, thus softened and disintegrated, finally break up, and their fragments are earried along in the eurrent of blood until their progress is finally stayed in the vascular ramifications of some distant part, thus begetting a condition of embolism, and these emboli, as in ease of the globules of mercury used by Cruveilhier, set up new foei of irritation, inflammation, and suppuration. Thus may a very large elass of the so-called eases of pyæmia be disposed of, and aeeounted for on other and more rational grounds than formerly. This truth is rendered all the more impressive, too, when we remember, 1. That pyæmia does not necessarily follow phlebitis; 2. That phlebitis may exist without eoagula in the veins; and, 3. That pyæmia proper, or *septicæmia*, may, and often does, exist without the coexistence either of phlebitis or thrombosis.

From what has been said in regard to the partial disintegration and propulsion of fragments of venous or arterial clot as the origin of certain metastatic phenomena, we may deduce a valuable corollary, and apply it to other cases of embolism disconnected with phlebitis or arthritis; in fact, to that major class of cases, in which there is a spontaneous coagulation of the blood from some peculiar condition of that fluid, or from any of the other causes already indicated. As a result of this condition of things, we may expect to have a sudden and overwhelming blood stasis in some of the larger vessels; or else, if the clot be small and movable, it is transported by the current until it reaches a point of tubular attenuation sufficient to obstruct its passage. If this occur in a vein, we have engorgement with its accompanying train of evils; if in an artery, nutrition is shut off on its distal side, which may result in loss of function, gangrene, etc.

It must not be supposed, from the foregoing remarks, that, in restricting the province of pyæmia in the strict etymological sense of that term, the disintegration and distribution of fibrinous clots in the circulation are wholly unattended with constitutional disturbance. On the contrary, as might be expected, these phenomena frequently occasion marked febrile symptoms, together with rigors attended with serious functional and organic visceral complications. These constitutional symptoms were formerly referred to a true pyæmia, and the resulting changes in the parenchymatous organs, described by Rokitansky as due to capillary phlebitis, the result of some spontaneous change in the blood. The recent researches of Drs. Kirkes and Wilks have contributed much light and interest to this subject. These phenomena have been referred to embolism of the arterial capillaries, and the constitutional disturbances dependent thereon are characterized by Wilks,[1] in absence of a better term, as *arterial pyæmia*. He says: "As in phlebitis some morbid matters, products of inflammation, being taken up by a vein and carried inward through the circulation, give rise in the internal organs to depositions of a similar kind in them, so in the arterial system, disintegrating fibrine of the blood may be carried from the centre of the circulation to the periphery,

[1] Guy's Hospital Reports, series iii., vol. xv., pp. 29–35.

and there give rise to further deposits of a like fibrinous matter." The writer remarks that this form of affection is "far from uncommon," and believes that it is often overlooked from the fact of the coexistence of some organic disease, which is considered sufficient to account for all the symptoms, and in many instances too from the obscure nature of the case. In this connection, he cites, among many other examples, one which "puzzled Dr. Addison;" this was a case in which a woman for three months had fever with rigors, supposed to be agne, and, with this, enlargement of the liver and spleen. After death, the heart was found diseased, although no evidence of it was discovered during life, and the liver and spleen filled with what would now be termed embolic deposits.

The final destination and lodgment of a floating clot in any given blood-vessel is to a great extent a mere question of mechanics, which our anatomical knowledge will readily solve. A foreign body in a systemic vein will find its way to the right side of the heart, and thence to the lungs, where it will lodge in one of the branches of the pulmonary artery; and hence, as might be supposed, these organs are most frequently the seat of metastasis. Since the blood in the portal system is filtered through the liver, we find this organ the seat of portal embolism, not an infrequent complication of organic bowel affections; inasmuch as the veins from around the rectum, prostate gland, vagina, and uterus, communicate with the systemic veins and inferior mesenterics of the portal system, they may induce secondary lesions either in the lungs or liver. Should a clot be set free in the pulmonary veins, left heart, or in any portion of the arterial system, it will float onward until caught by some peripheral twig; hence we may expect to find arterial embolism in any portion of the body. The most frequent seats of arterial obstruction are in the brain, especially about the fissure of Sylvius, and internal carotids; arteries of the lower and upper extremities; splenic and renal arteries; external carotid, and mesenteric.

In 1847, Virchow instituted a number of experiments similar to those of Cruveilhier; he introduced bits of elder-pith and animal substances into systemic veins, which were conveyed

likewise to the lungs, producing violent pneumonias, commencing with inflammatory hyperæmia, which led to rapid deposition in the air-cells of fibrinous exudation which became purulent, or the portion of the lung gangrenous. These experiments are full of practical interest; they aid us in accounting for many conditions, the precise nature of which has hitherto been little understood, and assist us further in discriminating between cases of genuine pyæmia, or pyogenic fever, and those accidents that have no necessary connection with septicæmia. They illustrate with what perfect ease a coagulum, perhaps innocent in its nature, may be broken up and its fragments conveyed into the lungs or other viscera, setting up inflammation, abscess, or gangrene. The instrumentality of embolism of the pulmonary capillaries in the production of tubercle is an important consideration in connection with phthisis. It establishes the possible and perhaps frequent existence of what might be termed *accidental* or *induced phthisis*, and accounts for many of those sudden and apparently unprovoked accessions of consumption in patients free from hereditary taint; and while such cases are generally of an acute character, or what we term "galloping," they also encourage us to use every exertion possible with a view of sustaining the patient, who, while suffering from phthisis, is yet free from constitutional tuberculosis.

We have only time to glance hastily at a few points of clinical interest in connection with this subject. One of the most important and prominent of these is sudden death. There is no instance when the public generally as well as professional men are so frequently at fault, as in cases of sudden death. The old formulæ of *apoplexy* and *heart-disease*, so familiar to the eye in mortuary reports, and so often dogmatically accused of carrying people off suddenly, are in danger of being robbed of much of their importance since the subject of embolism has become better understood. That apoplexy may kill outright when the hæmorrhagic effusion takes place largely in the neighborhood of the medulla oblongata, is certainly true; but, that such an occurrence is comparatively very rare, no medical man of any experience or physiological knowledge will attempt

to deny. The same may be said of heart-affections as a class.[1] There can be no doubt, however, that embolism of the right heart and pulmonary arteries is a frequent cause of sudden death. Such cases have often occurred during endocarditis and other conditions favorable to the coagulation of fibrine. Only a few years ago, Dr. Safford, of this city, lost a son by this cause; he was suffering from endocarditis, supervening on rheumatism. One morning, after a refreshing sleep, when he seemed to be doing well, he expired as suddenly as if he had been shot through the heart. There is no condition so favorable to such accidents as endocarditis with rheumatic fever. The blood is highly charged with fibrine, which settles in bead-like vegetations on the roughened and inflamed valves, and these vegetations are liable to be washed into the pulmonary arteries at every stroke of the heart. Again, a puerperal woman, having been largely depleted either by the lancet or parturient hæmorrhage, is peculiarly liable to fatal coagula in the circulation, for hæmorrhage favors in a marked degree the formation of clot, as do all other causes tending to cachexia and anæmia. Dr. Simpson published some time since six interesting cases of sudden death in puerperal women. Dr. Meigs reported a case of sudden death, under similar circumstances, from *heart-clot*, in 1849. Numerous other cases have occurred in the practice of many other obstetricians, and are mentioned by Humphrey, Casati, Roe, Sumner, Parsons, Playfair,[2] and others.

Diphtheria seems to be another predisposing cause of embolism. Interesting cases of this kind have been mentioned by Drs. Seelye, of Alabama, J. A. Meigs, and others. Dr. Seelye's case is thus reported: "A boy nine years old had a severe attack of diphtheria, he was convalescing; the false membrane had cleared from the throat, and no prostration showed itself, he was eating well; had just got out of bed to stool supported by his mother, when he suddenly threw his

[1] Since the above was written, we have read an interesting paper by Prof. Austin Flint, in the May number of this JOURNAL, on "The Prognosis in Chronic Diseases of the Heart," in which this fact is ably impressed.

[2] See table of twenty-five cases reported by Playfair in London *Lancet*, July 20th, *et seq.*, 1867.

head back, and expired almost instantly." A marked case of this kind came under my own personal observation, and at the time was a source of great astonishment to me, as well as to her medical attendant, who could assign no satisfactory solution of the fatal issue. In 1859 or 1860, a very accomplished young lady of seventeen had a formidable attack of diphtheria, from which she had commenced to convalesce; she had arisen from her bed and dressed herself in a wrapper, and was slowly pacing the floor, feeling quite comfortable; she halted near her bed, which was an old-fashioned, high one, and rested herself by throwing the body forward across it. In about a minute her mother called to her, and, receiving no answer, approached her and found life extinct. In neither of these cases was a *post mortem* held, but I am confident that they are in all respects similar to the puerperal cases reported, for in diphtheria the blood is in a highly-hyperinotical condition, and disposed to deposit coagula. It belongs to that class of diseases in which there exists, according to Rokitansky, a "*fibrinous crasis.*"

There are many other conditions in which the occurrence of embolism should not be a matter of surprise. After traumatic injuries and severe surgical operations, metastatic accidents are by no means uncommon. The supervention of pneumonia, under such circumstances, is within the knowledge of every surgeon of experience. These cases are doubtless often connected with embolism of the pulmonary capillaries. The pneumonia which proved fatal a few days after the amputation of Stonewall Jackson's arm is a case in point; for what is easier than for a plug from a severed vein to be dislodged, and its fragments washed back to the lungs and there set up inflammation. I once witnessed a striking case of this nature from a very trivial cause. A robust and healthy man of fifty had a tooth extracted; the next day rigors came on, followed by pulmonary inflammation, running rapidly into abscess and gangrene, from which he sank in a few weeks.

The exanthemata seem beyond doubt to develop certain changes in the blood favorable to embolism; the number of cases substantiating this fact is increasing every day. Dr. Samuel Wilks makes some interesting observations on this

subject, in the paper already referred to. I have seen a most severe case of secondary abscesses following roseola. Dr. Meigs, of Philadelphia, has recently reported a case where the subclavian and popliteal arteries were both occluded after a severe attack of scarlet fever; and we are all familiar with the severe and fatal pneumonia so prone to supervene upon measles.

We propose to consider briefly the connection between embolism and certain affections of the *nervous system*, for here again we find a most instructive field for contemplation. And, while almost every imaginable disturbance in the nervous centres may be occasionally traced to this cause, we mention only a few of the most important. I will merely add here, that Virchow thinks many cases of lumbar abscess and caries of the spine have their origin in embolism.

Amaurosis.—Some ten years ago, Prof. Von Graefe called the attention of the profession to a case of sudden blindness, caused by embolism of the arteria centralis retinæ. At that time such a cause of amaurosis was considered entirely new in the records of ophthalmic pathology. But, since this question has been opened up, we find such cases mentioned in every standard work on the eye. During the last six months I have seen with Dr. Harris, of this city (Parkersburg), a case precisely similar to Von Graefe's. In this man the blindness came on almost instantaneously, and without any premonition or known cause.

Chorea.—The reference of chorea to an embolic origin is now being discussed with much warmth in Great Britain, and is calling out the master-minds of the profession on both sides. Although watching this discussion with much interest, and while free to confess that I am by no means convinced of the correctness of the embolic theory, I mention it here, that our attention may be directed to the subject, as affording much ground for serious thought. The intimate relation between chorea and rheumatism has long been known, and is becoming every day more universally acknowledged. But the idea that this affection results from embolism of the capillaries of the medulla spinalis seems to have been founded on the researches of Dr. Kirker in 1863. He contends that "chorea is the result of irritation produced in the nerve-centres by fine molecu-

lar particles of fibrine, which are set free from an inflamed endocardium, and washed by the blood-current into the capillaries of those centres." Dr. Hughlings Jackson, in the *Lancet* (1864), has supported this theory with great ability, and it has been more recently advocated with much ingenuity by Tuckwell and others.

Cerebral Apoplexy, Softening, and Abscess.—One of the most important branches of our subject is the relation of thrombosis and embolism to organic brain-affections. In alluding to this subject, Dr. Clymer, the American editor of Aitken's "Practice of Medicine," remarks, in a note: "Thrombosis and embolism are destined to take a prominent place in cerebral pathology, and particularly in softening of the brain, which, it is believed, will be found to be much less frequently a primary affection, depending upon an inflammatory process, than has been generally supposed. That both autochthonous and migratory clots are capable of producing apoplectic symptoms by the occlusion of one of the cerebral arteries, or the capillaries, and that, too, when the brain-substance is apparently sound, there is no doubt. There is always, as a consequence, paralysis of motion in the side opposite the obstructed vessel; in many cases, the general sensibility is unimpaired, sometimes lessened, but rarely, if ever, completely absent, and never perverted. The loss of consciousness is slighter, and is sooner gotten over, than after cerebral hæmorrhage; and the mind is less affected, sometimes not at all. Sight and hearing may be disordered, and aphasia sometimes happens." These cases vary much in their severity and behavior; sometimes the patient apparently recovers from the first symptoms, or they may linger for weeks or months, while in perhaps a majority of cases death follows closely upon the attack. It is said that the most common seat of emboli is in the middle cerebral arteries, though they have been found in nearly every arterial twig, supplying either the outside or inside of the head. The contributions of Lancereux and MM. Prevost and Cotard to this subject are of great value and interest. They produced artificial embolism in the cerebral vessels of dogs by injecting tobacco-seeds into the carotids. In their published essay they remark: "Experiments on animals have enabled us to produce,

by means of artificial embolisms, softenings of the brain identical with those which are seen in man, and to follow the process in its different stages. We have thus been able to study the hyperæmia of the commencement of the necrobiotic degeneration which succeeds, and finally the production of connective tissue, and the formation of the cicatrices which belong to the third stage of *ramollissement*."

The symptoms of embolic disturbance of the circulation in the brain will of course depend upon the size and locality of the clot; many of these cases are similar in all respects to true apoplexy, and doubtless thousands of such cases have been so pronounced, and the unfortunate patient made to undergo all the usual routine treatment of that disease. By keeping in mind the causes generally concerned in the production, coagula in the circulation, together with the symptoms, the nature of these cases can be diagnosticated with considerable certainty. These cases, for the most part, run rapidly into abscess and softening. Most medical men seem to have fallen into the idea that softening of the brain is a slow and chronic disease; but such is far from the fact. Indeed, it would perhaps be safe to say that patients generally die sooner from softening than from simple apoplexy, for it is more frequently an acute than chronic complaint. Aitken gives a table of one hundred and nine cases; of these, one died in twelve hours, one in fifteen hours, and more than one-half before the twelfth day, while at the end of a month only sixteen were surviving. For several cases illustrative of this subject we would refer to an able paper on "Cerebral Pathology," by Dr. W. S. Church, in the St. Bartholomew's Hospital Reports, 1868–'69. From these cases, as well as those of Drs. Gull and Sutton, in "Reynolds's System of Medicine," it will be observed that abscess of the brain, like abscess of the lung, is nearly always secondary; indeed, the two latter authorities maintain that cerebral abscess is rarely an idiopathic occurrence, and remark that the primary disease is often so trifling as to be often overlooked, instancing a "suppurating mesenteric gland," a "gumboil," or a "whitlow." In seventy-six cases, tabulated by them, the abscesses were obviously secondary in sixty-six.

I have roughly run over some of the most interesting

points connected with thrombosis and embolism in their relation to disease, as being a subject worthy of our careful study; a proper comprehension of which will save us great perplexity, and our patients much distress, in deterring us in many cases from a line of therapeutics based upon old theories, which, being erroneous, must tend only to work mischief; and, although some may complain that we have offered no plan of relief, yet something is gained if we are convinced that in many instances our former treatment of such cases has been founded on false premises, and therefore futile. But even granting that no relief is possible in these cases, it is yet a consolation to know even this much, and have the mind at rest. In medicine, as in war, it is a satisfaction and a happy circumstance to know the exact position and character of your enemy, even though such knowledge reveal the mortifying fact that you are unable to cope with him.

ART. III.—*The Relations subsisting between Physicians and Apothecaries, and also between these and their respective Patients and Patrons.*[1] By J. H. HOBART BURGE, M. D., President of Kings County Medical Society, and Surgeon to the Long Island College Hospital, etc.

THE paper which I am about to read I cannot dignify with any higher title than this: A few desultory remarks on the mutual relations subsisting between physicians and apothecaries, and also between these and their respective patients and patrons.

These relations are of a nature so peculiar, and fraught with so much interest, not only to physicians and apothecaries themselves, but to the whole community, that I desire to call your attention pointedly to the subject, and I do this rather to stimulate earnest reflection than to communicate any thing original.

The great diversity of opinion now existing among us, as to the best method of supplying our patients with the remedial agents which we direct for them, strongly indicates the necessity for a thorough discussion of the subject in all its bearings.

[1] Read before the Kings County Medical Society.

Such a discussion, seriously and dispassionately conducted, would tend to diffuse correct sentiments, first among ourselves; secondly, among the apothecaries; and thirdly, among the people, and thus prepare the way for reforms which hitherto have been impossible.

Some have called loudly for legislation to relieve us from the dangers and irregularities which all acknowledge; but how shall a judicious law be enacted till senators and representatives are familiar with the necessities of the case? And of what avail is any law, until public sentiment is, to some extent, in harmony therewith? That a law *is* absolutely necessary to protect the community from incompetent apothecaries, very few will doubt. Why not, says one, just as needful to protect them from unprincipled and incompetent physicians? I will endeavor to answer that question. Thoughtful men generally select a physician in time of health, and, if they prefer a quack and an ignoramus, the responsibility rests with themselves. Can they not do the same with the apothecary? No, they cannot, because the same store that was owned and conducted yesterday by a thoroughly competent man, was sold last night to an enterprising cobbler, who stipulated that his predecessor's sign should not be removed, lest some of the old customers should go with it; and in another store, where a graduate of the college of pharmacy, ripe in learning and careful in all things, served you yesterday, to-day an inexperienced and careless boy dispenses in his stead.

Clear, however, as it is that some statute is necessary to abate these evils, the moral forces must work first. The bearing of the physician and the apothecary toward each other should be such as to insure mutual confidence, esteem, and friendship, and not, as is often the case, such as to create only jealousy and a conflict of interests. Crimination and recrimination can only produce bitterness and strife, and strengthen the impression which I fear already prevails, that these are questions of pecuniary interest rather than of science and philanthropy.

It behooves us to inquire as earnestly, what has the apothecary a right to ask of us, as what have we a right to demand of the apothecary?

For example, may he not reasonably expect that we should recognize his professional character and not look upon him simply as a vendor of drugs?

That we should not steal away his custom by an endeavor to join the apothecary's art to the duties of physician.

That we should, by no careless insinuation, lessen the proper confidence which his patrons repose in him.

That we should write our prescriptions so legibly that there can be no doubt of our intention, and so fully and accurately as to burden him with no responsibilities except such as properly belong to his office.

That we should depend upon the fees of our own professional services for emolument, and never seek directly or indirectly to draw revenue from the apothecary's till.

Until we are willing to accord these rights, and such as these imply, to the pharmaceutist, it will be idle to talk of the other side of the question. The sources of irritation between us and them are many and great, but they are of professional and ethical rather than legal character. Of what avail, for instance, have been all the hard words expended in the discussion of the ownership of prescriptions after they leave the hands of the physician? I have no desire to make a strong case by exaggerating any existing evils; besides, it is quite unnecessary, for this occasion will only admit of reference to obvious facts.

Would it not be well to have occasional meetings of physicians and apothecaries, for the express purpose of discussing such points as touch the interests of both? Such conferences would not only increase our stock of knowledge, but promote kindliness, for there is nothing like the gentle attrition of social and professional intercourse to wear off the asperities of life. The apothecaries could doubtless tell us many things which it would be profitable for us to know, not only in estimating their services as a class, but in judging of the relation in which they stand to us.

It is not an infrequent thing for one physician to blame an apothecary for doing that which another soundly berates him for not doing. A physician wrote, ℞. quiniæ sulphatis—aquæ destillatæ—misce. The apothecary put in a drop of

dilute sulphuric acid for every grain of the quinia, in order to effect a solution. Was it proper for him to do so? Clearly it was not, since a solution was not called for by the prescription. Yet, in another instance, the apothecary construed the prescription literally, and the doctor told the patient that if the apothecary had put in a little acid the medicine would have been clear; thus implying both ignorance and omission of duty, while the omission was entirely his own. Medical preparations by different manufacturers vary in appearance, and in other sensible qualities, so much so that the specimen which would be condemned by one party, would, by another equally well qualified to judge, be pronounced excellent. Now, suppose a physician looks at the bottle of medicine for which he has written, and very likely ignorant of the appearance which it ought to present, he just insinuates that it might have been clearer or pleasanter to take, or in some other way different from what it is. The patient, supposing his physician infallible, drops that apothecary for all future time, and warns all his friends never to go there. It may be that the medical compound was not what it was designed to be, and yet it may have been exactly as directed. It is said that physicians sometimes write their prescriptions *in pencil* so faintly as to be almost, if not quite, illegible; sometimes with letters so peculiar and of such doubtful character, that the apothecary must guess what is intended, or he must lose a customer by declining (upon some pretext) to dispense it, or he must run the risk of offending the doctor by returning the prescription to him, in which case the doctor would be very likely to say, "The apothecary must be pretty stupid if he couldn't read that." It is also said that prescriptions are not always perfect specimens of literary acumen, and that abbreviations are sometimes used to such a degree as to invite disaster. Some of you have lately seen the following, which was actually sent to a Brooklyn store to be dispensed: "℞. Hyd-Chl." I have forgotten the quantity ordered, but the apothecary was perfectly at a loss to know whether the chloride of mercury or the hydrate of chloral was intended. Now, as none of us ever do these things, we can afford to say that they are utterly inexcusable. If illegibility from bad penmanship is the only fault,

it is well to know that one hour's practice each day for a week, under a good tutor, will remedy the evil entirely. The next evil to which I shall allude cannot be avoided in the present state of affairs.

Physicians are constantly in the habit of sending patients directly by the doors of excellent pharmaceutists—sometimes to those who are by no means their equals. This is a many-sided wrong. It does injustice to those who are thus slighted by implying that they are incompetent, for we are supposed to know. It encourages the suspicion, already too prevalent, that we have a pecuniary interest in the business of the particular apothecary to whom we send; and, of course, it excites to wrath and indignation the slighted ones. This trial must continue, however, so long as any ignoramus in the community may assume the duties of a pharmaceutist at any moment, for we cannot be expected to know every man in the trade, and we are morally bound to send to those whom we believe to be competent in every particular.

A thoroughly-educated and in all respects excellent apothecary opens a pharmacy. His means being rather restricted, his store is not in the pretentious style which is now in vogue among the *élite*. On the next block a man, who could not distinguish spigelia from ipecacuanha, owns a palatial drug-store, which he has bought on speculation, and which he conducts by means of clerks, over whose acts he can exercise no intelligence or surveillance. Is there any doubt which of these stores should receive the support of the profession? You will all say, "*No!*" and yet, in the present mixed and indefensible conduct of the prescription business, the ignorant adventurer will dispense more medicine in a day than the other in a week. Could any thing more thoroughly demonstrate the necessity for a law restricting pharmacy to competent men?

An attempt has recently been made by a homœopath, who keeps a drug-store in this city, to revive an obsolete wickedness. I received from him the following letter, duplicates of which, I am informed, were mailed to many other physicians:

Brooklyn, *February* 23, 1870.

Dr. J. H. H. Burge—

Sir: I wish to get more of your ℞ than I now do, and will pay ten per cent. commission on all you will send me.

Yours, respectfully, —— ——.

To this I made the following reply:

Dear Sir: Some years ago the custom of allowing a commission to physicians, on the amount of prescription business they were able to influence, was so common, that few cared to question its propriety. *Now*, no respectable doctor in medicine would like to be caught putting such ill-gotten money into his purse. The patient has to pay quite enough, without having an extra ten per cent. added for the benefit of the doctor; and, if nothing is added, then the apothecary loses part of his fair profit. The doctor's fee is independent of any such commission, and the verdict of the profession is so strongly against all such collusion, that we hope soon to see the day when the apothecaries and the doctors will be of one mind on this subject.

Yours, truly,

J. H. Hobart Burge.

I have reason to believe that the pernicious bait did not take in a single instance, and that this dishonest commission is now paid only by one class of quacks to another.

During the last few years, the prices charged by apothecaries, for compounding and dispensing, have become more and more burdensome to the sick, and frequently a serious matter of complaint from the patient to his physician. As the subject has given rise to some irritating discussion, it may be well just to call to mind its twofold character—its professional and commercial aspects. Compounding a prescription is not selling so much medicine, it is a professional service, requiring education and experience, and involving great responsibility, and therefore a professional fee may be defended upon the same grounds that a physician defends one of his own charging.

On the other hand, the healthy competitions of trade are such that, when other reforms are made, I think we may safely leave prices to regulate themselves.

It is said that physicians sometimes write in cipher, so that one person only, with whom the matter is previously arranged, shall be able to understand it. I only mention this,

to say that the universal condemnation of the profession rests upon such a man, and that he would be unanimously pronounced a quack.

A prominent apothecary, in this city, has lately told the public, through the columns of the press, that it borders on quackery, whenever a physician orders any thing not embraced in the United States Pharmacopœia. This, to my mind, is simply ridiculous, for several reasons: 1. Because the Pharmacopœia is in no sense an authoritative work, though an excellent guide, to which we should largely adhere. 2. We are bound by the Hippocratic oath, and by every principle of humanity, to direct for our patient any thing under heaven which will, in our opinion, most quickly restore him to health. 3. Common-sense will not justify the assumption that the Pharmacopœia contains all the therapeutic agents which are likely to prove of service. How little time ago it is, that we had no bromide of potassium, no bromide of ammonium, no carbolic acid!—and does any one here suppose that the next decade will be less prolific in discovery than the last? 4. To restrict the physician to the Pharmacopœia, is to mistake the very object and design of that work, which is, that it should contain such articles, and *such only*, as have been used, tried, and proved; and are we prepared to seal up that record, and to declare to the world that our search after remedies has ceased forever—though cancer, and phthisis, and tetanus, and hydrophobia, still stand on the list of the incurable? It is, however, a proposition from which scarcely any one will dissent, that a physician should under no circumstances write for a secret nostrum.

A deliberate conviction that quackery and pharmacy are so thoroughly blended that reform is impossible, has led some physicians to say, We'll carry our own medicines. Gentlemen, we cannot do it. The pharmaceutist is essential to us, and we must insist upon his reformation. It belongs to our profession, *mainly*, to consider and settle these questions in the interests of science and humanity. We cannot carry our own medicines, for the reason that we have not the time to devote to the study of two professions. The tendency of the age is to division of labor, so that the work of each department may be

better studied and better performed. What shall we think of the physician who, too tired by the daily round of practice to *read*, even much less to *study*, the latest and best experiences of his fellow-laborers in the same field, if he spend his bare half-hours (if such they may be called) in clumsy efforts to do the work of the pharmaceutist—a work which requires not only peculiar knowledge but constant practice, to fit one for such facile manipulations as are essential to accuracy; or, is the physician prepared to discard all the elegances of modern pharmacy, and restrict himself to the use of fifteen or twenty articles, which he may administer with least trouble to himself, and with no regard whatever to the tastes and comfort of his patient? The physician who carries his own medicine (except in rural districts, where the services of a competent apothecary cannot be had), not only wrongs his patient by performing a service for which he has not been properly fitted by education and practice, but he wrongs also the apothecary who has devoted his life to this object, by withdrawing from him a part of that patronage which he has a reasonable right to expect.

Besides this, the liability to accident is not diminished, as many fondly suppose, but greatly increased. For example, a physician weighs "by the scowl of his brow," as my dear old grandfather would have expressed it, ten grains of *pulvis opii camphorata*, as he supposes, but as it is evening, and as the phials in the pocket-case are all alike, and, moreover, as the difference in color between pulverized opium and Dover's powder is not great, it is by no means strange that the powder has more effect than is designed, and that a death-certificate becomes necessary. Congestion of the brain is, of course, the easy diagnosis, and there his responsibility ends, so far as sublunary affairs are concerned; but some of us think such a case will come up again for adjudication in a higher court. If an apothecary were to make this blunder, he would hardly escape notoriety. I believe it to be a universal law that, if a man assume an office for which he is not qualified, he will endeavor to shirk the responsibilities properly pertaining to his position.

It seems eminently proper to carry a few well-chosen articles in one's pocket, to be used in the night, and on occa-

sions of great and sudden emergency. Against such a practice I have no objection to make, but, on the contrary, might speak of many valuable lives which have been saved by this wise precaution.

Physicians have been accused of pedantry because they prescribe in Latin, and it has also been said that they do this to keep professional knowledge from the common people. Such criticisms are founded in ignorance. If we discard Latin, which is the language common to scientific men all over the world, what shall we adopt in its stead? Shall it be the English? A German or French apothecary, learned in the art, may read our vernacular expressions so imperfectly as to mistake our meaning altogether. Besides this, the Latin names of remedial agents are generally unmistakable in their reference to the particular article intended, while the English is exceedingly prolix—the same article having half a dozen names, and often the same name applying to two or three different articles. Custom sanctions many a misnomer, and the uneducated ask for a glass of soda-water, little dreaming that a solution of carbonic-acid gas in water is the thing they want; and the thirsty servant-girl who drank the *salts of lemon* was greatly surprised on being told that she had fatally poisoned herself with oxalic acid.

In answering the question, "What has the apothecary a right to expect of the physician?" I believe I have conceded all that any reasonable person could, and I therefore pass to the other and shorter branch of my theme, "What has the physician a right to demand of the apothecary?" confident that my position will meet with general favor, whatever difficulties there may be in accomplishing the end desired.

"Doctor," said a patient for whom he had just prescribed, "does it make any difference where I get this?"

"Why, yes," said the doctor. "I'd little rather you wouldn't go to the corner grocery for it; and yet," continued he, "you might as well go there as to some of the so-called apothecaries, for a windowful of bottles of colored water is no more evidence of the competency of the proprietor to compound that prescription, than the word *Doctor* painted upon the front of a house is evidence that he who lives within has

a scientific medical education." Well, then, in the solution of this question—"Doctor, does it make any difference where I get this?"—is involved the whole subject before us. We hold that it makes so much difference, that we are in duty bound to demand that the proprietor of every pharmacy, and every clerk who is, under any circumstance, allowed to dispense medicines, shall be practical druggists and graduates of some legal and reliable college of pharmacy. It seems to us but reasonable that the law should absolutely restrict the compounding of prescriptions to such persons. Such a law, properly enforced, would immediately divide our apothecaries into two classes, viz., pharmaceutists and medicine-vendors—and this leads me naturally to the subject of the next and most desirable reform. Medicine-vendors will, of course, make and sell secret nostrums *ad nauseam;* but is it too much to ask that the scientific pharmaceutist—the physician's help-meet and co-laborer—should ignore a traffic so ignoble? Why should our prescriptions be dispensed by the very men who engage most extensively in the encouragement of the vilest quackery? It is an incongruity which ought not to be longer tolerated.

Let us pledge ourselves to the encouragement and support of those who will banish all nostrums and all quack advertisements from their stores. The field of enterprise will be wide enough then. There is no objection to the sale of fancy goods, soda-water, and pure medicines. These, together with an increased prescription business, will doubtless prove encouragement enough to twenty first-class stores in different parts of the city. The more sudden the transition the better. This is no visionary idea. We have the promise of such pharmacies, and, if you desire it, they must succeed.

Another evil which we ask to have abated is the practice of prescribing over the counter. So universal has this become, that the common people call drug-stores "doctors'-shops." Just as an ignorant man supposes that a doctor knows all about the art of pharmacy, of which, by-the-way, he is often shamefully ignorant, so he supposes the apothecary to know all about disease; and this popular impression and misconception often spreads to these functionaries, and leads them to imagine themselves to be what they are not.

By taking advantage of the popular error, viz., that because he deals in medicines he must know all about their uses, he performs a service for which he has not been fitted by education or practice; he impliedly makes pretension to knowledge which he does not possess, and he takes from the physician part of that business which he has spent the best years of his life in preparing himself for.

What shall we think of an apothecary who, too full of work in the preparation of his stock in trade to admit of study sufficient to keep him informed of the march of science in his *own department*, if he step into the back room with a patient, and there, with assumed wisdom, guess at questions in diagnosis which require the profoundest knowledge and most careful discrimination, and which involve the most serious responsibilities? The man who does it is *never willing* to abide by the legitimate consequences of his acts. He gives a dose for colic, and the patient not being relieved, a surgeon is called, to find, too late for operation, that a strangulated hernia exists, which would have been recognized by the merest tyro in the profession in time to save the patient's life. The apothecary escapes indictment for manslaughter, though a fellow-being has fallen by reason of his forsaking his legitimate calling, and engaging in that for which he is not qualified by education and experience.

Again, we have a right to demand that, in each case, the terms of the prescription shall be rigidly adhered to.

A teacher in the College of Pharmacy is quoted as having said that, if any particular manufacturer's preparation were written for, the apothecary was justified in substituting his own or any other as good, unless it were an article of unusual importance; that if he did not his neighbor would, and he would be pronounced a poor druggist, while the neighbor would get the credit of being all right. I only refer to this to say that it is pernicious teaching, because the physician alone must judge of the "importance" of the article in any given case. Equally pernicious is it to endeavor to throw the responsibility of a substitution upon the person presenting the prescription by saying: "We haven't Skidmore's, but we have Perkins's, which we consider as good, if not better." The doctor wrote

for Skidmore's, and the apothecary would be in duty bound to refuse to put up Perkins's even if the patient *begged* him to do so. The apothecary cannot know, and has no right to assume, that the doctor has not a substantial reason for his preference. With the better class of apothecaries no argument is needed to show the necessity of complying with the exact terms of the prescription, but we desire to restrict the prescription business entirely to the better class. Only the day before yesterday, a prescription of mine, which was designed to be taken to Weber Brothers, was accidentally carried to a store the proprietors of which are strangers to me. The writing was plainly, "℞. Pulv. Doveri, gr. x. Signa.—*Take the powder in a little syrup.*" The apothecary put the Dover's powder into four or five drachms of syrup, numbered the phial, put my name upon the label, and sent it to the patient without any directions whatever. The patient, not being able to communicate with me, presumed the dose was a teaspoonful, and not daring to repeat it, had a most uncomfortable night. I saw the apothecary yesterday, and his only excuse was, that he thought it would be so much more convenient for the patient if he mixed the powder with the syrup. There is such a thing as answering the letter of the prescription, while sinning against its spirit. To illustrate by an example from real life, a patient whom I had directed to use no sugar, took my prescription for aromatic sulphuric acid, ten drops to be taken in a wineglassful of cold water. The apothecary officiously remarked, as he handed the phial to the servant: "Tell Mrs. Blank she had better take a little sugar with each dose of that." Idle conversations are occasionally indulged in between the apothecary and the messenger who calls for the medicine, the subjects being the patient, the disease, and the doctor; and I only mention it to suggest that, as erroneous inferences are generally drawn, and such conversations sadly misrepresented, great discretion is necessary.

It seems a work of supererogation to mention purity of medicines as one of the things which we have a right to demand in all cases, and yet here is the point where we *often*, if not *oftenest*, fail in our therapeutic efforts.

The sources of impurity are many and great. I will not enumerate them; they are familiar to you all. The reforms

which we have proposed will cut them nearly all off. It is not to be supposed that we can attain to perfection, and by just so much is the necessity greater that we should do the best we can. Notorious want of principle is as bad as want of ability, in either profession, and in both cases the remedy lies in finding out the guilty parties and letting them alone.

Gentlemen, public sentiment will keep pace with us, and aid us in our efforts to establish safe and efficient pharmacies. I have said nothing of long hours and short pay, nothing of wholesale Sabbath desecrations, nothing of soda-water fountains as centres of inebriation. These things must be left largely to the competitions of trade, and to the moral forces which every man in his individual capacity is bound to exert.

ART. IV.—*The Influence of Excessive and Prolonged Muscular Exercise upon the Elimination of Effete Matters by the Kidneys; based on an Analysis of the Urine passed by Mr. Weston, while walking One Hundred Miles in Twenty-one Hours and Thirty-nine Minutes.* By AUSTIN FLINT, JR., M. D., Professor of Physiology and Microscopy, in the Bellevue Hospital Medical College, New York, etc.

IN the month of May, 1870, Mr. Edward Payson Weston, the celebrated pedestrian, attempted to walk one hundred miles in twenty-two consecutive hours. This feat was to be accomplished in an enclosure known as the Empire Skating-Rink; a square building, well ventilated, in which a rectangular track was laid out, measuring nearly one-eighth of a mile. The weather was mild and clear, a pleasant day for that season of the year. This remarkable feat of endurance was accomplished in twenty-one hours and thirty-nine minutes. Attracted by the interest felt in this effort, I was present during the last three hours of the walk. It is not pertinent to the scientific questions involved, to discuss the objections raised with regard to the exact measurement of the course, the style of walking, etc.; suffice it to say that, practically, Mr. Weston made one hundred miles, a few feet more or less per-

haps, in twenty-two consecutive hours—a fact which none interested upon one side or the other have denied. While at the rink, I ascertained, from the superintendent and judges, that all of the urine passed during the walk had been collected, as a mere matter of convenience, in a single vessel. This urine I obtained entire, and subjected it to analysis.

It is evident to any physiologist that there is an immense scientific interest attached to the quantitative analysis of the urine passed during such an enormous expenditure of muscular and nervous force as is involved in walking one hundred miles in twenty-two hours; particularly in view of the recent observations of Fick and Wislicenus, Frankland, Haughton, and others, which seem to show that muscular exertion, under certain conditions of diet, does not increase the elimination of urea. This effort is about the maximum of what a person endowed with most remarkable powers of endurance is capable, and I eagerly embraced the opportunity of ascertaining what effect such an enormous amount of muscular exercise would have upon disassimilation. To give full value to my observations, it became necessary to compare the elimination of effete matter during the walk, with the daily excretion under ordinary conditions. In all points connected with these investigations, I have had the cheerful coöperation of Mr. Weston, whose education and associations led him to appreciate the importance of scientific questions involved. The absence of Mr. Weston from the city, however, prevented my procuring a specimen of the ordinary urine until August; but the specimen then obtained seemed to me to answer perfectly for purposes of comparison. Mr. Weston is anxious that his remarkable powers shall be made to contribute as far as possible to the progress of science; and it is hoped that a pedestrian feat now in contemplation will afford further opportunities for scientific investigation.

Prefacing my observations with the statement that the idea of entering upon them originated during the last two hours of the hundred-mile walk, so that the comparison of the urine under exercise with the normal urine was necessarily made with a specimen collected some time after, I will proceed to detail the facts observed, and to make from them such

physiological deductions as seem to be admissible. All of the statements with regard to the condition, diet, etc., have been submitted to Mr. Weston, and been carefully corrected.

Mr. Weston is thirty-one years of age, of medium height, and rather lightly built, weighing, in his ordinary clothing, about one hundred and thirty pounds. Allowing eight pounds for the clothing, his ordinary weight would be about one hundred and twenty-two pounds. As would be expected of a person of such endurance, his general health is perfect. From his connection with the daily press, his habits, as regards eating and sleeping, are very irregular. He is liable to be at work all night, sleeping part of the day, and his meals may be taken at any hour. He has never been through a regular system of training as a preparation for any of his pedestrian feats, but simply takes moderate exercise by walking. The following was his condition at the time of the hundred-mile walk:

The weight was one hundred and seventeen pounds, naked, allowing eight pounds for clothing. This is five pounds less than his ordinary weight. His physical condition was perfect; the lower limbs were well developed and "fine," with the chest and upper extremities very light.

At 12.15 A. M., the walk was begun, and the hundred miles were accomplished in twenty-one hours and thirty-nine minutes, ending at 9.54 P. M. At the end of the walk, Mr. Weston did not seem fatigued, appeared as brisk and bright as possible, and was as well as ever on the following day. He made a short speech to the audience at that time. No urine was passed up to 10.15 P. M.; so that the urine collected was practically the urine of twenty-two hours.

During the walk, Mr. Weston took the following articles of food, in small quantities, and at short intervals:

Between one and two bottles of beef-essence; two bottles of oatmeal-gruel; sixteen to eighteen eggs, raw, in water. He drank a little lemonade and took water very frequently, a mouthful at a time, only to rinse his mouth. While walking the last ten miles, he took two or three swallows of champagne, and about two and a half fluidounces of brandy in ten-drop doses. The head and face were sponged freely at short intervals, and the food and drink were taken mainly on the

walk. Mr. Weston stated that he did not perspire very freely.

All the urine that was passed during the walk was received into a pail in a little muslin enclosure by the side of the track. There was no discharge from the bowels during that time. I have taken the quantity as representing twenty-two hours, and have calculated from that the quantity to represent twenty-four hours.

All of the analyses were made by the processes described in my little work on "Chemical Examination of the Urine." The urea was estimated by Davy's method with the hypochlorite of soda—the French Labarraque's solution—a solution which had been carefully corrected and compared with Liebig's method. The chlorine was estimated by a graduated solution of nitrate of silver; the sulphuric acid, by a graduated solution of chloride of barium; and the phosphoric acid, by a graduated solution of sesquichloride of iron. The uric acid was estimated by actual weight; evaporating the urine to a thick syrup, extracting the urea, creatine, creatinine, and coloring matter with absolute alcohol, setting free the uric acid and extracting the inorganic salts with very dilute hydrochloric acid, and collecting the uric acid on a filter. The processes in the analyses of both specimens of urine were identical. The examination was begun about fourteen hours after the last urine had been passed. The examination of the specimen taken for comparison was begun sixteen hours after it had been collected.

Examination of Urine passed during the Effort of walking One Hundred Miles in Twenty-two consecutive Hours.

Weight of body, without clothing, one hundred and seventeen pounds.

Articles of food and drink taken: Beef-essence, between one and two bottles; oatmeal-gruel, two bottles; sixteen to eighteen eggs, raw, in water; lemonade, about half a pint; champagne, about three fluidounces; brandy, two and a half fluidounces; water to rinse the mouth every few minutes, and but little swallowed.

No sleep during the twenty-two hours.

TABLE I.—*Composition of the Urine.*

Quantity in the twenty-two hours, 73½ fluidounces (estimated for twenty-four hours, 80 fluidounces); acidity normal; color rather light canary; odor strongly urinous, but normal; specific gravity, 1011.55; no abnormal matters; microscopical examination negative.

	Per fluidounce.	In 22 hours.	Per hour.	In 24 hours.
Urea	5.779 grains.	424.756 grains.	19.307 grains.	463.368 grains.
Chlorine	1.120 "	82.320 "	3.742 "	89.808 "
Sulphuric acid	0.920 "	67.620 "	3.074 "	73.776 "
Phosphoric acid (total)	1.504 "	110.544 "	5.025 "	120.600 "
Phosphoric acid (with alkalies)*	1.280 "	94.060 "	4.275 "	102.600 "
Phosphoric acid (with earths)*	0.224 "	16.484 "	0.750 "	18.000 "
Uric acid	0.500 "	36.750 "	1.670 "	40.080 "

On August 20, 1870, Mr. Weston began to collect for me the urine of the twenty-four hours, from 6 P. M., the 20th, to 6 P. M., the 21st. The weather was warm, but not oppressive. His habits of life were about the same as before his walk of May 25th. He wrote the greater part of the night of the 19th, and slept from 4.30 A. M. to 8.15 A. M. of the 20th. He then went up the Hudson River, and on the steamboat took a light breakfast at 11 A. M., consisting of rare beefsteak, fried potatoes, cold bread, with water. Between that time and 3 P. M. he walked two miles. At 3 P. M. he took dinner as follows: Broiled ham with eggs, stewed tomatoes, fried potatoes, sweet corn, drinking one glass of fresh milk, and two glasses of claret wine with water. At 5.45 P. M. he ate of musk-melon and a few pears.

He commenced to collect the urine at 6 P. M. At 7 P. M. he ate a supper of pickled lambs' tongues, warm, light biscuit, and drank one cup of tea. He slept from midnight till 7 A. M., then rose for a moment, retiring again and sleeping until 12 M. of the 21st. At 2 P. M. he ate a hearty breakfast (or dinner)

* Approximative.

of cold corned beef, hot bread-cakes, one slice of bread, and drank one cup of coffee. He did not eat again until after 6 P. M., the limit of the time for collecting the urine.

During the afternoon of the 21st, he drank one glass of Ottawa beer (a mild, effervescing root-beer), and smoked two cigars.

At 11 P. M., August 20th, he had an evacuation of the bowels, but did not lose any urine.

Examination of the Urine of the Twenty-four Hours under ordinary Conditions.

Weight of body, without clothing, one hundred and twenty-two pounds.

Articles of food and drink taken: Supper—Pickled lambs' tongues, warm, light biscuit, one cup of tea. Dinner—Cold corned beef, hot bread-cakes, one slice of bread, one cup of coffee. One glass of Ottawa beer and two cigars during the day.

Slept between eleven and twelve hours. Ate salt ham the day before at 3 P. M.

TABLE II.—*Composition of the Urine.*

Quantity in twenty-four hours, 33 fluidounces; acidity rather faint; color rather light canary, and slightly turbid; odor strongly urinous, but normal; specific gravity, 1025.43; no abnormal matters; decomposed rather rapidly; microscopical examination showed a rather unusual quantity of mucus; otherwise, negative.

	Per fluidounce.	Per hour.	In 24 hours.
Urea	5.800 grains.	7.975 grains.	191.400 grains.
Chlorine	3.360 "	4.620 "	110.880 "
Sulphuric acid	1.440 "	1.980 "	47.520 "
Phosphoric acid (total)	0.960 "	1.320 "	31.680 "
Phosphoric acid (with alkalies)*	0.640 "	0.880 "	21.120 "
Phosphoric acid (with earths)*	0.320 "	0.440 "	10.560 "
Uric acid	0.680 "	0.935 "	22.440 "

* Approximative.

TABLE III.—*Comparison of the Urine passed under ordinary Conditions* (REST) *with the Urine passed during the Walk of One Hundred Miles in Twenty-two Hours* (EXERCISE).

	PER HOUR.		IN TWENTY-FOUR HOURS.		
	Rest.	Exercise.	Rest.	Exercise.	Percentage of difference.
Total quantity.....	1.375 oz.	3.341 oz.	33.000 oz.	80.000 oz.	142.424 increase.
Urea.....	7.975 grs.	19.307 grs.	191.400 grs.	463.368 grs.	142.094 "
Chlorine.....	4.620 "	3.742 "	110.880 "	89.808 "	19.004 decrease.
Sulphuric acid.....	1.980 "	3.074 "	47.520 "	73.776 "	55.252 increase.
Phosphoric acid (total)	1.320 "	5.025 "	31.680 "	120.600 "	280.681 "
Phosphoric acid (with alkalies)	0.880 "	4.275 "	21.120 "	102.600 "	365.800 "
Phosphoric acid (with earths)	0.440 "	0.750 "	10.560 "	18.000 "	70.454 "
Uric acid.....	0.935 "	1.670 "	22.440 "	40.080 "	78.609 "

The foregoing tables show the effects of immensely-protracted muscular exertion upon the general process of disassimilation, as indicated by the elimination of effete matters by the kidneys; and this is all the more marked, as the exertion probably reached to near the limit of human endurance. By reference to Table III., it will be seen at a glance that the variations under repose and exercise are very great. It was impossible to compare two specimens of the urine of the twenty-four hours taken under conditions of diet precisely identical, which would have made the observations upon the effects of muscular exercise rather more satisfactory; but physiologists are now sufficiently familiar with the effects of diet upon the composition of the urine, to enable them to separate these influences and appreciate fully the modifications produced by the great strain upon the muscular system. I shall proceed, therefore, to consider these changes, and endeavor to appreciate all of the disturbing influences of the variations in the food and drink.

Total Quantity of Urine.—The quantity of water in the urine was immensely greater during exercise, the excess over the quantity passed under ordinary conditions amounting to nearly one hundred and fifty per cent. This I attribute in a measure to the excessive muscular exertion, and in part to the

large quantity of liquids taken, and the fact that the skin did not act very freely. It is the fact that an increase in the water of the urine, even when due entirely to the ingestion of liquids, increases the absolute quantity of solid matters excreted.[1]

Urea.—The most interesting point in connection with these investigations relates to the excretion of urea; and in considering this it will be necessary to appreciate fully the influence of diet. By reference to Table II., which gives the composition of the urine under ordinary conditions, it will be seen that the proportion of urea is smaller than one would expect, judging from the specific gravity, but that the chlorides are largely in excess. The total quantity in the twenty-four hours is very small, hardly two hundred grains. On inquiry, I ascertained that Mr. Weston is a small eater; and on that day he ate but twice, slept twelve hours, and took very little exercise. His diet also, on that day, contained but little nitrogenized matter. These facts, taken in connection with his weight, which was but one hundred and twenty-two pounds, in part account for the small quantity of urea.

On the day of the walk, the elimination of urea was enormous, in proportion to the weight of the body, amounting to four hundred and sixty-three grains, nearly one and a half times more than on the day of repose. The question here arises as to how far this is due to conditions of diet, and what proportionate increase is to be attributed to the excessive muscular exertion:

1. The excess of water eliminated by the kidneys would account for a small part, but only a small part, of the increase of urea.

2. The diet, on the day of the walk, contained a large amount of nitrogenized matter; among other articles, from sixteen to eighteen raw eggs. This will account for a considerable proportion of the excess of urea; and it remains to see how much can reasonably be referred to this source.

3. The most complete series of observations upon the effects of nitrogenized food upon the elimination of urea are

[1] Parkes, "The Composition of the Urine," London, 1860, p. 67.

those of Lehmann.[1] In these observations, made on his own person, Lehmann found that he excreted, on a well-regulated mixed diet, 501.6 grains of urea in twenty-four hours. On a purely animal diet, taking, as one item, thirty-two eggs, he excreted 821 grains, an excess of nearly sixty-four per cent. In the case of Mr. Weston, who took about half the number of eggs, we have an excess of one hundred and forty-two per cent., leaving an excess, due to his long-continued exertion, of seventy-eight per cent. Lehmann also found, that while, in the eggs, he took 465.5 grains of nitrogen, he discharged only 387.8 grains of nitrogen in the urea.

I do not propose to discuss critically the numerous observations that have been made within the last few years upon the influence of muscular exercise, conjoined with peculiar diet, upon the elimination of urea. As far as I know, on no occasion has this point been investigated, when the muscular exertion has been so severe and prolonged. There can be hardly any doubt that, in the case of Mr. Weston, the immense feat of endurance which he accomplished increased the elimination of urea between seventy-five and one hundred per cent.

Chlorides.—During the walk, the chlorides in the urine seemed to be below the average, while they were in excess on the day of repose. The influence of the exertion upon the proportion of chlorides does not seem to be very marked. On the day when the normal urine was taken, the diet contained a considerable amount of salt, in the corned beef, and, on the day before, salt ham was taken at 3 P. M., three hours before the urine was collected. The variations in the chlorides can be pretty satisfactorily accounted for by the diet.

Sulphates and Phosphates.—The total amount of sulphates was considerably increased during the day of the walk. This is in accordance with all observations upon this point.

The proportion of phosphates on the day of the walk was nearly quadrupled. This is a very interesting point, as the phosphates constitute a large and essential part of the inorganic constituents of the tissues. A part of the great excess is

[1] Lehmann, "Physiological Chemistry," Philadelphia, 1855, vol. i., p. 150, *et seq.*

undoubtedly due to the muscular exertion and want of sleep, and a part to the large preponderance of animal food.

Uric Acid.—The muscular exertion increased, by about seventy-eight per cent., the elimination of uric acid; but the proportion per fluidounce was less during the exercise than in repose. The theory has been advanced that exercise increases urea and diminishes uric acid, the latter undergoing oxidation more rapidly. My observations are not conclusive on this point. The diminution in the proportion of uric acid, per fluidounce, would seem to show that oxidation was more rapid under exercise, the immense increase in urea being also an argument in favor of this view.

In conclusion, it seems certain that excessively severe and prolonged muscular exertion increases immensely the amount of nitrogenized excrementitious matters in the urine, particularly the urea, and produces a corresponding increase in the elimination of most of the inorganic salts.

ART. V.—*Remarks on the Early Symptoms and Treatment of Pott's Disease of the Spine.* By J. A. WOOD, M. D., New York.

SOME years since (March, 1858), I reported, in the *New York Journal of Medicine*, several cases of Pott's disease of the spine, treated with mechanical appliances and the internal use of medical agents, to the entire exclusion of setons, issues, and every other form of counter-irritation, and regardless even of the recumbent position.

In that Journal I also gave a description, with illustrations, of the apparatus used in the treatment of the cases, a majority of which recovered, with the curvature completely reduced, although quite prominent when the treatment commenced.

Some of the patients had been confined to the bed several months, totally unable to sit up, wearied and wasted from the effects of the disease. One of them, with a bold angular curvature of the spine, having for its centre the last dorsal vertebra, with severe bed-sores over both trochanters, had become very much emaciated, and could not be turned in bed

without convulsions. So great was the irregularity of the surface from extreme emaciation that it became necessary to envelop the body in cotton before the apparatus, or corset, could be advantageously and comfortably applied. No spasm ever occurred after its first adjustment, the bed-sores soon healed, the health, strength, and flesh, were gradually restored, and the curvature entirely reduced.

The accompaying cut, illustrating the case of Miss Elizabeth Potter, of New Bedford, Mass. (the one now referred to), aged sixteen years, of a scrofulous and consumptive family, represents the character and extent of the curvature and the progress of its reduction. In these outlines A shows the degree of deformity existing previous to an attempt at reduction of the curvature; B the position of the spinal column, at that point, eight months after the commencement of the treatment. At a more subsequent period there were no traces of the curvature remaining.

The balance of the cases then reported were of longer standing, where a large amount of bony substance had been removed by disease, and consolidation to a considerable extent had taken place. Still, they were much improved in health, strength, and general figure.

Since that report, over four hundred and seventy additional cases have been treated in like manner, and generally with similar results. About eighteen per cent. of the whole number were affected with paralysis of the lower extremities, and nearly twenty per cent. with abscess, both occurring at an earlier or later stage of the disease, which is met with at all periods of life from early infancy to old age.

The oldest person, however, that has come under my observation, affected with this disease, was aged fifty-five years. Another, in reference to whose case I was consulted by letter, was sixty years of age, and formerly president of one of our Western colleges, and was discharging the duties of that office

when attacked with the disease. A more recent case, in a person fifty years of age, is now under treatment.

It occurs more frequently, however, in children under ten years old; but from two to five years of age may be considered the period of its most frequent occurrence.

The disease was often preceded by scarlet fever, whooping-cough, or measles; and children who have suffered from a severe attack of the former are very liable to fall into a state of permanently impaired health, and become a prey to some of the various chronic forms of scrofula, among the more serious of which is caries of the vertebræ.

Measles, also, in children and young persons of a scrofulous diathesis, frequently awaken the slumbering germs of that fearful malady, Pott's disease; while whooping-cough acts only mechanically upon the system in developing more rapidly the disease already existing, but not detected, perhaps, by any of its characteristic symptoms when the cough commenced. In a few instances the disease succeeded severe and protracted typhoid fever; first manifesting itself when the system, from its reduced condition, was comparatively disarmed of all power of resistance to the development of any hereditary or constitutional taint that might exist, as is frequently the case with incipient phthisis.

From the commencement of the disease up to that period when the curvature first made its appearance (usually in the form of a small knuckle), the average length of time did not vary much from ten months, and was often characterized by paroxysms of most acute suffering. When paralysis of the lower extremities occurred, the recovery of the patient from his paralytic condition, under the treatment, was only a question of time, and that, often, of brief duration. When long protracted, it was more generally the result of imprudence and sometimes obstinacy of the patient, in persisting in too much exercise upon the feet when first commencing to walk.

In one instance, the patient, of a restive habit, had nearly recovered from the second attack when he fell from a considerable height and became the third time paralyzed, from which he has not regained, and probably never will regain, the use of his limbs.

Paralysis did not, I think, exist in one instance where the disease was situated below the last dorsal vertebra; but, it occurred in an increased ratio proceeding upward from that point. Neither was there a single case of it in the upper extremities connected with *genuine* Pott's disease. Such cases are very rarely found on record. It did occur, however, in one or both arms in the case of the patient sixty years old already alluded to, as having caries in the cervical region, throwing the head forward and downward with the chin resting upon the sternum. This deformity was attended with severe and incessant pain, over which opiates, as I was informed by the attending physician, although liberally administered, appeared to have little or no control.

The treatment in those cases, in addition to the mechanical support, consisted of dry friction applied to the back and limbs, with flannel, or the bare hand, and the use, sometimes, of the galvanic battery. The loss of the power of locomotion, as a contingent of this disease, may be viewed as comparatively of minor importance. The patient is very sure to regain the use of his limbs under treatment. With a restive disposition the paralysis sometimes proves an advantage, as too much exercise upon the feet interferes with the efforts to reduce the curvature, and renders the ultimate success of the treatment less certain.

Dr. Pott ascribed his success in the treatment of paralysis of the lower extremities in this disease to the use of issues applied near the affected portion of the spine, and recommended their continuance for several months after the patient had recovered from his paralytic condition. It may be well to consider whether the remedy here recommended possesses merit superior to every other in such cases. Of this there appears to be no direct proof; and if the fact cannot be clearly substantiated by practical results, such practice should be discarded and treated as a source of unnecessary pain and suffering to the patient.

Abscesses sometimes created but little constitutional disturbance; neither did they in many instances appear to affect materially the ultimate results of the treatment, as ten or twelve only of the whole number thus affected terminated fatally, and those were generally of a most decidedly strumous

character. In some instances the abscess terminated by absorption. This was more frequently the case when their locality was such as to subject them to the pressure of the corset. That result is very desirable whenever possible to effect it in any way, as it saves the patient from much discomfort, and, at least, *temporary* physical prostration and the attendants from an unpleasant and protracted duty, as the discharge seldom ceases until consolidation of the affected portion of the spine is far advanced. A premature use of the lancet, when abscess is the result of caries of the spine, is more frequently attended with serious constitutional results than when its contents are permitted to escape by a spontaneous opening.

If an abscess is quite painful it may be better, perhaps, to give early exit to the pus, even at a greater risk of constitutional irritation; and, if the surrounding tissues are likely to become too deeply involved by the further expansion of its walls, as is sometimes the case, the use of the lancet is imperative. Otherwise, it is better, usually, that the abscess should remain unmolested until its contents have approached near to the surface.

Very many of the cases presented for special treatment were of long standing, with marked deformity, impaired health, and general prostration, some having been subjected to one form of treatment and some to another. The seton, moxa, and various other forms of counter-irritation, had been resorted to, while in many cases the recumbent position was strictly enforced, in some instances, for a period of nine, twelve, and fifteen months, the patient not being permitted to rise from this position, even when taking nourishment.

But these different methods of treatment have all failed to accomplish what has often been effected, unattended with pain and suffering to the patient, by appropriate mechanical appliances in connection with a liberally sustaining diet and the use of such medicinal agents as the cases appeared to demand, while the patient was comparatively unrestrained from air and exercise during the treatment.

Among the earlier symptoms of the disease is the manifest necessity for support, indicated by the patient's constant and instinctive inclination to seek it in leaning or throwing himself

upon whatever may chance to come within his reach that will afford such support; and the more perfect is the design and adaptation of the support and the more promptly and skilfully it is adjusted and readjusted, the better for the patient, and the more successful and satisfactory will be the ultimate results of the treatment.

The early symptoms of caries of the spine are sometimes very obscure, and it is often difficult, more especially for those not familiar with its characteristic features, to form a correct and satisfactory diagnosis. A physician may, and many even those of high standing in the profession do, pass through a series of years of professional service without ever having a single case of the kind come under their observation; and as there are other diseases with symptoms somewhat analogous to this in its early stages, it is often confounded with them, and treatment instituted upon a false theory and pursued until an excurvation of the spine settles beyond all controversy the character of the disease.

During this protracted period of fruitless effort to arrest the further progress of a disease, the pathological character of which may not, perhaps, for a moment have been suspected until it has passed into a chronic form, we lose the most favorable opportunity of effecting speedy relief and complete restoration of the patient without deformity.

The disease sometimes comes on insidiously; but, in a large majority of cases the attack is sudden and severe, the pains occurring spasmodically, and are provoked by mental as well as physical causes, such as fright, mirth, or violent passion. The pain is usually quite remote from the seat of disease, and may be experienced anywhere in the course of the nerves leading from it, or at their extremities. Consequently, it may be in the side, chest, stomach, bowels, or hips and lower limbs, just according to the locality of the disease. That is one reason why those not familiar with its symptoms (and no one, however great his experience, is infallible on this point) are so liable to be misled, and to confound it with other affections more commonly met with in those regions where the pain exists. The disease is, therefore, often mistaken for neuralgia of the chest, stomach, bowels, lumbago, nephritis, rheumatism, and various other affections; and it was stated in the history

given of one case that came under my care, that the child had been treated two years for worms, the treatment continuing some time after the discovery of the curvature, so firm was the belief that worms were the prime and only cause of its illness. A patient will be frequently seized with a paroxysm while playing about the house, when it will throw itself suddenly upon the floor and refuse to be taken up or handled while the pain continues. When the pain has ceased, the patient will rise and return again to its amusements, as though nothing special had occurred.

This introduction to a sad sequel frequently occurs in the night. A child, which but a few hours before was put into bed, apparently in perfect health, wakes suddenly out of sleep in wild agitation, shrieking and crying vociferously. The family is aroused, and the cause of this sudden alarm carefully sought for, and not infrequently the solution is found in that very popular theory, "an attack of *worms;*" or, perhaps, a frightful dream. But, in doubt as to which is the real cause, there is administered, both some favorite nostrum as a vermifuge, and a liberal amount of solace. Eventually the pain subsides, the child drops to sleep, and the ever-watchful and anxious mother, full of faith in the infallibility of the remedy, retires again to rest, with the delusive hope that the relief is final and complete. But this is often only the commencement of a series of similar attacks which follow at various intervals, by day as well as night, and result in protracted sickness and extreme suffering, from which the patient sometimes finds relief only in death. These paroxysms of pain are peculiarly liable to occur whenever the subject first wakes out of sleep; especially so, unless moved and handled with the utmost care and caution, which is not always the case when intrusted entirely to the care of servants and nurses.

Cases occasionally occur in which there is, from the first, but little or no pain experienced, the position of the patient when standing, sitting, or walking, furnishing perhaps the only tangible evidence of the existence of the disease. The pain, however, is often so marked and peculiar, as to render the character of the disease nearly unmistakable, even without

the appearance of the knuckle to complete the evidence and render it conclusive.

The position and habits of the patient are often such as to attract early attention. He inclines to stoop or lean to one side, and sometimes does both, instinctively thrusting his hands into his pockets, or resting them upon the thighs to give support to the back. He avails himself of whatever object of support may chance to be within his reach upon which to lean, and relieve the affected part from the superincumbent weight of the body. The position is modified somewhat, according to the locality of the disease. When situated in the lumbar region it is, usually, more erect than natural—the shoulders are elevated, and the head thrown backward. If the disease is situated in the cervical region, there is a constant inclination to support the head with the hand placed under the chin, or to throw it backward or to one side, resting it upon the shoulder.

Locomotion, from weakness of the back, is usually performed in a shuffling manner; and not unfrequently does a child, previous to the development of other symptoms, manifest a tendency to trip and fall, for which he is often reprimanded before the cause is understood. A complete loss of power of the lower extremities generally in those cases succeeds this tendency sooner or later, and locomotion for a longer or shorter period is suspended.

Pain and tenderness, upon pressure over the affected region, are very seldom experienced by the patient; but, tapping on it or jarring the spine in any way, is commonly attended with more or less suffering, and a sponge wet in hot or cold water, and applied to it, usually produces pain. Any disagreeable impression imparted suddenly to the back, causing a violent contraction of the spinal muscles, has a similar effect. Placing the patient upon his stomach across a narrow bench or stool, is one of the various methods that may assist, in addition to those above mentioned, in forming a correct diagnosis where doubt in a case exists. In this and various other positions of the body the patient will usually evince more or less suffering, even before any degree of excurvation of the spine is detected.

Bibliographical and Literary Notes.

ART. I.—*The Physicians of the Time of Molière; their Manners, Institutions, Doctrines, etc.* By T. EDWARDS CLARK, M. D.

(Continued from volume x., page 314.)

IN regard to antimony, it was not altogether the same. Here it was not one of the facts of experience that was concerned, capable of being verified at any time, obeying a constant law, and demanding, to produce conviction, only sufficient attention and good faith. It was not a fact that was in dispute, but a method, a mode of practice. A thousand secondary questions were concealed under this one, so simple in appearance. This needs an explanation.

If we credit a very doubtful legend, Basile Valentine, a Benedictine monk of the convent of Saint Pierre at Erfurt, at the beginning of the sixteenth century, and at the same time philosopher, alchemist, astrologer, and physician, as was then the custom, was the first to isolate a metal but little known before his time, and had the idea of making use of it in the healing art. He tried it first on hogs, and found that it agreed with them most wonderfully. These animals grew fat under one's eyes. The mineral antimony always contains a certain proportion of arsenic. Now, arsenic, taken in small doses, contributes to corpulence, as the peasantry of Styria and Lower Austria know very well.

Encouraged by his first success, Basile Valentine tried it on the monks of his convent. Either his new preparation was wrongly made, or he gave them too large a dose, for they became desperately sick. He drew the following inference: the new metal agrees with hogs, but not with monks. He called it then *antimoine*. Nevertheless he was not discouraged, but made other experiments, and finally concluded that he had found a universal panacea. He published his new discovery under the emphatic title, "The Triumphal Chariot of Antimony" (*Currus Triumphalis Antimonii*).

Paracelsus, who lived thirty years afterward, prepared, studied, perfected, and made an extravagant eulogy of the pre-

eious metal, and generalized in medicine a novelty which then appeared monstrous: the introduction of remedies taken from the mineral kingdom into the healing art. This was the germ of a revolution. Paracelsus had all the qualities and all the faults of innovators who found schools; a fascinating eloquence, a vivid imagination, inspiring airs, a confidence in himself amounting to impudence, a strangeness of ideas and language, which prevented one from knowing whether he was a fool or a man of genius. Perhaps he was both. He left to his successors, with some real discoveries, an inexplicable philosophical system, which has been the despair of all commentators, but has at least one evident character: complete, dazzling, insolent rupture with all the traditions of antiquity.

The sixteenth century was the age of the gold of alchemy. It developed, especially in Germany, that classic land of mysticism and of reverie, encircled by all its nebulous *cortége* of occult sciences—the cabal, astrology, chiromancy. It became there both an industry and a system: persecuted as an industry, but persevering; as a system, little defined, never acknowledged, surrounded with profound mystery, transmitted only to adepts after a long initiation, and presented, in the writing of the Answald, of the Thurneysser, in a style the obscurity of which excels that of Paracelsus. At the bottom of all this there was concealed a sort of pantheism, a faith not only in a universal harmony, but a true life expanded through all Nature, even inanimate, and regulating the reciprocal action of all the parts of the grand whole.

Its object was not only to make gold, but the true gold, *the gold of the wise*, quite different from the gross metal which shines before the vulgar eye, possessed of prodigious virtues, perhaps that of making life eternal, but certainly of curing all the maladies which afflict humanity. Potable gold! behold the great work, the true end of alchemy! Who knows if the discovery of antimony is not the first step in this direction? Some even dared to suggest that it was itself the panacea so much expected. At any rate, it is certain that, among alchemists, it found its warmest apostles, and in consequence of their investigating it with this hope, they produced a great number of new combinations and propositions.

In France, where the practical sense of things has always prevailed over the exclusive culture of theory, there was generally made successful opposition to the theosophic and pantheistic tendencies of the other side of the Rhine, and early there was a decided separation of the mystics from the chemists. The first made astrology their principal study. But medical astrology had little success, and for good reason: it had, besides its absurdity, the grave inconvenience of leading to absolute fatalism. It fell soon into disuse, and by the end of the seventeenth century it had become the property of low charlatans and perambulating doctors.

Chemistry had, and deserved to have, a different fortune. If its progress was but little, it was none the less certain; the results which it reached were real and palpable. It owed to the physicians an invaluable advantage, which it could not have expected from the alchemists, namely, that of becoming more and more disengaged from the mysterious apparel with which the best representatives of the middle ages had enveloped it, and of appearing as a science, the laws and processes of which have nothing of the supernatural in them. As to the efficacy of the mineral agent, they had every day proof, and they argued that, if they had the power to poison, why should they not be able to cure?

This progress, in the seventeenth century, was an accomplished fact. Chemistry, escaped from the dark paths of mysticism, to enter those of science, came, in the name of the services which it believed itself called to render, to reclaim its place in medicine. But some held a grudge against it on account of its origin. The sympathy with which it had met at Montpellier made it suspected by the purists of the Faculty of Paris. The stupid blunders committed by its warmest friends weighed against its reception. Finally, the scorn which it exhibited for antiquity alarmed the greater part of the physicians, educated, as we have seen, in a profound respect for all that chemistry pretended to reform, destroy, or replace. In a word, there was at the bottom the question, always old and always new, as to the part which the sciences called *accessory* ought to have in medicine; the same question that, under another form and under other circumstances, we have seen in 1860 so

passionately excite the most eminent members of the Imperial Academy of Medicine.

Conciliatory spirits were not lacking who tried to form an alliance between the past and the present, and conceive the hope, assuredly very reasonable, of making the new chemical theories acceptable under the patronage of Galenism. One feels always more or less the influence of the circumstances in the midst of which one lives, even when one resists them; now, there was an essential point on which partisans or adversaries of chemistry were nearly agreed, namely, *humoralism*. The germ of it existed in Galen, whose entire system of medicine reposed on the doctrine of the four humors: the blood, the bile, the pituit, and the black bile or melancholic. Without doubt, as a result of commenting, they had greatly refined on the words of their master; on the other hand, he had been violently assailed, but there still remained a certain number of universally-accepted principles which had become axioms: for instance, that all diseases result from an excess of the humors; that these humors can do harm by their quantity or by their quality; if they are simply in excess, then plethora is produced; if the humors are more or less vitiated, then cacochymie follows (whence that general precept which ruled in the therapeutics of the school, that plethora is combated by bloodletting, and cacochymie by purgation). But if, instead of affecting the internal organs, the humors went to the exterior, they gave rise to *tumors*, of which there are four principal kinds: the *phlegmon*, which comes from the blood; the *érysipèle*, which comes from the bile; the *œdème*, which comes from the pituit; and the *squirrhe*, which comes from the melancholic humor. All this, at that time, was beyond dispute, and had passed into the language. Take, as an example, the terrible imprecation which the *Purgon* of Molière pours out on his indocile patient: "I abandon you to your bad constitution, to the intemperance of your entrails, to the corruption of your blood, to the acidity of your bile, to the sediment of your humors!"

While the orthodox held to these general terms of acidity, corruption, and sediment, which did not much compromise them, the physician-chemists sought to define the things by

presuming that the phenomena which they had under their eyes in the laboratory took place also in the human organism. This was the time when Willis tried to spread his system in England: fever is nothing but an effervescence of the blood, due to a true fermentation; the spasms and convulsions are caused by the explosion of salt and of sulphur with the animal spirits; it was nothing but a combustion, a putrefaction, a dissolution of nitre, salt, or mercury. The Faculty of Paris, though resisting this movement, followed it, nevertheless, at a distance. For, what right had it to proscribe chemistry, when it itself saw nothing in disease but the alterations of the liquids of the organism? Chemistry wished to define these changes, nothing more. This was the ultimate consequence of official doctrines; hypothesis for hypothesis, the new prevailed over the old. The Faculty perceived it, and showed itself sufficiently tolerant toward the theory. That was of no consequence.

But it was otherwise in regard to the practical question of the treatment of disease. All were agreed that it was of first importance to evacuate the bad humors. They divided on the means.

The faithful adherents of Hippocrates and of tradition waited for the *digestion* of the humors, which should take place by the spontaneous effort of Nature; they had faith in the doctrine of critical days, and contended that it was not in the power of any one to hasten or prevent these—that the best thing to do was to wait for their coming and to profit by their presence; they made of purgation an art of infinite detail, and devoted themselves not only to purging in general, but to purging specially, and, according to the indications, the bile, the black-bile, or the phlegm. In brief, they relied much on hygienic treatment, and employed no energetic means. Senna, the singular virtues of which they exalted with complaisance, and which they were so fierce to have added to the materia medica of the ancients, constituted for them, with cassia and rhubarb, the pillars of Hercules of purgation. If we would have an excellent model of this therapeutics, we have only to take the account of the apothecary in the first scene of the *Malade Imaginaire*. All therein is benign, ano-

dyne, insinuative, detersive, carminative, diluent, and emollient. The only thing to do is to soften, to sweeten, to temper, and to refresh. This is all that the Hippocratic medicine required of them.

We are mistaken; they had also bloodletting. It is difficult to say how, enemies, as they were, of all violent means, they could have arrived at so great an abuse of this method. Never did the Doctor Sangrado, of Le Sage, nor the most earnest followers of Broussais and of the physiological medicine, pour out torrents of blood comparable with those set free at this epoch. The Faculty gloried in it, and to those who reproached them for being the enemies of progress, they replied: "Have we not discovered frequent bloodletting?" "There are hardly any," said Riolan, "but the doctors of Paris who know to what point to use it." Now, would we know what this point is? "The body contains," said they, "about twenty-four livres of blood. We can lose twenty without dying, as this occurs in severe hæmorrhages. Hence we are sure of keeping within bounds if we take only one-half of the whole quantity of blood." They cited with admiration this aphorism of Botal: "The blood in the human body is like the water in a good fountain: the more one draws from it, the more one finds there is of it!"

Guy Patin never wavered; this was the first of his convictions. With what pleasure he cited and commented on this famous verse of Joachim du Bellay:

"O good, O holy, O divine bloodletting!"

"This remedy," says he, "earnestly and happily reiterated at the commencement of diseases, is one of the mysterious principles of our profession." And he gives the example: he caused his wife to be bled a dozen times for inflammation of the lungs, and his son twenty times for a continued fever. Neither sex nor age ought to prevent its use: "We cure the sick who are over eighty years old by bloodletting, and we bleed with as much success and as little inconvenience infants of two or three months; I could show living in Paris more than two hundred who were bled at this early age." And, in fact, if we consult his correspondence, we will see that he bled

a child of seven years thirteen times in fifteen days; he bled one of two months, and another of *three days!* He had *himself* bled seven times for a simple cold, and he relates examples of his *confrères* who were not less devoted to these principles: M. Mantel bled thirty-two times for a fever; M. Cousinot sixty-four times for a rheumatism; M. Basalis eleven times in six days, at the age of twenty-four years. After this, can we say that they were not sincere?—But, unlucky those who did not bleed, or who bled only moderately! Guy de la Brosse (a physician!) died without being bled. When it was proposed to him, he replied that "it was the remedy of sanguinary pedants (he did us the honor of this title), and that he had rather die than be bled to death," which he did. "The devil will bleed him in the other world, as such an impostor and atheist merits. . . ." These invectives, this desiring eternal damnation for a man who refused to die *according to the forms*, is it not the sublime of the comic?

That such excesses had for a long time shocked a considerable number of physicians is not astonishing. Let us see if the emetic and the other preparations of antimony succeeded better. We do not speak of charlatans who gave it at random. It is certain that these poisoned their patients. As to the physicians who gave it in good faith, it is easy to explain their successes as well as their reverses. Notwithstanding the numerous investigations to which this medicine had been subjected, science did not possess at that time any means of deciding whether the preparations in use contained arsenic or not, and this unsuspected cause of error explains how some honestly were able to testify to the excellent effects of antimony, and others to attribute only deplorable accidents to it. Moreover, this metal was then given solely as an emetic. Whoever has experienced the horrible prostration which succeeds the use of this remedy, will comprehend the just defiance which it should inspire. No one at that time had comprehended that the principal advantage to be derived from its employment consists in so dividing the doses as to induce a proper depression of forces without producing vomiting. This method was not known before the time of Razori. The dispute was between those who believed in evacuating the bad

humors by *coction*, and consequently proscribed vomiting; and those who, on the contrary, thought it was much better to prevent the disastrous effects of a prolonged sojourn of the morbid material by rejecting it all at once. In a word, these last pretended to *choke* the disease.

Which side had the right of it? Let us first recount the quarrel. It occupied an entire century. In 1566 a solemn decree of the Parliament of Paris condemned antimony; in 1666 another decree of the same Parliament reinstated it. We will occupy ourselves especially with the time of the second epoch.

Let us first look at the translation of the decision of the Faculty which gave rise to the decree of 1566:

"DECREE OF THE FACULTY.

"All the college of the Faculty of Medicine having been convoked for the purpose of giving an opinion to serve as a rule relative to antimony, has decided, according to the authority of all those who are illustrious in medicine, and for the reasons already given before *M. le procureur-général*, that antimony is a deleterious substance, and, as such, ought to be classed among the simples of a poisonous nature: that, moreover, there does not exist a preparation which can correct it, in such a way as to allow of its being used without danger. Decreed at the schools of medicine, the thirteenth day of the calendar of August of the year 1566."

In 1615 a new decree of the same nature passed unanimously.

These decrees are remarkable in this respect, that they give us in an exact manner the idea that our fathers had of medicines and of poisons. For them the whole question reduced itself to knowing whether antimony was a poison or not. Modern medicine, at the same time more daring and wiser, recognizes that the degree of utility or harm of a substance depends entirely on the use that one makes of it, and the doses in which it is given. All the great therapeutic agents are energetic modifiers of the economy, capable of giving life, because they can produce death. We utilize the most certain means of destruction: mercury, arsenic, opium, quinine, and strychnine. In this sense it is true that there are no real medicines but poisons. For the ancients, on the contrary, the two ideas were diametrically opposed, and con-

sequently incompatible. This distinction was so generally entertained, that the warmest partisans of antimony occupied themselves less with determining in what conditions it could be of use or harmless, than in seeking new preparations of it. The notion of chemical combination was entirely strange to them; they sought, as they themselves said, to *correct*, to perfect antimony; an idea quite analogous to that of their predecessors the alchemists, whose sole aim was to *ennoble* the metals. This idea is expressly professed in all the writings of the time.

In the first half of the seventeenth century works multiplied in this direction. Two medico-chemical publications, which appeared abroad, one in Germany, by Hamerus Poppius, the other in Piedmont, by Vincenzo Solombrino, had, we know not why, a great reputation in France; they believed that at last they had reached the famous correction so long expected; the poets chanted the discovery; fashion and the court physicians adopted it, and in a few years it became an infatuation. There was made about a drug, which had been known for more than a hundred years, as much noise as ordinarily accompanies the apparition of novelty. The contest which the Faculty had formerly maintained successfully, when only empirics were to be contended with, began again, but this time in the bosom of the Faculty itself.

Meanwhile an unexpected event took place, to envenom the quarrel. A special commission had been at work since 1623 in preparing an *antidotaire* or pharmaceutical code, designed to give a list of the medicines authorized and recognized by the Faculty. The work advanced, but with that slow and dignified pace which is characteristic of all books undertaken by a company of *savants*, as the famous dictionary of the French Academy. Every one knows that it was far from being terminated, when, in 1638, the dean, Hardouin de Saint-Jacques, suddenly published it. There was no little surprise at finding inscribed in it the *vin émétique* or the *vin antimonial*. How had the enemy got in? Had there been treachery? Had a vote been taken surreptitiously? That was never known. Several thought that the dean, none too sev-

pulous, had not feared to falsify the registers of the Faculty for the year 1637.

It would be a work as long as tiresome, to analyze the immense quantity of brochures, of folios, and of pamphlets, great and small, which succeeded one another without interruption on this slender subject during twenty years. Their form and language have become obsolete in our literature. The experience and the authority of Hippocrates, and of the Holy Scriptures, history, and the fathers, were in turn invoked by one side or the other. The first point was to define antimony, but they were not agreed even on this. Some discussed, text in hand, the question whether Adam, who, in the terrestrial paradise gave, according to Genesis, a name to all things, named also antimony, and if so what name did he give to it? Or, if we should have recourse to metaphor, ought we, with Basile Valentine, to look for a comparison in geometry, and assimilate antimony to the circle, which has neither beginning nor end? In natural history, and compare it to the ram? In mythology, and call it the Proteus of metals? But is it really a metal, or only a simple mineral? Or may it not be an hermaphrodite, metal and mineral at the same time? What yet? Root of metals, because it produces them all; wolf of metals, because it devours them; Saturn of the philosophers, magnesia of Saturn, bastard of Saturn. . . . I spare my readers the rest of this synonymy.

It was chiefly between the years 1650 and 1655 that these pamphlets swarmed. I shall attempt to give an idea of the nature of these works, which, in their time, were much read even outside of the medical world. It is this which explains why they are in French, contrary to the usage of the times, which required that scientific books should be written in Latin; as such they merit a place, small though it be, in our literature. All are preceded by a series of dedicatory letters, of recommendations, of approbations, and of lists of adherents, which give in some sort, day by day, the measure of the success of antimony, and allow a comparison of the number of its partisans and of its adversaries.

The first physician of the Faculty of Paris who dared to hoist the flag of insurrection was a young man, Jean Chartier,

physician to the Queen of England, and son of the celebrated René Chartier, editor of the works of Hippocrates. He published, in 1652, under the deanship of Guy Patin, a libel entitled "The Science of the Sacred Lead of the Sages." He had not long to wait for his chastisement: he was immediately and ignominiously punished, expelled from the Faculty. The unfortunate had counted on the influence of Vautier. But Vautier died the same year, and the impudent libelist found himself deprived of his profession, and delivered up without defence to the mercy of his creditors, who, not being able to obtain their money, put him in prison. To increase the misfortune, it is impossible for us to see in him a persecuted talent,[1] for his work is of rare insignificance. The most remarkable part of it is a symbolical frontispiece, consisting of an owl perched on a vine-stock (an allusion to the *vin émétique*), wearing spectacles and encircled by lighted torches. Below there is written:

> "The owl shuns the vivifying light;
> And, though it has spectacles and torches,
> It cannot see the most beautiful secrets
> Of antimony and of the *vin émétique*."

There appeared almost immediately in reply several virulent diatribes against antimony, under the striking titles *Légende antimoniale*, *Pithœgia*, *Antilogia*, *Aletophanes*. The anonymous author of the last three, whom Guenaut had the credit of causing to be excommunicated, was François Blondel, the most ardent and the most obstinate enemy of antimony, and who ended by being its victim.

Of all the replies to Chartier, the only one that deserves attention is that of Dr. Germain, entitled "Orthodox, or the Abuse of Antimony." It is a voluminous dialogue, in imitation of those of Plato, designed to establish the following syllogism:

"Violent vomiting is a dangerous usage in continued fevers, and is never necessary in intermittents;

"Now, the vomiting of antimony is violent;

[1] Nevertheless he pleaded his case, and ended by gaining his process against Guy Patin, 1653.

"Therefore, the vomiting of antimony is a dangerous usage in continued fevers, and is never necessary in intermittents."

Iatrophile and *Philalèthe*, seeing the rich rushing in crowds after the emetic, and not knowing what to think of the wonderful stories, decided to consult on this point the illustrious and wise old Orthodox. They went to find him at his house in the country. From a distance they discovered him. "It is he," said Philalèthe; "I recognize his form and majestic bearing. How well that external appearance indicates the grandeur of the soul that is lodged in that body, which has never to this hour suffered any diminution in the vigor of its functions!" They accost him, and make known the object of their visit. The good old man prepares himself with perfect grace to say all the evil possible of antimony.

This work of M. Germain is one of the wisest that was written on the question. He has no prejudices against chemistry; he believes in progress; he is convinced that, if Hippocrates and Galen should come back to the world, they would be the first to make use of certain new remedies, the efficacy of which is incontestable. He goes even further: he admits the possibility, the reality of specifics. He thinks that Nature has prepared remedies for all diseases, and that it is for man to discover them. "This knowledge makes the superb *savants* blush every day, when they see the sick, whom they have basely abandoned, cured by these idiots, and by the remedies that they have trodden under foot."

But on the particular question of antimony he is intractable; and we must agree with his two friends, that the reasons which he gives for condemning it are for the most part excellent. He has sound and elevated views in regard to the *rôle* of medicine, not wishing to precipitate things, fearing to go the wrong way by violent means, and to counteract the salutary efforts of Nature, when one ought to content himself with gently seconding them, without trying to hasten, arrest, or constrain them.

Eusèbe Renaudot, the son of the celebrated and unfortunate founder of the *Gazette*, believed that he had family injuries to revenge, and undertook the task in a prolix pamphlet, divided into two parts, "Antimony Justified," and "Antimony

Triumphant." Germain had pretended in his preface that he was convinced by personal experience, having been brought to the point of death by an emetic, and only revived after eight or ten good bleedings. Eusèbe Renaudot had exactly the contrary experience, and declared that he took up the pen only through gratitude to the emetic, to which he owed his life. Which of the two must we believe?

It is interesting that the book contains a list of adherents, where sixty-one doctors of the Faculty of Paris figure (nearly one-half), among them some important names—for instance, Guénaut, who paid the expense of printing. In the midst of approbations, epigrams, acrostics, and hexastics, which decorate the first pages, there appears a sonnet by Colletet:

> "Precious elixir, celestial magnesia,
> Soul of Nature, and her greatest efforts,
> Spirit whose virtue resuscitates the dead,
> And gives them *l'embonpoint* as well as life," etc., etc.

He has no invectives for his adversaries he says, "though he could call them with reason the greatest villains and murderers of the world." He flatters himself to have found at last the true etymology of *antimony*. He derives it from the Greek *αντιμένειν*, because it is, according to him, the best obstacle that we can oppose to diseases. He recognizes three possible seats for diseases: the spirits, the solid parts, and the humors. It is against these last that antimony has a complete and illimitable power; but he places in this category three-quarters at least of all diseases; whence it results, with his pretended moderation, and notwithstanding all his distinctions, that he finally, as the others, makes antimony a sort of panacea. He considers its discovery as the greatest effort of science.

The first reply made to him was "The Damper of Antimony," by Perreau, a work full of personal aggressions and defamations. Eusèbe Renaudot is a traitor, and a son of a traitor. The caresses by which he seeks to seduce the Faculty are of the baseness of Judas, and conceal the blackest designs. We ought, without examination and without process, "to reject all these novelties, as dangerous in our art as they are in

religion." This word explains all, but alas! heresy had already made singular progress. Perreau dedicated his work "To the better and most sound part of MM. the doctors of the Faculty of Medicine of Paris." This dedication is already a bad symptom.

Renaudot had received letters of felicitation from the doctors, friends of antimony. Perreau opposes to these an equal number of letters received from the chief of the contrary party. To Collctet he replies:

> "Detestable elixir, pernicious magnesia,
> Pest of Nature and of her gentle efforts,
> Which ever peoples the kingdom of the dead," etc.

It is interesting to follow the attitude of Guy Patin in this grand quarrel. Warm partisan of tradition, declared enemy of antimony, he is also a good friend of his own ease. He does not send forth a manifesto; he is content to stir the fire with a singular complaisance. "The ministers and Mazarin are the demons of France; the Turks of Christendom; the chemists, the apothecaries, and the charlatans are the demons of the human race in their way, especially when they make use of antimony." This is his profession of faith, and the foundation of his thoughts.

Yet, he at first maintained a certain amount of discretion. He wrote in 1650 to Falconnet: "I think I have sent you before *Stibii Novæ Vindiciæ*, in hexameter and in pentameter, against antimony; I send you others a little better now. *Do not tell any one that I have sent these to you.*" We may suspect, without rash judgment, that he did not at that time ignore his chances for the deanship, and that he did not wish to compromise his chances. Once dean, there was less need of caution; as the quarrel became more intense, he showed his head, and grew more and more intractable. It was contrary to his nature to remain long neutral. He had, besides this, personal reasons. Antimony and Guénaut were one in his mind, as in that of the world; and Guénaut is especially odious to him for various reasons, but particularly as physician to Cardinal Mazarin. Therefore "The Orthodox" of Germain found in him an ardent admirer, and "Antimony Triumphant" of

Eusèbe Renaudot appeared to him to be a flat and absurd work. "He had reason," says he, "to call his work 'Antimony Triumphant,' for, in order to triumph, it had to kill six thousand. . . . It has killed more than did the King of Sweden in Germany."

He worked with ardor at the *Martyrologe de l'Antimoine*, and God knows with what good faith and what criticism. An illustrious man could not die without his immediately asking if he had taken antimony. If that was the case, it was sufficient; he was another martyr. His letters are full of these distinguished deaths, which are for him so many victories. He did not hesitate to accuse Guénaut of having poisoned in this way his wife, his nephew, his daughter, and his two sons-in-law; moreover, when Guénaut himself came to die, it was plain to him that he died of his favorite drug.

Against the chemists, against "their barbaric tyranny and their bezoardic quackery," all arms are good for him. He directs all the lances against them in the fire of the dispute. Under his pen *stibium* becomes stygium; he calls the *vin émétique*, *vin énétique* or *vin hérétique*.

In the year 1658 the king was taken sick with typhoid fever. Guénaut was sent for. The grand and solemn consultation which took place resulted in administering an ounce of antimony to his majesty, and in purging him twenty-four times. He recovered, and the fortune of antimony and Guénaut was made.

The fifth chapter treats of the origin, antiquity, traditions, and progress of the Faculty of Montpellier, the sixth of the origin of surgery. It is shown that the first surgeons were not barbers, but that the latter were servants to the former. In the two remaining chapters we have a brief notice of Molière's studies under Gassendi, and of their influence on his mind, of his friendly relations with other physicians, and of the effect of the state of his health on his judgment.

ART. II.—*The Mechanism of Dislocation and Fracture of the Hip; with the Reduction of the Dislocations by the Flexion Methods.* By HENRY J. BIGELOW, M. D., Professor of Surgery and Clinical Surgery in the Medical School of Harvard University, Surgeon of the Massachusetts General Hospital, etc., etc. With Illustrations. Philadelphia: Henry C. Lea. 1869.

THIS handsome volume will be received with welcome by the profession, and tend greatly to relieve, if it does not entirely remove, the many difficulties which have surrounded a satisfactory explanation of the mechanism of these dislocations, together with the method of their reduction. The work is the result of the studies of the author for some years, and, though appearing now for the first time in book form, still his views on this subject have been expressed from time to time; not only before his class at the university, but in papers read before different medical societies: thus, in June, 1861, a paper upon the subject was read before the Boston Society for Medical Improvement, and one before the Massachusetts Medical Society in May, 1864, and still another before the American Medical Association in June, 1865. Still, to the profession generally our author's views will be new, and must be regarded as original. The idea that muscular contraction, either active or passive, is the cause of the limb assuming its varied positions, and also the cause of the difficulties in the way of their reductions, was, we believe, the general doctrine taught and received by the greater number of medical men, with the exception that, in some cases, the rent in the capsule was too small to allow of easy reduction. That muscular contraction should be so readily overcome by ether and yet deformity and resistance of dislocation continue, Dr. Bigelow observes with much truth should long since have led to the conviction that muscular contraction is not the chief agent in this deformity. The chief obstacle in the way of reduction of the regular dislocations, and the cause of the limb taking its unnatural position, are ascribed to the capsular ligament, and especially to the iliofemoral ligament, which he pleases to denominate the Y ligament, owing to its fasciculi diverging like this letter. He

considers, and our own observations upon the cadaver since the appearance of this work lead us to the belief, that his views in the main are correct, when he states the Y ligament, the internal obturator muscle, and the capsule subjacent to it, are alone required to explain the usual phenomena of the regular luxations. Further, our author says that, in the regular dislocations, one or both branches of the Y ligament are unbroken, and their signs are constant, the irregular dislocations being those in which this ligament is wholly ruptured, and they offer no constant sign. It therefore becomes necessary in the reduction of the former dislocations to keep this ligament constantly in mind. So graphic is the author's description of this portion of the capsular ligament, and so clear and beautiful are the plates which illustrate it, that the reader will not readily fail to forget it. The various dislocations are described according to the following classification:

I. The regular dislocations, in which one or both branches of the Y ligament remain unbroken.

1. Dorsal.
2. Dorsal below the tendon (ischiatic notch of Cooper).
3. Thyroid and downward.
   Obliquely inward on the thyroid foramen, or as far as the perinæum.
   Vertically downward.
   Obliquely outward as far as the tuberosity.
4. Pubic and sub-spinous.
5. Anterior oblique.

Both branches entire.

6. Supra-spinous
7. Everted dorsal

External branch broken.

II. The irregular dislocations, in which the Y ligament is wholly ruptured, and whose characteristic signs are therefore uncertain.

In this classification it will be observed our author speaks of the dislocation into the ischiatic notch, as dorsal below the tendon, and for which he gives his reasons. Each dislocation is fully treated and illustrated, both by plates and the introduction of cases; and the mode of reduction clearly stated. Though strongly advocating the reduction of these dislocations by manipulations, without the use of pulleys, as being far safer

and all-sufficient in the great majority of cases, yet in old dislocations he thinks the use of pulleys may possibly be required, in order by traction to avoid any danger which might result to the atrophied or degenerated neck of the bone from rotation; and, in employing right-angled extension, he resorts to a special apparatus. While thus noticing so favorably this portion of the book, we must not forget that other observers have also been at work in this same field. Thus our author says Boyce "expresses his conviction of the importance of the ligament in this relation, but without proof; and Prof. Gunn maintains, in a paper upon the subject, that any untorn or undissected portion of the capsular ligament is capable of producing the signs of hip and shoulder luxation; while, since the reading of the present paper, Prof. W. Busch, at the Bonn Clinic, has recognized the resistance to the reduction of dislocation as ligamentous and capsular, although he fails to identify the anterior ligament as its principal seat." To us it would appear that to Prof. Gunn is due the credit of first drawing the attention of the profession to the fact that it is the capsular, and not the muscles, that we have to contend against in these dislocations. This he did in an article first published in 1853, and also in a pamphlet he published in 1859. In his paper he speaks of the anterior and inferior portion of the capsule which is at fault in the dorsal dislocations, and we presume he included the ilio-femoral ligament in this statement, though he does not describe *this special ligament* as being the cause of the bone assuming its abnormal position, or being solely the cause of the difficulty of its reduction; nevertheless he says that the untorn portion of the capsular ligament constitutes the chief if not the only opposition to our efforts at reduction. Prof. Green, of the Medical School of Maine, has also taught that the capsular ligament is the cause of our difficulty in reducing dislocations not only of the hip, but of all the other joints. In view of all this, however, we do not entertain for an instant the idea that Dr. Bigelow desires to rob Prof. Gunn of any of his well-earned laurels. Indeed, this treatise of Dr. Bigelow speaks of seven regular varieties of dislocations of the hip, some of which are new, and recognizing the whole or a portion of the Y ligament as the chief obstacle in their reduc-

tion; and the whole tenor of the work is very different from that of Prof. Gunn's pamphlet as to the method of reduction. The conclusion of the work is devoted to the consideration of fracture of the neck of the thigh-bone, and fractures of the pelvis, and here he would exclude the terms intra- and extra-capsular as having little practical importance, and in their place speak—1. Of the impacted fracture of the neck into the trochanter; and 2. Other fractures of the neck. As to bony union, when that occurs, he says, "With great truth we believe that it is often difficult to say whether the fracture was originally inside or outside the capsular ligament." The whole work cannot be too highly spoken of, and will not only add greatly to the author's established reputation as an original and practical surgeon, but redound to the credit of American contributions to surgical science.

ART. III.—*The Pathology and Treatment of Stricture of the Urethra and Urinary Fistulæ.* By Sir HENRY THOMSON, F. R. C. S., Surgeon Extraordinay to H. M. the King of the Belgians; Professor of Clinical Surgery, and Surgeon to University College Hospital. (From the third and revised London edition, with Illustrations. Philadelphia: Henry C. Lea. 1869.)

THIS work is too favorably known to the profession to require any extended notice at this time. The present edition comes to us with many revisions, and several additions have been made relating to treatment, the result of therapeutical progress and extended observations. The work has been reduced in size by the removal of matter which before related to controversial points, and which now have for the most part been settled. Many cases illustrative of these points, which before were given in detail, have also been omitted. As the work now stands, it must be regarded as the most complete treatise upon the subject of stricture and its complications. In the remarks upon the endoscope, we think Mr. Thomson is in error when he says that "much more has been said in

favor of it than it deserves;" and further remarks, "I have never yet found it of the slightest service in stricture."

We do not think this is *quite* the view held by the majority of those who resort to the endoscope in their daily practice. We are also somewhat surprised to see Mr. Thomson still pursue the practice of retaining the catheter in the bladder after perineal section, at least for the first twenty-four hours—this practice having been generally abandoned, we believe, by our surgeons, and with pleasanter results to the patient.

In his concluding remarks on the treatment of stricture in general, he remarks that "no single species of treatment ought to be vaunted as the one exclusively appropriate method." Indeed, there have been too many *selected cases*, brought forward by partisans to prove this or that method, as the only suitable or safe mode of dealing with stricture. To one who wishes to become thoroughly acquainted with stricture of the urethra, and the various modes of treatment adopted for its relief, together with the complications of this disease, we know of no better book for his guide and practice than the one now under consideration.

ART. IV.—*A Hand-Book of Operative Surgery.* By JOHN H. PACKARD, M. D., one of the Surgeons to the Episcopal Hospital, Secretary of the College of Physicians of Philadelphia, Translator of Malgaigne's "Treatise on Fractures," author of "A Manual of Minor Surgery," "Lectures on Inflammation," etc. With fifty-four steel plates, and numerous illustrations on wood. Philadelphia: J. B. Lippincott & Co. 1870.

THIS work claims nothing more than being a hand-book of operative surgery, and to present to the practitioner at least one good method for the surgical operations in general use at the present day. The aim, as the author states in his preface, "next to accuracy, has been conciseness;" and in this respect he has been very successful. So clear are his descriptions of the operations, and practical the rules given for the performance of the same, that we cheerfully can recommend this work

as a good and trustworthy guide to the practitioner. The plates, also, are unusually good for a book of this kind, and the whole style of the work does credit to the publishers. With but few exceptions, the work is all that can be desired, and, with the exception of the chapter on the Operations upon the Appendages of the Eye, the book is thoroughly up to the day. Here we think our author has made a mistake in not introducing Arlt's and Graefe's methods of operating for ectropion and entropium, together with Pagenstecher's mode of operating for pterygium, and Arlt and Teale's operations for symblepharon by transplantation, these operations being now more successful in their results than the methods which are here described. In the operation for extraction of cataracts, we do not think sufficient directions have been given. For example, nothing is said to caution the operator against exerting pressure upon the globe during section of the cornea, or seeing that no cortical matter remains in the anterior chamber, or freeing the wound from any portion of iris which might become engorged in it, all of which tends so much toward the success of an extraction. In the remarks upon trephining for fractures of the skull, we are pleased to see that Galt's cervical trephine is the one advocated, it being no doubt the safer instrument than the one so generally in use. With regard to the removal of the lower jaw, we are at a loss to know why the advantages of carefully leaving the periosteum, when that can be done, are not spoken of; and, in the description of the median operation for stone, we should have preferred to have seen Mr. Allarton's method referred to, it being the better mode for doing that operation. In giving directions for entering the bladder, in the lateral operation for stone, nothing is said as to holding the knife in such a manner as will divide the neck of the bladder and left lobe of the prostate in a direction obliquely downward; but the rule given is, "the tip of the knife is engaged in the groove, and pushed on along it, the handle of the knife being depressed, until the fact of the bladder being entered is announced by a gush of urine." In this case we fear the prostate would not be cut in the direction of its long axis, and serious consequences might result from this neglect. With these few exceptions, the work we

consider as the best hand-book upon the subject, for ready reference, with which we are acquainted.

ART. V.—*The Physical Exploration of the Rectum.* By WILLIAM BODENHAMER, A. M., M. D. New York: William Wood & Co., 1870. 8vo, pp. 55.

DR. BODENHAMER is known to have long devoted attention to rectal diseases, and the above subject is one which we should expect to see treated by him in a masterly manner. In his preface he tells us that there are but few minor operations of surgery which require more knowledge, experience, and tact, than the efficient and satisfactory exploration of the rectum, incluing the sigmoid flexure of the colon. This announcement prepared us for a very careful perusal of his *brochure.* We must confess, however, to some disappointment in not finding the subject handled in that practical manner, which we are sure it would be by a number of surgeons who are familiar with the use of Sims's speculum in rectal examinations.

The specula which Dr. Bodenhamer uses are quite inadequate to furnish so thorough and satisfactory a view of the rectum as can be obtained with Sims's and better still with Emmet's speculum. By the use of these instruments the rectum can be well explored as high up as the sigmoid flexure. We have seen Dr. Emmet use, and have ourselves used, a sponge with a string attached to it, pushed well up in the rectum to prevent the descent of matters from above. In this way the upper part of the rectum is also kept distended, and it is made perfectly clean and accessible for operations. We believe Dr. Sims first used the sponge in the manner mentioned.

But little practical importance can be attached to the recto-colonic endoscope represented at Fig. 9, p. 26. It would, we think, have been well had Dr. Bodenhamer pointed out prominently some of the differential features of diseases of the rectum as determined by rectal touch alone, and with conjoined vesical and vaginal exploration. In so doing he would at least have somewhat shortened and facilitated the practical

study of rectal exploration to many physicians who have only an occasional opportunity to examine the rectum. This was especially needed in view of the observation which he makes that "it cannot be expected that practitioners in general, who necessarily have not the opportunities of acquiring the *tactus eruditus*, should be expert in determining by the finger alone the true condition of the case." This knowledge, he adds, "can only be acquired by time and extensive practice and experience." Of course, we will not attempt to gainsay the truth of this statement. We think, however, that some of Dr. Bodenhamer's methods of examining the rectum are defective, and that his specular exploration is quite inadequate to certain surgical emergencies which may arise.

ART. VI.—*A Practical Treatise on the Diagnosis, Pathology, and Treatment of Diseases of the Heart.* By AUSTIN FLINT, M. D., Professor of the Principles and Practice of Medicine, and of Clinical Medicine, in the Bellevue Hospital Medical College, etc. Second edition, thoroughly revised and enlarged. Philadelphia: Henry C. Lea, 1870. 8vo, pp. 550.

THE appearance of a new edition of this standard work calls for no extended notice from the reviewer, and yet a comparison of this with the last issue will show that in many parts it is substantially a new book. In his seven-line preface the author states that he "has endeavored to incorporate the results of the study of the diseases of the heart, during the ten years which have elapsed since the appearance of the work. . . . An analysis of about four hundred and fifty cases, recorded by the author during the period just stated, has served as the basis of the revision."

To indicate, to such as are not familiar with the work, the thoroughness with which the author has gone over the ground, we transcribe the principal affections treated of: Chapter I. Enlargement. Chapter II. Lesions exclusive of enlargement, affecting the walls of the heart, as viz., fatty degeneration, induration, rupture, cancer, etc. Chapter III. Lesions of the valves and orifices of the heart, followed, in a separate chapter,

by a consideration of their physical signs, diagnoses, and treatment. Chapter V. Misplacements, defects, and malformations. In this chapter cyanosis finds its place, and the whole vexed question of different opinions as to the causation of this condition is briefly but satisfactorily discussed. The ground is taken, in accordance with perhaps the best-accepted opinions of the day, that cyanosis has no claim to be considered as an individual disease, and yet there is no constant cardiac malformation of which it is the symptom. Chapter VI. discusses "certain affections incidental to disease of the heart." Such are coagulation of fibrine within the cavities of the heart, forming *ante*-and *post-mortem* clots, true polypi of the heart; angina pectoris; enlargement of the thyroid body, with prominence of the eyes; and reduplication of the heart-sounds. This chapter is really one of the most interesting in the book, for the affections and conditions therein described are usually obscure, and the connection with organic disease of the heart, the reader must remember, is incidental and not necessary. Chapters VII. and VIII. take into consideration the inflammatory affections of the heart, pericarditis, endocarditis, and myocarditis. These important subjects are treated of at length, and together take up about one-quarter the bulk of the volume. Chapter IX. is given up to the discussion of functional disorder of the heart, and Chapter X. is devoted to diseases of the aorta, including, of course, aneurisms.

Altogether we are of the opinion that the additions and changes made in this edition of Prof. Flint's work have materially enhanced its value, and that they will tend still stronger to confirm the estimate which the profession in this country have put upon the book, which was already accepted as a leading authority in all matters pertaining to diseases of the heart.

ART. VII.—*Chloroform versus Pain, and Paracentesis of the Bladder above the Pubes.* By the late J. H. JAMES, F. R. C. S., etc., etc. London: John Churchill & Sons. 1870.

THERE are two papers which were written by the late Mr. James, in continuation of a series of similar works, in which

he proposed to give to the world the results of his large experience, and now are published by his executors. The paper on Paracentesis of the Bladder above the Pubes is the one deserving of special notice. This operation, it would appear, he viewed more favorably than the one through the rectum, which is most generally resorted to, and consequently but little has been written of late upon the operation which forms the subject of Mr. James's paper. In it the reader will find all the instruments described that have been used by surgeons for the performance of this operation, together with a number of interesting cases reported, wherein the operation has been performed by the author. In this connection we must notice another interesting paper full of practical remarks, upon Operations for Cicatrices after Burns, from the same pen. This latter paper refers chiefly to burns of the neck, and takes exceptions to the article on cicatrices after burns, in Holmes's System of Surgery. All these papers are from a man who has had great experience with the subjects he treats of, and contain much that is of interest.

Art. VIII.—*Medical Diagnosis, with Special Reference to Practical Medicine. A Guide to the Knowledge and Discrimination of Diseases.* By J. M. Da Costa, M. D. Third edition, enlarged. Philadelphia: J. B. Lippincott & Co. 1870. 8vo, pp. 844.

The first book reviewed in the pages of this Journal, on its establishment in 1865, was the original edition of Dr. Da Costa's "Medical Diagnosis." Subsequently the second issue came in for a notice, and now the appearance of a third and enlarged edition demands of us but little more than a passing allusion to the work whose merits have been thus handsomely recognized by the profession.

About sixty pages of new matter have been added to this edition, and, as evidence of the careful revision, we notice quotations and references to journals as late as May of this year. Two illustrations are introduced, these being sphygmograms of aortic and mitral insufficiency. In this continued

growth of Dr. Da Costa's book not mere increase in size has been aimed at. Subjects which in the first issue were noticed only very briefly, are expanded to a length commensurate with their importance. Other points of minor interest have been lopped off, and the whole is so condensed that it would be impossible in a review of the book to give an abstract of its contents. They are so condensed and of such a nature that any attempt at this endeavor would necessarily prove futile. We have previously pronounced the book as "the best existing manual on medical diagnosis;" and in renewing our commendations we venture to congratulate the author not merely on the production of a book which is so creditable to American medical literature, but also on the handsome reception it has everywhere received from the press and the profession. The superb mechanical execution, too, of the volume is well worthy of note, but we have had occasion to compliment Mr. Lippincott so frequently on this point that we fear the praise may lose its force, although bestowed with the best intent, and with the hope of spurring up certain other of our publishers to do equally good work.

We have been greatly interested in the perusal of Mrs. Gleason's "Talks to my Patients,"[1] and especially so from the fact that we have been entirely disappointed in our expectations of it. It belongs to a class of books intended for popular not professional use, and which as a rule do more harm than good, even when prepared by competent authors. But this book, barring the therapeutics which are exclusively hydropathic, and not always to be commended, will do good. It is full of sound and sensible teachings, and is based on a clear appreciation of the value of hygiene in the preventive treatment of diseases, and in the rearing of children under the best possible conditions of health. Coming from a woman, we trust that its precepts may be heeded by other women into

[1] "Talks to my Patients; Hints on Getting Well and Keeping Well." By Mrs. R. B. Gleason, M. D. New York: Wood & Holbrook, 1870. 12mo, pp. 228.

whose hands the book may fall, for in many things they will not listen to us of the sterner sex, deeming possibly that we have little sense and less taste in matters which they consider their peculiar prerogative to adjudicate. For instance, we confess it with sorrow, we have never yet succeeded in the case of a single infant, not even our own "phenomenon," over whom we might be supposed to possess some sort of authority, in securing what we consider a proper and physiological mode of dress. The tyrant Fashion has always been too much for us here; but, now that a woman comes to the rescue and gives in the matter of dress such judicious and really physiological advice, we hope at least for the beginning of reform. The same spirit pervades the other portions of this book, which are devoted to the consideration of the diseases, care, and rearing of infants, and of the ailments and preservation of health of adults; and though, when speaking of special diseases, there is much to which as a physician we should object, the general teaching of the book is correct, and its influence on mothers, to whom particularly it is addressed, cannot fail to be most salutary. We take especial pleasure in making public this opinion, in view of the immense amount of trashy, semi-professional literature that is now floating about, much of which emanates from the one-idea school of reformers, of whom, perhaps, the water-cure people may be considered types. But here, at least, the author, although still true to her system, has risen above the one idea, and, while giving us an admirable little book, has, possibly unwittingly, shown us the secret of the success which that school lays claim to—in their careful, almost rigid, adherence to a physiological mode of life.

Part VI., July, 1870, of the Half-Yearly Compendium of Medical Science, has come to hand. In some respects the number is an improvement on the previous series. It contains more than three hundred articles—of which about one-third are condensed from American medical periodicals. Dr. Knapp, of this city, furnishes a very complete abstract of the literature of diseases of the eye and ear. The Compendium is certainly a valuable publication, and its low price brings it within the ability of all.

Braithwaite's Retrospect, and Rankin's Abstract—both the English and American editions for the current half-year—have come to hand, filled with their usual choice selections, from the entire periodical medical literature of the world.

Clarke & Maynard, of New York, announce a Treatise on Physiology and Hygiene, for Schools and Families. By Joseph C. Hutchinson, M. D.

Lindsay & Blakiston have in press a work by Dr. Lionel S. Beale, on Disease Germs, the supposed Nature, etc.

Books and Pamphlets Received.—Man's Power over Nature, and Medicines as Means by which he aids and controls the Laws of Life. An Address delivered before the Indiana State Medical Society, May 17, 1870. By George Sutton, M. D., President. Pamphlet, pp. 24. (From the Author.)

Sixteenth Report upon the Registration of Births, Marriages, and Deaths, in the State of Rhode Island, for the Year ending December 31, 1868. Prepared by Edward T. Caswell, M. D.

In another page we give some interesting statistics, taken from this report, which has been compiled with that careful accuracy and attention to detail for which the Rhode Island Reports are noted.

Proceedings of Societies.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Stated Meeting, September 5, 1870.

In the absence of the President and Vice-President, Dr. Ellworth Eliot in the chair. The Secretary made mention of the illness of the President during the summer adjournment of the Society.

The minutes of the last meeting were read and approved.

The President *pro tem.* announced the admission of the following members: J. V. S. Wooley, Charles Bliss; and the death of the following members since the last meeting: Gunning S. Bedford, a member since September 14, 1831; Thaddeus M. Halstead, a member since February 26, 1839; John Shanks, a member since March 13, 1837.

The report of the Committee on Intelligence was then read by Dr. B. S. Thompson.

Dr. Finnell, in a few appropriate remarks, made mention of the decease of Prof. G. S. Bedford. He then presented a very interesting specimen of diverticulum from the intestinal canal; remarks on the same were then made by Drs. Jacobi and Rogers. Dr. John C. Peters showed some maps of the course of all the epidemics of cholera.

Dr. Jacobi offered the following resolution, which, after being seconded by Dr. Finnell, was unanimously adopted:

Resolved, That this Society has heard with sorrow of the illness of its President, Dr. George T. Elliot, and, while regretting that he is unable to be with us at this time, we rejoice at the prospect of his recovery, and hope that he will soon be able to resume his labors, which added so much to our prosperity, and made his name known as an accomplished scholar and skilful physician.

The following addition to Chapter I. of the By-Laws of the Society was recommended for adoption at the next Anniversary Meeting, first Monday in October:

Chapter I.—Article —.

Members whose dues are unpaid shall not be candidates for any official position in the Society, nor shall they be entitled to vote.

Nominations were then made for all the regular officers, as well as for twenty-one delegates to the State Society.

The Society adjourned.

Reports on the Progress of Medicine.

THEORY AND PRACTICE OF MEDICINE.

1.—*Hæmaturia caused by the Internal Use of Sulphate of Quinine.* By Th. Cacherè, M. D. [New Orleans Journal of Medicine, October, 1869.]

Billy Fox, aged thirteen years, had several paroxysms of chills and fever. Quinine was prescribed by the parents on two occasions, which was followed immediately (both times) by hæmorrhage from the mucous membrane of the urinary organs. I was called (August, 1867) to see the boy, and, contrary to the mother's wish, I prescribed ten grains of quinine, to be divided in three doses, and to be given next day, with orders to suspend the medicine, if he should have another attack of the hæmorrhage.

An hour after the third dose had been administered, the patient had a profuse hæmorrhage from the urinary passages.

I advised the parents to dispense with quinine altogether, and prescribed other febrifuge. My little patient was removed to Opelousas, where medical attendance could be obtained at any hour, in case of emergency. An eminent physician of that town was called in to attend to the boy, and again quinine was prescribed and administered, and followed by the same kind of hæmorrhage. He got well after a severe spell of typhoid fever.

The boy is again under my treatment, suffering with chills and fever (tertian). Two weeks ago, his father prescribed and administered three or four doses of an infusion of *cinchona* and Virginia snakeroot, which was followed by hæmorrhage of same organs.

It has been my misfortune to have had another similar case to treat last fall. To a little girl seven years old, quinine was administered in different ways, but was invariably followed by hæmorrhage of the urinary passages.

2.—*The relation of Hæmoptysis to Phthisis.* [Boston Medical and Surgical Journal, July 15, 1869.]

F. Niemeyer, in a recent article in the *Berlin Klin. Wochenschrift* (Nos. 17 and 18, 1869), entitled "Some Remarks upon the Relation existing beween Hæmoptysis and Phthisis," makes the following statements, as embodying the result of his study and experience:

1. Most, though not all, patients who suffer from capillary, bronchial, or parenchymatous hæmorrhage of the lungs, are either already phthisical or become so later.

2. Capillary, bronchial, or parenchymatous hæmorrhages are not unfrequently followed by phthisis, where no direct connection exists between the hæmorrhage and the pneumonic processes, which, as a rule, are the origin of phthisis. Patients who are predisposed to such hæmorrhages are also predisposed to these inflammatory processes.

3. Capillary, bronchial, and parenchymatous hæmorrhages are not unfrequently, in patients in whose lungs neither tubercles nor the remains of an old pneumonia are present, the origin of phthisis, and in this way, that the blood poured into the alveoli of the lungs and remaining there, with the products of the inflammation set up by this effused blood, undergoes caseous degeneration.

4. In the same way, bronchial and parenchymatous hæmorrhages often hasten the course of an already existing case of phthisis.

5. In some exceptional cases the hæmoptysis is not the origin but the result of pneumonic changes, which, in their further development, lead to phthisis. Such cases are easily recognized, as violent fever or other inflammatory symptoms usually accompany or precede such attacks of hæmoptysis.

6. The blood remaining effused in the alveoli of the lungs and the products of an old pneumonia, which have undergone caseous degeneration, are often the exciting cause of the development of miliary tubercle.

By way of comment on this opinion of Niemeyer's, we present in the next extract the views of an equally eminent authority, Prof. Skoda, of Vienna.

3.—*The Relation of Hæmoptysis to Pulmonary Tuberculosis.* By Prof. Skoda, of Vienna. Translated by Dr. Epstein, from the Wien Med. Presse. [Richmond and Louisville Medical Journal, July, 1870.]

Prof. Niemeyer has recently given an altogether different significance to hæmoptysis from that which was hitherto accorded to it. He derives

the disease which follows the hæmoptysis from the attack itself; maintaining that it is just the remnant of blood left in the bronchi and alveoli of the lungs which gives rise to a chronic inflammation, producing the febrile movements, and other phenomena of phthisis. But if such a sanguineous residuum in the finest bronchi and alveoli has really such an inflammatory influence as to evoke these phenomena, then it is but reasonable to expect that the same thing would take place in cases of hæmorrhage from cardiac disease. But we observe nothing of the kind in such cases. When hæmoptysis occurs in an individual, whom we suspect to labor under phthisis, and death supervenes, either in consequence of that hæmoptysis itself, or soon after, then, and as a rule, we find no kind of a bloody residuum in either the bronchi or alveoli. When death supervenes, however, upon hæmorrhage from cardiac disease, then we do find hæmorrhagic foci in the lungs. This infarctus hæmorrhagicus occurs very rarely in tuberculosis, but constantly in hæmoptysis from cardiac disease. Is such an infarctus evidence of a chronic inflammation? We do not find it. No doubt, a slight reaction does take place where blood remains accumulated, but this has only the effect of blood undergoing the usual changes of coagulation and encystment, but it never advances to suppuration. Such an infarctus may remain for months and years; it gets constantly smaller, and may disappear, in time, altogether. The blood-globules undergo that alteration from which a black pigment is developed, and then follows a fatty metamorphosis. The fluid parts of the blood are absorbed, the black pigment is left, and, when the infarctus has lasted long, it gives rise to those black spots which we find in the lungs. This experience, therefore, which we have in regard to blood extravasated in the lungs, from cardiac diseases, is so little in harmony with the hypothesis of Niemeyer, that it justifies us in pronouncing the latter incorrect.

I have said that the infarctus hæmorrhagicus in tubercular individuals is a great rarity. Cases of this kind must, however, be examined, when death occurs, either during or soon after the hæmoptoic attack; when it occurs long after, then the explanation may be urged, that the blood has become so completely altered, by the progress of disease and chronic inflammation, that it can no longer be recognized. If, however, death occurs during or soon after the hæmoptysis, and an infarctus was ascertained during life, then a *post-mortem* examination should reveal an accumulation of blood in a certain place of the lungs. But this is not the case. It is also very rarely that we are able to make out an infarctus in a living patient, who had a recent hæmorrhage. When the individual is tuberculous, there will be dulness on percussion from that cause. If he is not tuberculous and suffers from hæmoptysis, then even the most careful examination will seldom or never discover any dulness, which fully shows that the extravasated blood does not remain in the alveoli.

From observations made of both the living and the dead, it seems very probable that the hæmoptysis which occurs before and during the development of tubercle proceeds from the bronchial mucous membrane, and not from the alveoli. Were it not so, then it would be very difficult to explain why an infarctus hæmorrhagicus is so rarely found in such cases. If, on the other hand, the hæmorrhage comes from the bronchial mucous membrane, then we can see why the blood is not lodged, because it is coughed up. I can only say this: In a case of death during the hæmoptoic attack, we very rarely find the bronchi with blood in them; at least the larynx or trachea are free from it, because the cough and the retraction of the bronchi press the extravasated blood forward and expel it.

I cannot share at all in Niemeyer's view, that hæmoptysis is in any manner the cause of all those grave phenomena of phthisis pulmonalis.

This may be the case where the extravasation takes place into tissues already diseased, as in cavernous excavations; there the blood may remain in part, and cause an increase of the irritation already existing there; still it should be noticed, in this connection, that blood is not a fluid which acts as a special irritant; blood extravasated in the subcutaneous cellular tissue, in consequence of a blow, does not act as an irritant, but is rapidly absorbed.

But, even apart from this well-known fact, there is the behavior of the blood in hæmorrhages from cardiac lesions producing in fact no reaction in the lungs. This destroys the theory of Niemeyer. We have, therefore, no right to assume that only in a tuberculous individual does the blood give a basis for the development of further diseased phenomena. I myself allow great importance to the hæmoptysis, but only in the sense of a symptom, indicating either already existing disease of the lungs, or a state of morbid development.

The controversy about the name of the disease is, as I have already said, an idle one. We know, only too well, that the diseases which really follow a hæmoptysis pursue an altogether special and different course from that of the inflammatory process. True, that a chronic inflammation does also run a very protracted course, but it is the usual devastation of tissues, which I must still regard as tuberculosis, and which Niemeyer calls chronic inflammation. In this, his view, I cannot share. When the inflammatory products of an acute pneumonia are left after its subsidence, then we have a chronic pneumonia to deal with. But these products behave altogether differently from those which we call tuberculous; the former may remain for months and years, without any consequent destruction of lung-tissue, while the latter, when occurring, last hardly any length of time without consequent excavations. There is a great difference between these two diseases, but, if the question is simply about a name, then I have nothing to say against it. All you have to do is, to call the diseased process of tuberculosis by the name of "chronic inflammation," and ascribe to it the symptoms which we are wont to ascribe to the latter. But it is a delusion to suppose that any thing is gained for the therapeutics of the disease, by naming it "chronic inflammation." There is nothing left us beyond that which experience has taught us, and this is to treat symptomatically. We know there is no specific against tuberculosis. When, therefore, one chooses to say that there is no specific against "chronic inflammation," then also the relation of either of these to the therapeutics remains the same.

Hæmoptysis is, therefore, *no cause* of the subsequent disease of the lungs; that cause lies somewhere else than in hæmoptysis, which is only a *symptom* of the diseased process in the further development of tuberculosis.

Hæmoptysis may, indeed, be caused by other lesions, especially the cardiac lesions, and produce no further disease of the lungs, although an infarctus hæmorrhagicus may be left behind. There are also isolated cases of hæmoptysis, which are conditioned neither upon cardiac lesions nor upon any disturbances in the lungs, and this hæmoptysis may occur repeatedly during the lifetime of the patient. But such cases are very rare, and may be dependent either upon the presence of tubercles, in a circumscribed condition, from which place, as it never gets to be perfectly normal, hæmoptysis may occur from time to time; or it may be conditioned upon an enlargement of the capillaries or veins in a certain part of the lungs. Such an alteration in the pulmonary substance may indeed produce many attacks of hæmoptysis, yet, in spite of these, there will be no development of tubercles in such cases. When the bleeding ceases, the

individual is well again, and, apart from the debility caused by the loss of blood, there is no other diseased phenomenon to be observed.

4.—*The Relation of Hepatic Abscess to Chronic Dysentery and Diarrhœa.* By Thomas Fox, M. D. [The Medical Archives, December, 1869.]

The cases, one hundred and fifty-four in number, analyzed in the following paper, occurred in the Quarantine Hospital at St. Louis, Mo., of which Dr. Fox is the resident physician:

The occurrence of hepatic abscess in connection with ulceration of the bowels, coexisting with, or produced by, chronic dysentery or diarrhœa, is well understood; but this occurrence, as will appear from an analysis of one hundred and twenty-two cases of chronic diarrhœa and thirty-two cases of chronic dysentery that were treated in this hospital during the past year, and present year up to this time, is much more frequent than is generally supposed.

Among the one hundred and twenty-two cases of chronic diarrhœa, there occurred twenty-four deaths, and among the thirty-two cases of chronic dysentery, six deaths. Among the twenty-four cases of death from chronic diarrhœa, there was found ulceration of the ileum in eight cases, and of the colon in two cases. Among the six cases of death from chronic dysentery, there was found ulceration of the colon and rectum in three cases, of the ileum in two cases, and of the rectum in one case. Among the twenty-four cases of death from chronic diarrhœa, abscess of the liver was found in two cases; among the six cases from chronic dysentery, abscess of the liver was found in three cases. The period elapsing between the access of the symptoms pointing to disease of the liver and death varied from three months to three years and a half.

The story of the sufferers was generally about the following: They had been exposed to cold or suffered from intermittent fever, followed by diarrhœa or dysentery, and then a severe pain in the right side, with occasional rigors and night-sweats, loss of appetite, and constant thirst. This constant thirst, accompanied by an uncontrollable serous diarrhœa, I have found to be such a constant concomitant of advanced hepatic abscess, that, when the other subjective and objective signs are present of disease of the liver, I consider it almost if not entirely pathognomonic of the presence of abscess. It was present in each of the five cases, and is caused, I suppose, by the congested state of the abdominal viscera, consequent upon the obstruction of the portal circulation within the liver, the thirst being but an expression of the demand within the system for fluid to supply the loss by exosmose, and maintain the proper density of the serum of the blood.

In three of the cases the liver was a mere shell of hepatic substance, extending from the fourth rib to near the crest of the ileum, its walls not more than a half-inch in thickness, the abscess occupying both lobes. In one case the gall-bladder and hepatic duct were largely distended with a clear fluid; the fundus was two inches below the umbilicus, and the duct dilated almost to the size of an ordinary gall-bladder; there were a few flakes of pus on the lining membrane, but there was no ulceration of the walls. In one case the patient had had albuminuria, and hydatid cysts were found in both kidneys. In another there was a thrombus found in a large branch of the hepatic vein, with death from pulmonary embolism as a secondary result. In two of the cases the abscess showed a tendency to "point," but the *post-mortem* examination showed that in neither would opening of the abscess have been justifiable, as in neither was there adhesion of the liver to the abdominal parietes. The peritoneal covering of the

liver was but loosely adherent, and the substance of the liver of a mottled, anæmic hue.

5.—*Tobacco in Diabetes.* By A. W. Saxe, M. D. [Pacific Medical and Surgical Journal, July, 1870.]

Mr. L. R., age fifty-nine, native of Ohio, resident of Santa Clara since 1851; height, five feet eleven inches; temperament, sanguine-nervous; of full habit; ordinary weight, two hundred pounds; of remarkable strength and activity; has used tobacco, by chewing principally, since his twenty-second year until about two years ago (1868), when he abandoned its use entirely. Has frequently told me that he experienced no inconvenience from leaving it off, but, on the contrary, felt relief; and, moreover, was unwilling that his sons should have the example of its use constantly before them.

About a year after he had abandoned the use of tobacco, he called my attention to the fact that he was passing an inordinate quantity of urine, but felt no special inconvenience except the necessity of rising three or four times in the night to relieve the bladder. However, he received no medical attention, until some eight months ago I ascertained that the urine was saccharine, and that the quantity voided in twenty-four hours was about ten quarts. I then prescribed the diabetic regimen, with decoction of uva ursi, and bitter tonics, with scarcely any perceptible effect. His appetite was almost insatiable; digestion good; no pain or other evidence of local disease; no weakness about the loins, nor any disturbance of the visual function; complained only of constant dryness of the mouth and constant thirst, and has noticed that in lifting heavy weights his arms become sooner tired than formerly.

Under the circumstances I became very anxious to afford my friend some relief, and in casting about in my mind for the probable cause of the disease I recollected his abandonment of tobacco. Some ten days ago, while in conversation with him, I suggested the use of tobacco as a probable necessity to him, and expressed my anxiety that he should resume it. To this proposal he strongly objected, but, after an explanation of some of the laws of compensation in the human body, he consented. He put the first bit of Virginia natural leaf tobacco into his mouth at about eleven o'clock A. M. in my presence, with many expressions of disgust and regret, but continued to use it until he retired to bed at ten P. M. The effect was immediate and very gratifying. He voided only the normal quantity of urine during the night, and the diabetic characteristics of the urine have entirely disappeared.

He told me last evening that his mouth was no longer dry, his thirst was gone, appetite natural, and he is satisfied with much less than he formerly ate and craved.

It is now ten days since he resumed the use of tobacco—hardly a sufficient length of time to determine the question of whether the disease is cured. But all appearances seem to indicate that the case was one of vicarious function—the kidneys undertaking to do the work of the salivary glands, and overdoing the matter to a hazardous extent.

Any future developments of interest in the case will be duly reported.

6.—*The Propagation of Phthisis by Inoculation.* [Edinburgh Medical Journal, November, 1869.]

The deductions made from the following series of experiments are a most accurate reflex of the opposite views now

held on this vexed question. We reproduce the accounts here by way of contrast, although we have previously noted the results arrived at:

M. Villemin has lately read a memoir on this subject before the Academie de Médecine, in which he gives the results of a series of experiments: 1. By the inoculation of the liquid matters of the expectoration of the phthisical. A large proportion (three-fourths and three-fifths) of rabbits thus treated became tuberculous. 2. By the inoculation of the dried matters of the expectoration of the phthisical. When the sputa slowly dried were inoculated, no result followed. The author concludes that their virulent properties had been destroyed by putrefaction. But when sputa rapidly dried were inoculated on three rabbits they became phthisical. By sprinkling a blistered surface with dried powdered sputa, one of several rabbits experimented on was made phthisical. The blowing of powdered sputa into the trachea by a small opening was followed in two out of four rabbits by tubercle. Powdered sputa kept in a damp chamber for four months did not produce tuberculization in animals inoculated with it. 3. By the inoculation of the sweat of the phthisical. The animals died of suppuration without tubercle. 4. By the injection of tuberculous matter and of phthisical sputa. Rabbits fed with tuberculous matter both from man and another rabbit became tuberculous in the proportion of three to five. Four guinea-pigs that had eaten forty grammes of phthisical sputa had all their organs sown with tubercles. One died suddenly from intestinal hæmorrhage, dependent on a tuberculous ulceration. The following are some of the author's conclusions: Glanders is the affection which has most points of resemblance to pulmonary tuberculosis. In glanders the contagious matter is the discharge. The expectoration of phthisis is analogous to the discharge in glanders, and it is most probable that tuberculosis is propagated in the same manner as glanders. When the expectoration of the phthisical is received into vessels and carried away by sewers, etc., it putrefies and becomes innocuous. But too often it is thrown upon the earth, or upon impermeable surfaces, or retained in dwelling-houses, trodden under foot, and resolved into a dust, which soon infects the air in confined places. Too often it is received on handkerchiefs, linen, earthenware, etc., and by rapid drying the virulent matters acquire the most favorable physical conditions for infecting. Expired air seems no more capable of transmitting the disease than it is of conveying glanders. The virulent principles of both diseases do not seem volatile enough to be conveyed by the air. The discharge from the air-passages and sputa are the visible and tangible agents of contagion. Phthisis does not spread among the attendants in the consumption hospitals of London, because the expectorated matters are received and thrown into places where they decompose. In ordinary hospitals bedclothes and linen may be a means of transmission. But the most favorable conditions for contagion are to be found in the dwellings of the poor, and in common habitations, such as barracks, convents, prisons, ateliers, etc., where sweeping the floors raises in the form of dust any discharges that may have fallen. The alleged more frequent transmission from husband to wife than from wife to husband, the author explains by the fact that the woman remains more constant at home, and brushing and cleansing the places which may have been soiled by the expectorated matters. The author concludes that the prophylaxis of phthisis may be summed up in avoiding the morbific agent and augmenting the resistance of the organism.—*Gazette Médicale de Paris*, April 17, 1870.

Cohnheim and Bern Frankel (of Berlin) have instituted a number of

experiments intended to check those made by M. Villemin on the inoculation of tubercle in animals. Guinea-pigs were the animals used, and inoculation was performed by introducing the matter to be inoculated through an incision into the peritoneal cavity. The first question they proposed to examine was, whether inoculation would produce in the guinea-pig a condition resembling that of miliary tuberculosis in man? For this purpose they inoculated a certain number of guinea-pigs with miliary tubercles taken from a man who had died from generalized miliary tuberculosis. One only survived eighty-three days. Miliary tubercles were found in the liver, the spleen, the pleura, the lungs. Subsequent experiments gave similar results. They then proposed another question, whether artificial tuberculosis were due to a specific virus? To determine this, they introduced into the peritonæum of guinea-pigs fragments of ulcerated cancers, condylomata, and sarcomata. In those animals which survived three or four months generalized miliary tuberculosis was found, but principally in the peritonæum, the liver, and the lung. They then introduced bits of paper, charpie, and india-rubber. The result was the same. These facts seem to show the non-specific character of miliary tuberculosis, and confirm the experiments made by Sanderson and Fox. The foreign bodies introduced into the peritoneal cavity became encysted; the organized, such as cancer, etc., disappeared; the inorganic substances remained intact in the middle of a mass which the microscope proved to be pus. The internal surface of the enclosing capsule was sown with tuberculosis granulations. Tubercular deposit was found in the neighborhood of these abscesses, and in a certain number of cases followed exactly the course of the lymphatics. The third question that presented was, whether the introduction of pus into the circulation of the animal was capable of tuberculizing it. To determine this, they took pus from two abscesses occasioned by inoculating an animal with normal cerebral matter. They diluted it with a saline solution, filtered and injected it into the jugular of a guinea-pig. Two animals were experimented on. One lived nineteen the other seventy days. Both had miliary tubercles especially in the lung and liver, some in the spleen, none in the peritonæum. In another experiment they injected fresh blood drawn from a guinea-pig into the jugular of another guinea-pig; the result which followed was abscess of the neck and behind the sternum, and tubercles in the lung and liver. The same experiments were repeated with similar results on dogs. The earliest day on which tuberculosis was found was the ninetcenth, in the animal that underwent the injection of pus into the jugular. In the others, thirty-three days was the smallest period. The authors conclude from their experiments that the development of tuberculosis depends on the penetration of pus into the circulating current.— *Virchow's Archiv*, Bd. xlv, H. 51, 52, 1868, and *Archives Générales de Médecine*, March, 1869.

7.—*The Use of Digitalis in Typhoid Fever.* [Medical Press and Circular, March 30, 1870.]

In the *Archiv der Heilkunde*, 1869, vol. iii., p. 280, M. Hankel gives the results obtained from observation in eighty cases of typhoid fever, as regards the effects of this drug on the various organs of the body. These were briefly the following: Head symptoms, or nervous symptoms generally, in proportion as they were pronounced, showed a more evident amelioration under the influence of digitalis. The frequency of the pulse diminished notably, while a weak and small pulse became stronger and fuller under the treatment. The tongue usually became moister, but abdominal symptoms, such as meteorism, tenderness, and pain, were not much modified. The quantity of urine was increased in seven cases. Again, the skin seemed

to be acted on by the drug, and occasionally *sudamina* were noticed. In no case was the duration of the disease influenced by the administration of digitalis. The drug was employed in infusion, in doses of ¼ to 2 grammes of the herb daily. Its use was suspended whenever the lowering of the pulse occurred.

8.—*Hæmatemesis.*

Dr. George Johnson says that, in treating hæmorrhage from the stomach, rest is essential. No food should be introduced into the stomach while the tendency to bleeding keeps up. The patient, therefore, should be in bed, sip iced-water, and be fed by the rectum. The most useful styptics in such cases are ten-grain doses of tannic acid, or twenty-minim doses of the perchloride of iron. The exclusion of food is, however, of more consequence than any medicine. In perforation, which is generally fatal, perhaps some cases of cure take place if food be withheld. Acting on this view, Dr. Johnson administered in one case every two hours an enema of half a pint of beef-tea, half an ounce of brandy, and fifteen minims of laudanum, and the case did well, although he believed perforation had taken place.

9.—*The Abortive Treatment of Pneumonia.* [Medical Times and Gazette, August 6, 1870.]

Dr. George Johnson, in a clinical lecture on this subject at King's College Hospital, in London, said:

Now, I have a practical object in directing your attention to what I venture to call the physiology of pneumonia which is not of traumatic origin. A right appreciation of the disease may enable you to prevent or to greatly mitigate the pulmonary symptoms. If we can catch the disease in the stage of the initiatory fever before the exudation process has commenced, I believe it is possible to prevent the pulmonary mischief by favoring exudation through other channels. In a large proportion of cases the exciting cause of pneumonia is suppressed action of the skin by a chill or other unknown atmospheric influence, and the main object of treatment should be as early as possible to restore the free action of the skin. This may be done in various ways—by a warm-water or hot-air bath, by packing in a wet sheet and blankets, and by the diaphoretic action of repeated small doses of antimony or ipecacuanha, with or without opium. This diaphoretic treatment is often successful in arresting a catarrh, and it may be equally successful in preventing or mitigating pneumonic exudation.

You will observe that vomiting and diarrhœa are among the symptoms which occur not unfrequently at the commencement of a febrile attack, which results soon in inflammatory consolidation of the lung. We may take a hint from these phenomena, and assist in diverting mischief from the lung by an emetic or by a purgative dose of calomel and colocynth, followed by a saline.

The success of this abortive treatment of pneumonia depends mainly upon its early application. It is too late to attempt prevention when the lung tissue is already consolidated by inflammatory exudation. But, inasmuch as before the occurrence of the pulmonary symptoms the precise nature of the disease must be uncertain, the beneficial results of the treatment will remain doubtful in proportion to the completeness of its success. When the lung tissue has become consolidated by exudation there is no need for active treatment. Expectoration and absorption will in most cases more or less rapidly restore the lung to its normal condition. Pleuritic pain, when present, may be relieved by warm fomentations or poultices,

or if severe by the application of three or four leeches. With reference to the pain of pleuro-pneumonia, let me give you one practical hint. The pain may be sharp at the onset of the disease, it may subside entirely when the lung is consolidated, and it may return with some severity when the physical signs indicate that the lung consolidation is passing away. The explanation I believe to be this: The pleurisy which complicates pneumonia is almost always dry pleurisy; there is lymph on the pleura covering the inflamed lung, but there is little or no serous effusion. The friction of the inflamed and roughened pleural surfaces increases the pain, the consolidation of the lung lessens lung and chest movement, thus friction and pain cease, to return when, with the passing away of the pulmonary consolidation, the lung and chest movements again become free.

You will often observe that with a return of the pleuritic pain there is a return of the friction-sound, which may have been audible during the early stage of pulmonary engorgement, but not during the stage of hepatization. In the case which I just now read to you the friction-sound was heard for the first time when the redux crepitation indicated that the lung consolidation was diminishing. Do not fall into the error of supposing that the redux pain and friction-sound indicate a fresh attack of pleuritic inflammation. Lastly, let me say that the case to which I have referred is one of many in which the hydrate of chloral has had a most beneficial influence in allaying delirious excitement and procuring sleep, without in any way impeding expectoration or the healing process in the lung.

DISEASES OF CHILDREN.

1.—*Chloroform in the Surgery of Childhood.* By M. Giraldès. [Gazette des Hôpitaux, and St. Louis Medical and Surgical Journal, March 10, 1869.]

In presenting to the Medical Society of Paris the second part of his work on the Surgical Diseases of Children, M. Giraldès stated: "I intend specially to draw the attention of my colleagues to a very important chapter in my book, that is, the one on the subject of anæsthesia in operations on childhood. I also wish formally to enter my protest against the opinion of M. Bouvier on this subject. His conclusions are dangerous, as he objects to giving chloroform to children; but, as he himself does not perform operations, he is not competent to give an opinion on the subject. Anæsthetics are very rarely fatal in childhood; and, out of the four cases of death which have been published in the medical journals, in two it is very doubtful whether the inhalation of chloroform had any thing to do with the fatal issue. Chloroform, on the contrary, has changed the aspect of the surgery of childhood; and, even if chloroform were to be banished from all other surgical practice, it should still be kept for that of children. In diseases of the eye, in four-fifths of the cases of injury of the elbow, if one wishes to make out the presence or absence of fracture, in attempting a certain diagnosis in cases of phlegmonous periostitis, it is necessary to give the child an anæsthetic to prevent his struggles.

2.—*Intussusception in an Infant cured by Inflation of the Bowel.* [Lancet, May 21, 1870.]

W. S., aged six months, admitted into Guy's Hospital March 28, 1870. The child appeared in perfect health until yesterday afternoon about four o'clock, when, while sucking a crust of bread, he suddenly screamed out,

fainted, and became cold. The mother took him to a doctor, who gave him a powder, which made him very sick. He continued in great pain, and cried incessantly. At three o'clock this morning he passed a quantity of clotted blood per rectum, and this continued to run from him until he was admitted into the hospital at twelve o'clock. The last fecal evacuation took place at noon the previous day.

On admission, the child was seen to be well grown, but face pale, and had a generally collapsed appearance. On examining his abdomen, a lump was distinctly felt to the left and above the umbilicus, which hardened when pressed upon. On passing the finger up the rectum a round projection could be felt about four inches up, with a circular orifice in the centre. The finger, when withdrawn, was covered with blood. The case being thus clearly one of intussusception, Dr. Wilks ordered inflation of the bowel by means of a bellows. Chloroform was given and an enema tube passed into the rectum, the other end being attached to the bellows. The attempt to inflate was at first unsuccessful, owing to the large size of the rectum; but, by increasing the width of the tube by wrapping a strip of lint round it, the colon was well inflated, and then the lump gradually went back until it quite disappeared. A drop of opium was ordered in a drachm of dill-water, and the breast to be given sparingly.

On the following day, March 29th, no lump could be felt. The child had been sick several times, and nothing had passed per rectum. To repeat the medicine.

March 30th, child very irritable; apparently much tenderness over abdomen, especially toward the right side. Occasionally sick. Passed a little blood, but no fæces.

31st, evidently better. Had a liquid evacuation with no blood, and sucks well.

April 1st, passed a natural motion, and altogether better.

2d, child apparently well, and taken out by the mother, who was somewhat discontented at the operation performed on him, as she never could be made to realize the severity of the case.

He remained well until the 10th, when he was brought to the hospital, having had fresh bleeding, and the lump could again be felt. The mother would not allow the child to be again taken in for the purpose of a renewal of the method which had been before so successful, but took him away for the purpose of procuring some physic for him; and no more was heard of the case.

Dr. Wilks remarked that this was a good model case of intussusception and of the appropriate treatment. The nature of the involution was of the usual kind—the ileum into the cæcum, and the subject a boy, as is most commonly the case. There was, however, one symptom which had not been hitherto remarked, viz., the collapse at the time of the occurrence of the passing in of the bowel. The sickness and constipation denoted intestinal obstruction, and the passage of blood, that this was caused by intussusception. This symptom was first clearly established as a characteristic sign of this accident, by Mr. Gorham, who wrote an excellent article on the subject in the Guy's Hospital Reports for the year 1838. If there had been any doubt as to the nature of the case, this would have been removed by the discovery of a tumor in the abdomen, which contracted on being handled, and by the fact of the rosebud-like projection to be felt in the rectum. This showed that the intussusception was very extensive. The treatment was then clear, and, in other cases, was completely successful. Dr. Wilks's wish was to keep the child in for some time, continue the opium, and feed him most sparingly. It was also discussed whether a pad over the abdomen might be efficacious in preventing a return of the intussusception.

3.—*Spina Bifida successfully treated by Injection.* By Dr. Roux. [Bulletin Gén. de Thérapeutique, and St. Louis Medical and Surgical Journal, March 10, 1869.]

The author rightly remarks that the cure of spina bifida, "when it can be effected," is, on account of its rarity, an important fact in medicine.

Louise Girard, six weeks old, otherwise in good health, presented in the glutæal region an enormous congenital tumor which extended from the end of the sacrum to the lower third of the thighs, measuring in this direction posteriorly twenty-two centimètres, eighteen cm. in front, from the vulva to its summit, and fifteen cm. transversely. The projection and form of the buttocks were completely effaced; the vulva was in place, but the anus was found at the centre of the anterior face of the tumor, with which at first glance it seemed to communicate. In running the finger along the sacral fossa from above downward, an osseous plate is felt, which tapers off and terminates in a true point. To render the diagnosis quite certain, the author made an exploratory puncture by a capillary trocar and drew off about forty grammes of a clear fluid containing but little albumen. The sac being now less distended, he could pass his finger on the under surface of the osseous lamina spoken of, and recognize the existence of a second one, larger, with an anterior curvature, forming a second coccyx. Cautiously exploring upward, he detected a hiatus—an abnormal opening of the sacral canal: the two bony plates representing the lower end of the sacrum and the coccyx divided in two in their long direction.

The diagnosis having been established, the following operation was made: The tumor was evacuated by a small trocar; the base of the sac was "strangled" by the fingers of assistants, to guard against the introduction into the spinal canal of the fluid intended to be injected, and thirty grammes of the following mixture were injected: Aq. dest., forty grm.; tinct. iod., ten grm.; potass. iodid., ten centigram.—left in the sac for five minutes and evacuated completely.

The child remained pale, cried plaintively, refused to nurse; it was expected to die every moment. But after ten hours it became quiet, its face resumed color, it nursed, and slept part of the night. In forty-eight hours, the tumor assumed about a fourth of its former size and became hard and tender; three days after the operation, it began to diminish, and fourteen days after the operation there remained only a solid node of the size of a walnut. The cure is perfect. (The operation was performed in July, 1865, and the patient is heard from several times a year.) The author attributes the success to the moderate strength of the injected liquid, the complete evacuation of the fluid contained in the sac, the "excessive" precautions against the entrance of the iodine solution into the spinal canal, and to the withdrawal of the injected liquor, even to the last drop, by sucking out the canula.

4.—*The Enlargements of the Viscera which occur in Rickets.* Abstract of a Paper read before the Royal Medical and Chirurgical Society of London by Dr. W. H. Dickinson. [Medical Times and Gazette, September 25, 1869.]

Certain organs of rickety children, particularly the liver, spleen, and absorbent glands, are apt to become altered in a manner somewhat analogous to the change which occurs in the bones. The liver increases in size so as to project palpably below the ribs. It becomes dense, elastic, and pale. The most striking change in its structure is a morbid development of the portal fibrous tissue, which is often evident to the naked eye, cir-

cumscribing each lobule. The spleen undergoes in some cases an enormous increase, forming a hard tumor under the walls of the belly, which may reach from the diaphragm to the pelvis. It becomes hard and dense, and has a purple color, sometimes mottled with buff, on which the white Malpighian corpuscles conspicuously show. These changes are due partly to a swelling of the delicate reticulum in which the splenic pulp is immediately contained, and partly to an increase in the cellular and corpuscular contents of the meshes. The latter change, however, is not always present, since the corpuscles in some cases become atrophied, the spleen then being hard, but not necessarily increased in bulk. The absorbent glands are often considerably enlarged, owing to an increase in their cellular and corpuscular contents. The kidneys become large and pale, owing to an increase of the epithelium in their convoluted tubes. None of the organs affected as described give any reaction with iodine. The change in the viscera is due not to the presence of any formation foreign to their structure, but to an irregular hypertrophy which alters the natural proportion of their tissues. The epithelial and corpuscular element is generally increased, while in the liver the capsule of Glisson, and in the spleen the trabecular tissue, are abnormally developed. It appears (so far as an analysis of the spleen can be taken as a guide to the general condition) that in the viscera, as in bones, there is a deficiency of earthy salts. The condition of viscera which has been described belongs especially to the first four years of life. It usually occurs in connection with the external signs of rickets, though sometimes the visceral precede the osseous changes; and it not seldom happens that the visceral change may be extreme when the modification in the skeleton is but slight. The rickety state of the viscera, like the alteration in the texture of the bones, is transient in its nature. Under favorable circumstances the affected organs have a strong tendency to recovery, and, even when swollen to the utmost, will occasionally return to their natural dimensions. The change in the viscera appears to interfere comparatively little with their functions. The swelling of the spleen, indeed, when considerable, is often accompanied by much anæmia, but the change in the liver is unaccompanied either by ascites or jaundice, and, though the kidneys may be decidedly enlarged, the urine remains free from albumen. When the visceral change has taken place to a considerable extent, the child is usually emaciated and anæmic, and is especially liable to be attacked by the diarrhœa, bronchitis, or pneumonia, to which rickety children are prone. These affections constitute the chief danger to which it is exposed. The treatment found to be beneficial is that ordinarily called for in cases of rickets. The diet should be nutritious and carefully adjusted, consisting of milk, beef-tea, meat, and wine, according to the age and state of the patient, while medicinally cod-liver oil is a prime necessity, and iron and quinine seldom fail to be advantageous. The rickety change which has been described differs both pathologically and clinically from the lardaceous or amyloid change on the one hand, and on the other from the enlargement of the spleen and absorbent glands which has been associated with the name of Hodgkin.

5.—*Treatment of Croup.* By Dr. Fabius, of Amsterdam. [Journal für Kinderkrankheiten, and Boston Medical and Surgical Journal, February 17, 1870.]

Dr. F. never employs antimony, calomel, or bloodletting; for, as he says, "the chief object in treating croup is to avoid debilitating remedies as far as possible." Ipecac. is just as good an emetic as antimony; other purges are equally efficacious with calomel; bleedings are unnecessary. Of late

years he has ceased to let blood in croup, and has been much more successful with his cases than formerly. An emetic, a warm poultice to the neck, and a large quantity of warm steam in the room, are his "abortive" measures. "In croup," he says, "this treatment brings relief; while in pseudo-croup it brings cure, or, as some say, it aborts croup."

If false membrane has actually formed, Dr. F. contends earnestly against the use of antiphlogistics. Antimony is abundantly proved to have been the frequent cause of sudden death in young children. Sulphate of copper is also rejected by Dr. F. He declines to speak of chlorate of potash, but ascribes more efficacy to carbonate of potash. Lusinsky, of Vienna, by whom the latter was employed extensively, claims to have saved by its means seventy-five cases of pure croup. Vogel, of Munich, gives it the preference over all other medicines; and Dr. Fabius says that he has had twelve successful and three unsuccessful cases under the use of this remedy alone; besides five successful ones where tracheotomy was performed. In doses of from ʒ ss to ʒ ij daily, diluted with water, it is not debilitating or dangerous. It should be noted that the carbonate—not the bicarbonate—is what is intended.

The effect desired of emetics is purely mechanical, to clear the air-passages. They may be repeated two or three times a day, so long as the stomach answers readily to the stimulus, and must be left off as soon as the act of vomiting seems no longer to relieve the respiration. Emetics, poultices, steam, and carbonate of potash, are his remedies until tracheotomy becomes needful. "We ought to operate when the disease is becoming worse, and the difficulty of breathing greater; when the anxiety begins to be permanent, and cannot be removed by emetics; when the scrobiculus cordis and the region above the clavicles are drawn in upon inspiration; when, finally, double pneumonia is not present, nor any other inevitably fatal condition, and when the strength is not too far gone." He advises care in avoiding bloodshed, rather than rapidity in operating; care, he says, "like that required in making an anatomical preparation."

Our readers have recently had a powerful plea for the expectant treatment of croup, from the pen of Dr. Burge, and we have in hand a record of the cases treated by him in accordance with the views expressed in his paper, in the July number of the JOURNAL. In connection with this subject, we present herewith quotations from an unusually interesting article by Prof. Fordyce Barker, of this city, contributed to the May number of the *American Journal of Obstetrics*. This article is a comment upon Prof. Jacobi's well-known paper, which appeared in the same Journal, May, 1868, and which has already been alluded to by us. Prof. Barker begins by defining his use of the term "croup," stating that he has been unable practically to recognize the differential diagnosis as laid down with so much minuteness by many authors:

Now, to my mind, the difference between false and true croup is essentially a question of intensity and extent of tissue involved, and there is no other radical difference between them. I should define their false croup, or "spasmodic laryngitis," or "catarrhal laryngitis," as a superficial inflammation of the mucous membrane of the larynx and trachea, while true croup or pseudo-membranous laryngitis is a more intense inflamma-

tion which profoundly affects the nutrition, secretion, and texture of the same organs. I therefore think the terms false and true croup should be abandoned, as they convey a false impression. They imply a difference as to the nature and seat of diseases which are identical, only differing as to intensity and extent of tissue involved.

The croup of diphtheria I regard as an entirely distinct and specific disease, although no distinction between the two seems to be made by Trousseau and most of the French writers. But this distinction is so fully recognized by us all here, that it is quite unnecessary for me to say more on this point, except to remark that all I have to say on the treatment of croup will have no reference to the treatment of diphtheria. Now, before entering upon a discussion of the special remedies in croup, I will say a few words on the general principles which govern me in the treatment of this disease. The great fatality of croup is admitted by all, and I think there is hardly a disease which can be mentioned which requires more prompt and efficient measures to arrest its progress, or more incessant watching, in order to change the treatment in accordance with the change of symptoms and condition of the patient. Success in the medical treatment of this disease depends in a great measure on the use of efficient remedies in the very commencement of the attack. In an advanced stage, where life is in jeopardy from asphyxia, our main reliance must be on surgical treatment, viz., tracheotomy. I will now give in detail my own treatment, which differs in many respects from that of any author that I am acquainted with, and my reasons for following this plan:

1. I always commence the treatment by an emetic of turpeth mineral (hydrargyri sulphas flava), in doses of from three to five grains, according to the age of the child. If it does not act in fifteen minutes, I direct a second powder to be given. This, however, is rarely necessary, and I have never known a second dose to fail to act in a few minutes, except in one instance, which I will mention hereafter. My reasons for preferring this to all other emetics in croup are the following: It acts much more promptly and efficiently than ipecac. or alum; it is tasteless and much more easily administered than either; it does not exhaust and depress the vital power like antimony. It is equally prompt in its action with the sulphate of copper, while it is much more effective as a revulsive and sedative. I think the active emesis from the turpeth mineral accomplishes the following results much more speedily and effectively than any other agent: It depletes the mucous membrane by an abundant secretion of mucus which is thrown up; it removes from the larynx, by the forced expiration which it causes, any albuminous or fibrinous exudation which may be there in a diffluent state, and which, by remaining, may become subsequently pseudo-membrane; it acts as a powerful revulsive, and thus diminishes the capillary circulation in the trachea and larynx; and thus it becomes a most effective agent in arresting the inflammatory process. I remember that you once asked, some years ago, whether I regarded the mercurial emetic as specially an antiplastic agent. I answer no, except in the indirect way I have mentioned above. I regard it as very important that this emetic should be given immediately on the appearance of the symptoms which threaten croup. It is the only medicine which I have constantly carried in my pocket for twenty-eight years. In all families with young children that I attend, where the slightest tendency to catarrhal laryngitis has been manifested, I have been in the habit of directing that this medicine should be constantly kept where it can be readily found; and I have no doubt that at this moment a hundred families in this city have three-grain powders of the turpeth mineral carefully labelled "croup powders." I think that by this precaution some lives may have

been saved; and I am very sure that many a bad night I have enjoyed a quiet, undisturbed sleep, when, had it not been for these powders, I should have been routed out. There is one advantage in their use which I must not omit: if the supposed attack of croup is simply one of laryngismus stridulus, or of what is called false or spasmodic croup, the powders do no harm. Of course, after such an attack the physician will be summoned for an early morning visit, when he will discover what sort of disease he is called upon to treat. If it prove to be a case of laryngismus stridulus, I endeavor to find the source of the reflex irritation and remove the cause. But if I find evidence of catarrhal laryngitis simply, then I rely mainly on opiates, which I regard as almost the specific for acute catarrh of the respiratory apparatus, whether it occurs in infantile or in adult life. I direct full doses, proportionate to the age of the child, of Tully's powder or the Dover's powder, or the "Brown Mixture" of the U. S. Dispensatory. But I watch such a child closely, visiting it a second time before evening. But, if, on my morning visit, I find the child with a quick pulse, hot skin, somewhat hurried breathing, and an occasional ringing cough, but with no thoracic râles, I direct that he shall be kept quiet in bed, comfortably covered, but not with too many clothes, and I prescribe the veratrum viride, in one or two drop doses, according to the age of the child, as for example in the following formula:

℞	Syr. simplicis,	ʒ i.
	Aq. puræ,	ʒ vi.
	Spts ether. nitros.,	ʒ ij.
	Tinct. verat. viridis,	gtts. 16–30.

M. S. A teaspoonful every second hour.

I visit the child at least as often as every eighth hour, and increase or diminish the dose, according to the effect of the medicine on the pulse. I never am satisfied until I find the pulse below 80 per minute, and I then continue the veratrum in half the dose that I found necessary to bring it down to that point. My experience in the use of the veratrum viride now dates back more than twenty-five years, and I have never found it fail to reduce the pulse of irritation or of inflammation (it will not reduce the rapid pulse of exhaustion), and I have never found the slightest danger or uncertainty in its use, as I watch its effects closely. If thoracic râles, hurried and labored respiration, and other symptoms, indicate that the disease is extending downward, I then substitute for the above prescription something like the following formula, of course varied according to the special indications of the case:

℞	Mist. acaciæ,	
	Syr. tolutani,	āā ʒ i.
	Ammoniæ carb.,	ʒ ss.
	Tinc. verat. viridis,	gtts. 16–30.

M. S. A teaspoonful every second hour.

It has sometimes occurred that I have found evidence of increasing laryngeal and tracheal obstruction, and I have in consequence repeated the emetic of the turpeth mineral on the second or third day; but I have never had occasion or deemed it well to repeat it a third time. Several times, a few hours after the emetic, but never during its immediate action, the child has thrown off more or less detached portions of membrane. In two instances I have had perfect casts of the trachea, with its bifurcation and some of the primary branches of the bronchi, thrown off. One, in 1856, I exhibited before the Obstetric Section of the Academy of Medicine. It occurred in a child thirty months of age, following measles. The other I exhibited before the medical class of Bellevue Hospital Medical College, in

the winter of 1862. Both of these children recovered; but I was particularly struck with the fact that there was no immediate improvement of the respiration or apparent amelioration of symptoms directly following the throwing off of the membranous casts. I am indebted to you, some ten years ago, for my knowledge of the tolerance and great value of quinine in large doses in some of the diseases of the respiratory organs of children. I have found it of great service in some cases of croup in the advanced stages, when the respiration is hurried and irregular, the paroxysms of cough becoming less marked, the intermissions less distinct, and the cough husky instead of ringing. I have substituted for the last formula the following:

℞ Mist. acaciæ,
Syr. senegæ, āā ℥ i.
Quiniæ sulph.,
Ammoniæ carb., āā ʒ ss.

M. S. To be well shaken. A teaspoonful every fourth hour.

When the croup is complicated with lobular pneumonia, I usually give the quinine separately, four or five grains three times a day, while the little patient takes the last of the prescriptions containing veratrum viride.

The claim which Prof. Barker makes of his success is thus stated:

I may be permitted to say that my great confidence in the treatment that I have sketched is based on the success which I have had. You, who know something of the extent and character of my practice, must admit that I have either been very lucky in never having had a case of true croup, or that I have had an unusual success in treating it; for, during the twenty years that I have practised in this city, I have never lost a case from croup. No burial certificate of mine can be found, of death from croup, in the mortuary records of the Health Board of this city. I regard this fortunate result as being partly due to the strenuous earnestness with which I impress on the families that I attend the importance of meeting the first symptoms of croup by a prompt and efficient treatment; partly to the fact that the remedy is always kept ready for immediate use, and two or three hours are not lost in sending for a physician, and then in sending to the druggist; partly to the incessant care with which I watch the disease during its progress; and partly to the special agents which I use as remedies. Since my residence in this city I have seen in consultation quite a number of cases of croup which have died. Some had no treatment until the disease had progressed so far that all treatment was useless, and others had very different treatment from that which I have indicated in this paper.

6.—*On the Mortality of New-born Children.* Being a Report of the Commission of the Académie de Médecine. [Archives Générales, April, 1870. Rankin's Abstract.]

The causes of the great mortality of new-born children may be arranged in the following categories:

1. Want, which so frequently engenders the innate debility of infants.

2. The neglect, sometimes unavoidable, but very often voluntary and unjustifiable, to perform the last act of maternity, viz., maternal suckling.

3. Ignorance of the most elementary rules of the alimentation and physical education of an early age, and also the prejudices of every kind which result from this ignorance.

4. The abuse, unfortunately too widely spread, of artificial milk supply,

always inferior to the maternal milk supply, and the difficulties in the application of which nearly always render it a dangerous method of alimentation.

5. Premature alimentation, which ought not to be confounded with an artificial milk supply, although these are always associated together.

6. The absence of necessary hygienic precautions, and especially the chilling to which new-born children are so frequently exposed during transport.

7. The neglect of medical precautions at the commencement of disturbances of health.

8. The want of regular supervision and medical inspection, as much in the matter of the recruiting of nurses as in that of the attentions to be paid to the infants.

9. The objection, still too general, of carrying the children to the mayor for the declaration of the birth.

10. The culpable carelessness and indifference of parents with regard to putting out children to nurse.

11. The frequent postponement of vaccination.

12. The localization of the nursing industries into too small a number of departments, whence the poorness of the blood of the women in these same departments.

13. The great number of illegitimate births.

14. Finally, the more or less criminal acts which constitute all the marked varieties of infanticide.

7.—*Notes on Anointing in Infantile Disorders.* By H. G. Knaggs, M. D. [Lancet, January 22, 1870. Rankin's Abstract.]

During the past eleven months, Dr. Knaggs has been testing, with uniformly successful results, the value of a very simple method of treating such infantile complaints as atrophy, bronchitis, convulsions, diarrhœa, febrile disturbances generally, and indeed all disorders of childhood which are accompanied by an unnatural state of the skin.

The treatment simply consists in smearing with salad-oil the whole surface of the body, from the crown of the head to the tips of the fingers and toes, the process being repeated every twelve, six, or even four hours, according to the urgency of the case. Of course, the use of a long flannel gown or small blanket is obvious, and the fluid should be slightly warmed.

The application of oil, the author writes, possesses the following immense advantages over the ordinary warm bath:

1. Skin-action is more completely and permanently restored.

2. The danger of reaction is avoided, for there is no sudden change of temperature; and moreover the sheet of oil protects the surface from atmospheric influences.

3. It acts as a fuel-food, not only preventing waste of tissue, but actually increasing the bulk of the little patient.

4. It does not depress, but, on the contrary, appears to exhilarate.

It will scarcely be credited by many that the formidable affections above mentioned will frequently yield to this treatment, or at any rate show signs of abatement in from twenty minutes to four-and-twenty hours, but such is the case, though sometimes forty-eight or even seventy-two hours will elapse before any decided signs of improvement occur.

Miscellaneous and Scientific Notes.

Science in Hanging.—A convict, named Andrew Carr, was executed in Dublin, on the 28th of July. The length of the drop was fourteen feet, and this distance was calculated in accordance with Prof. Haughton's formula. "Divide the weight of the convict in pounds into 2.240, and the quotient will be the required length of the drop." This formula was arrived at, after studying the records of execution by hanging, and finding that in the ordinary fall three or four feet, and even in two instances, seven and a half and eleven feet were insufficient to produce either dislocation or fracture, but that death is usually the result of slow and painful strangulation. Prof. Haughton then ascertained that "the shock of a ton dropped through one foot, is just sufficient to fracture the anterior articular surfaces of the second vertebra, or their contact with the atlas, and that this force allows the shock to fall upon the medulla oblongata so as to produce instantaneous death." How this conclusion was arrived at, is not stated in Prof. Haughton's paper, but presumedly by experiment; and in one instance, where a convict was scientifically shuffled off, in accordance with this principle, the vertebra was fractured as described, and the neck stretched a full inch and a half.

In the present case, however, when the man fell, "his head was completely severed from the trunk, all the parts being divided equally across, and the second vertebra was fractured." This distressing occurrence was made the subject of a judicial investigation, the object of which was to determine whether the drop of fourteen feet was so long as to necessitate this result. The physician of the Bridewell where Carr was executed stated he had acted wholly in accordance with the scientific data above stated. He mentioned other instances in which the long drop was used, and one in which the force (weight 168 pounds and drop sixteen feet) was, according to Haughton's formula, equivalent to a ton and a quarter, and yet decapitation did not take place. The testimony of a practical rope-maker, however, seemed to throw more light upon the question. He showed that the rope used, owing to the

peculiar way in which it was made, was incapable of the smallest degree of resiliency, a property of all good rope, and he attributed the accident to this fact rather than to the length of fall. If the rope in Carr's case had been properly made, it should have sprung two feet. Out of a number of ropes placed before him he picked out one, which he said from its make would insure this necessary spring. This, it turned out, was the very rope with which another convict had been hanged, and it was noticed that, at the moment of the fall, it did become thus elongated and spring back again. The conclusion seems to be, from all this, that the length of drop as enunciated by Haughton's formula is not excessive, but that due attention must be paid to the quality of the rope employed.

ATLANTA, GEORGIA, *January* 1, 1870.

Editor New York Medical Journal—

DEAR SIR: In the *Gynæcological Journal*, of Boston, for December, 1869, there is an article by Dr. Protheroe Smith, of London, entitled "An Aid to Parturition and to the Treatment of Displacements of the Uterus by a New Mechanical Appliance." Substantially this same article has also appeared in the *Lancet*, *British Medical*, *Edinburgh Medical*, and other journals.

The views presented by the distinguished writer in the above-named article are, for the most part, those years since brought before the profession by my father, Dr. E. P. Banning, Sen., and which we have continued to elaborate and practise upon with success; and it seems to me but common justice that the credit, if such there be, of originating not only this pathology of uterine displacements (and various other diseases arising from *muscular laxity*), but also of a series of mechanical appliances, for the treatment of these diseases, should be given where it is due: and, though I do not, for a moment, suppose that the writer in question intended to appropriate to himself the views of others, I take the liberty of making a short comparison between the views expressed by him and those advanced by my father in a lecture delivered before the New-York Academy of Medicine, section on obstetrics, May 12, 1866, and which appeared in the *Philadelphia Medical and Surgical Reporter* of June of the same year, for the purpose of showing that the mechanical pathology and therapeutics of uterine displacements, etc., originated with him, as well as to bring more prominently before the profes-

sion the appliances he has devised and used in these and kindred diseases with the most gratifying success.

In the article which is the subject of this review it is stated that "the chief cause of the deficiency of the natural spinal curves may be found to be *defective muscular power*, which, in its cause and effect, forms the chief subject of the present paper;" that "man being erect, it necessarily follows that the structure of the pelvis and abdominal muscles must be such as to retain the viscera in their proper position," and that "alteration in the muscular tissue is well known to all who have witnessed the result of tight lacing, in the dead-house, in the muscular atrophy which marks such cases and attenuates the abdominal walls. . . . The consequent obliteration of the lumbar curve and the levelling of the plane of the pelvis destroy the natural lines of the female figure, and open the door to all those maladies which result from the above-named deformity of the spinal column and of the pelvic outlet."

In describing his new mechanical appliance, it is stated that, "for the mechanical treatment of uterine ailments, this instrument acts in the following way: the pubic and sacral pads, fixed by the lateral connecting springs, tend, by their mutual reaction, to alter the plane of the pelvis, if too horizontal, to one more oblique and therefore more natural; the costal springs and sternal pad, attached to the end of the perpendicular springs, help still further to increase the lumbar pressure and throw the sacrum backward" (*probably* intended to say *forward*, as this must be the result of lumbar pressure; otherwise it would render the plane of the pelvis *still more horizontal*), "and at the same time to fix the whole apparatus; from the pubic pad, and attached to it by a movable rack-work, is a curved steel spring, which, bent to the shape of the vagina, is passed into it, while it is made to carry at its extremity any form of pessary or support that may be required. . . . The advantages of a uterine support adjusted by these means is, that its *point d'appui* being the pelvis itself, in ordinary movements of the body it is not liable to displacement."

In so far as this instrument is used as "*an aid to parturition*," the author is entitled (for any thing I know to the contrary) to the credit of originality both in the conception and in the appliance; but I think the following extracts, from the article of my father already referred to, will show that Dr. Smith's views on mechanical pathology and therapeutics are identical with those advanced before the New York Academy in May, 1860, and that his appliance, though falling short of Dr. Banning's in perfection and in ability to meet *all* the indications, acts, so far as it goes, on the same principles:

"From much observation, I am induced to believe that

the prevalent pathology of uterine obliquities is more or less defective, and that the abnormal status, both proximately and

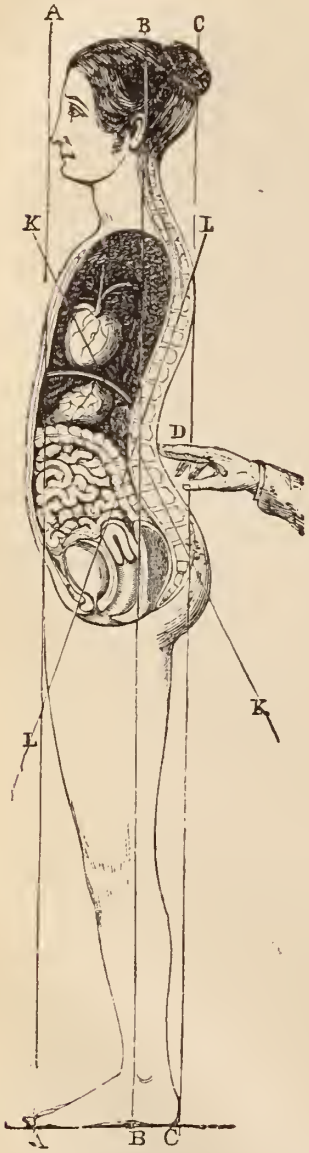


FIG. 1.—Side-view of erect posture, with natural upward and inward bearing of the internal organs.

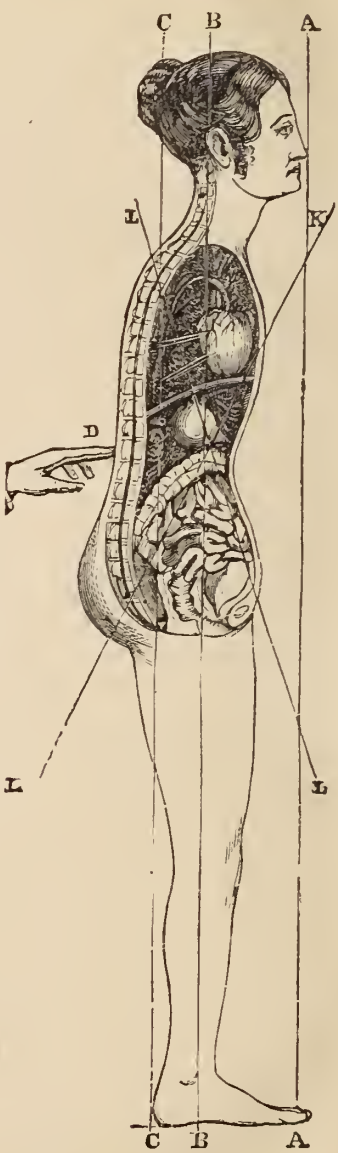


FIG. 2.—Side-view of drooping posture with internal organs suspended and compressed.

primarily, is caused, more or less, by a *relaxation of the abdominal and dorsal muscles and ligaments*, and by a consequent undue gravitation—not only of the abdominal contents upon the pelvic organ, but also of the whole trunk, which has lost its true bearings, and fallen forward of the spinal axis (the lumbar curve), in consequence of a diminished and unbalanced action of its muscular braces. By a glance at Fig. 1, we see a balancing of the trunk upon and behind the spinal axis (or *point d'appui*), a tension of all the abdominal muscles, a consequent expansion of the chest, and a protection of the pelvic viscera from superincumbent abdominal weight; add to this the fact that, in such a figure, the median plane of the pelvis is rendered correspondingly vertical (or oblique), and the lower abdominal cavity correspondingly small antero-posteriorly; by this combination not only is the descending weight of the viscera impeded, but also the force of visceral gravity is compelled to fall upon the pubis, and not upon the uterus, rectum, and bladder, in the direction of the inferior strait. A glance at Fig. 2 shows almost painfully that the spine (lumbar curve of) has retreated behind the body, leaving the whole trunk to hang forward *from* the spine, and not to swing behind, or rest upon it, as in Fig. 1. This state causes the median plane of the pelvis to become horizontal, the distance between the sternum and symphysis pubis to be much diminished, and the abdominal muscles to become flabbed; also the inferior abdominal cavity becomes greatly enlarged antero-posteriorly, and the visceral series descend and press with corresponding force upon the uterus, bladder, and rectum."

"*Curative Indications.*—We should remove the superadded burden from the uterus and its ligaments by restoring the body to its normal bearings, by pushing forward the dorso-lumbar portion of the spine; for, by thrusting this portion of the spine forward into the vertical axis, the very weight of the head and shoulders becomes an *elevating* agent, a tensor of the abdominal muscles, and a consequent contractor of the inferior abdominal cavity, by being compelled to throw its gravity behind the spinal fulcrum; this also has compelled the upper sacrum to advance, the symphysis pubis to correspondingly depress and retreat, and thereby restore the normal pelvic obliquity, which shelters the organs in the inferior strait below and behind the upper sacrum, and compels the pubis and abdominal muscles to receive the principal abdominal weight."

"How shall we restore the normal relations of the external and internal trunk to the pelvic viscera? . . .

"Our main hope in the premises is in such mechanical

force, at the shoulders, spine, and inferior abdomen, as shall simultaneously elevate the viscera, push forward the dorso-lumbar portion of the spine, and throw the shoulders behind the spinal axis."

The real cause of uterine displacement (superincumbent weight) being removed by the external brace, the intra-pelvic attachments, acting from it by a gentle vertical support, before, behind, or at either side of the uterus, respectively correct any variety of obliquity, without distending the vagina or touching the rectum, bladder, or uterus (except the cup-elevator, which is only to be used when the os and cervix are the only points which will bear a supporting contact), or resting upon any of the soft parts below, which are themselves in need of support. Again, so completely concordant is this action, as to favor the early discontinuance of the instrument by restoring the tone of the overtaxed tissues, which happy termination occurs in a large majority of these cases in our practice; but were this combination to support the uterus thus efficiently, without first correcting the lost trunkal bearings, and thus unburdening the displaced organ, the result would ultimately be serious in many ways, viz.: 1. The undue pressure upon the os, cul-de-sac, and Fallopian tubes, etc., would terminate in irritation, induration, ulceration, etc., as is the general rule in the use of ordinary pessaries, and the real cause of which (too much intra-pelvic pressure) is too seldom suspected. 2. Cases of simple prolapsus, by undue pressure, would often be converted, under the contending weight of superincumbent viscera, into versions and flexions, and unsuspected versions and flexions increased and made permanent. There are a number of other diseases, not generally supposed to be of a mechanical nature, whose pathology our experience leads us to believe may be traced to muscular laxity, and the consequent departure from the natural trunkal bearings, and for the successful treatment of which mechanical aid is required, such as spinal deformities, hernia, prolapsus ani, many cases of hæmorrhoids, etc.; but, as this is merely a review of an article written on a particular branch of the subject, I confine myself to that, with the hope that other and abler minds and pens may be induced to extend the researches and furnish the benefits of their experience in the important, and, I believe, too much neglected field of mechanical pathology.

EDMOND P. BANNING, Jr., M. D., Atlanta, Geo.

Death from Chloroform.—The Chicago papers of August 27th contain accounts of the sudden death of William W. Leonard, a merchant of Chicago, twenty-six years of age, after the

administration of chloroform by Dr. G. D. Beebe. Some of the correspondents of the papers are quite severe in their strictures upon the doctor, charging him with either ignorance or criminal carelessness. It is said that "some time ago a cystic tumor made its appearance over Mr. L.'s left eye, and, as it was gradually growing larger, he determined to have it removed. He accordingly consulted Dr. Beebe, who administered chloroform. He inhaled it easily, and manifested no feeling tending to show that he was taking too much. The operation was nearly completed, when, suddenly, he threw back his head, his neck became stiff, and he gasped. The doctor thought the glottis had been closed, and put his finger into his mouth and drew his tongue forward so as to open it. He then looked at the pupils of the eye, and saw that they were becoming dilated. Ammonia was sprinkled on a napkin, and placed so that the patient could inhale it, while artificial breathing was kept up. As the heart did not act, an electric machine was used, and a strong electric current passed through his body, but this had no effect, and, after half an hour had been spent in efforts to restore vital action, no signs of it appearing, the case was given up as hopeless. The deputy coroner was notified, and held an inquest, and the jury rendered a verdict of death resulting from paralysis of the heart, produced by the inhalation of chloroform."

We hope that an impartial investigation will exonerate the doctor; but the result in this case will doubtless change his opinion as to the harmlessness of chloroform.—*American Hom. Observer.*

In England, during the five years, 1852–'56 inclusive, there were recorded, in Tables of the Registrar-General, thirteen deaths from chloroform. In another period of six years, 1863–'68 inclusive, there were recorded fifty-seven deaths from the same cause. The data of the intermediate period, 1857–'62 inclusive, for some reason are not given. In the year 1869 there were ten cases in England, reported in the leading medical journals, in which death was due to chloroform.

Dr. B. W. Richardson, in concluding his brilliant lecture on Death from Chloroform, said: "In reviewing the past of chloroform as an anæsthetic, from its introduction until now, I see nothing to lead me to assume that any of the deaths which have followed the administration have been due either to absence of skill on the part of administrators, want of special

knowledge respecting special apparatus, or absence of special mixtures of chloroform with other fluids. I see nothing, again, in bad quality of specimens of chloroform to account for the fatality which has followed its use. Lastly, I see nothing in operative surgery (except that there *seem* to have been more deaths from the vapor when it has been used for minor than for major operations) to account for the fatality. All through the chapter one administrator appears to have been as skilful and as thoughtful as another, one quality of chloroform as good as another, one operator as careful as another. I can find no single death from chloroform in which even a pretext of a charge could be raised against these factors in the catastrophe. We must therefore look for the cause of death in some inherent fault in chloroform itself, which unfits it for every person indiscriminately; or, putting it the other way, in some inherent fault in the organisms of certain who die, which renders them unfitted to meet the physiological changes the chloroform excites when it is introduced into the organism."

Improved Formula for the Administration of Iodine.—Dr. F. P. Mann, of Brooklyn, sends us the following note: The administration of iodine, in full doses, in the formula given by Lugol, in pill, or any concentrated solution, is apt to be attended with more or less difficulty, owing to the fact that the remedy produces constriction of the fauces, and sometimes irritation of the stomach. It occurred to me some time since, having occasion to test the efficacy of iodine in full doses, that as sugar materially assists in obviating the above difficulties to its free administration, the employment of molasses containing uncrystallizable sugar, together with certain extractive matters expressed from the sugar-cane, might so absorb the free iodine as to conceal its taste and other objectionable properties. I found it to answer the purpose perfectly. By the use of the following formula complete iodism can be produced rapidly, and maintained for any desirable length of time without producing griping pain or any disagreeable result. I have employed it successfully where ordinary doses of iodine and iodide of potass have failed.

℞.	Iodinii,	gr. xvi.
	Iod. potass.,	gr. xxxii.
	Aquæ puræ.	ʒ ii.
	Syrup. empyreumat.,	ʒ vi.
	Ess. gaultheriæ,	ʒ ii.

M. et ft. sol. Dose, one tablespoonful three times per day, one hour before meals.

It will be seen that each tablespoonful contains one grain of pure iodine. The advantages of this formula are, that double the quantity of iodine can be given, without inconven-

ience, that the remedy is rendered tasteless, while the syrup is pleasant and agreeable. The solution should stand twenty-four hours before using.

The *Journal des Connaissances Médicales*, in announcing the recent appointment of the nephew of Sir James Simpson to the chair of Obstetrics in the University of Edinburgh, indulges in this bit of savage sarcasm: "Mais un est à notre époque très-heureux d'être le neveu de son oncle; cela sert des deux côtés de la Manche."

The Paris correspondent of the *Medical Press and Circular* pays a very handsome compliment to medical teaching in the United States, based upon an account taken from *Le Mouvement Médicale*, of the Cornell University at Ithaca, in this State. Unfortunately, however, for the compliment thus conveyed, medicine is not taught at Ithaca.

The Antiseptic System in Surgery.—At a recent meeting of the Medical Society of Berlin, the leading surgeons of that city recorded their experience of the carbolic-acid treatment of wounds and injuries. Prof. Bardeleden stated that, in two hundred and forty-one cases then in hospital, the success of this treatment was fully confirmed. Fifty of these were serious cases; and three of them were compound fractures, which, but for Lister's method, must have been amputated. He had found very good results and less irritation from the use of sulpho-carbolate of zinc, as employed by Mr. Wood, of King's College Hospital. Prof. Langenbeck stated that, although at first he had the greatest distrust of Lister's method, yet two years' experience of it had now so convinced him of its utility, that hardly any operation was now performed in his clinic without the use of carbolic acid. He also had recently two compound fractures of the leg, which, according to still prevailing doctrines, should have been amputated, but had both run a favorable course under the carbolic-acid treatment. Prof. Lister, commenting on this discussion in the current number of the *Edinburgh Medical Journal*, observes that the "poisonous action" with which Mr. Bardeleben has met in one of ten cases has not occurred at all in his own practice since lac-plaster was substituted for the paste. The local irritation complained of he ascribes to the omission of the use of a "protective" to guard the wound from the direct action of the acid.

There has just been found at Paris a singular society that numbers already more than a hundred members. The members, by a formal clause in their wills, declare that they do not wish to be interred after their death; on the contrary, they direct that their bodies shall be given to the amphitheatres to be dissected. They form this resolution for the purpose of contributing as much as possible to the progress of that important science, without which a profound study of the art of healing is impossible. They expect, moreover, to help to do away with the prejudice against the dissection of bodies.—*Revue Thérapeutique.*

In view of the importance which is now attached to the administration of the phosphates in disease, it is a satisfaction to know of a preparation which can be implicitly relied on. Prof. Horsford's acid phosphates are prepared under his own supervision, and with every possible precaution that science and skill can suggest to insure perfect uniformity and reliability in the manufactured article. From a somewhat extended observation of the results of the use of this agent, we are free to state our conviction that it is a very reliable addition to our materia medica.

Regeneration of Bone.—M. Ollier, of Lyons, has recently submitted to the Academy of Sciences, of Paris, the account of two cases of resection of the elbow-joint, which prove the regeneration of bone by the periosteum. The patients died; one eighteen months, the other one year, after the operation. The first was nineteen years of age, and the other forty-nine. The young patient fell a victim to phthisis. The lower part of the humerus was, with him, the part most regularly regenerated. With regard to the other bones, an olecranon of one inch had been formed, and the ulnar nerve was observed lying in a groove on the new condyle. The head of the radius, however, had been very imperfectly reconstructed. The insertions of muscles, which had been detached during the operation, had regained their normal relations. The joint did not, however, look healthy, because in the latter part of the patient's life suppuration had set in.

The second patient died of albuminuria. The lower part of the humerus presented two lateral masses very fairly representing condyles; the olecranon was observed to consist of a series of osseous nuclei lying in the tendon of the triceps, and the insertion of muscles which had been dissected off had formed new and normal connections.

M. Ollier considers that these cases offer a clear demonstration of the correctness of his views. We should like to know whether, in old cases of caries of the joints, the Lyons surgeon does not, now and then, find the periosteum so completely destroyed as to put the performance of his operation out of the question. Perhaps we do not operate so early as they do in France.—*Lancet.*

Weight of the Human Brain.—In the *Journal of Mental Science*, 1866, there is an elaborate paper by Dr. Shuman on this subject, in which he gives the following table of the brain-weight of fifteen distinguished men:

	Age.	Oz.
1. Cuvier, naturalist	63	64.5
2. Abercrombie, physician	64	63
3. Spurzheim, physician	56	55.06
4. Dirichlet, mathematician	54	53.6
5. De Morny, statesman and courtier	50	53.6
6. Daniel Webster, statesman	70	53.5
7. Campbell, lord-chancellor	80	53.5
8. Chalmers, celebrated preacher	67	53
9. Fuchs, pathologist	52	52.9
10. Gauss, mathematician	78	52.6
11. Dupuytren, surgeon	58	50.7
12. Whewell, philosopher	71	49
13. Hermann, philologist	51	47.9
14. Tiedemann, physiologist	80	44.2
15. Hausmann, mineralogist	77	43.2
Averages of ten distinguished men	50–70	54.7
Averages of fifteen distinguished men	50–80	52.7

The average brain-weight, between the ages of twenty and sixty, of Scotchmen, is given by Dr. Peacock at fifty ounces, and from these figures it is evident that while Simpson's brain is much above the average of his countrymen, it is really lower than that of the brains of the ten distinguished men given in the preceding table who died between fifty and seventy.

In connection with the present subject it may be not uninteresting to know that, some years ago, Sir James collected statistics from hatters, principally in London and Edinburgh, as to the sizes of the hats sold in those cities; and the result of his inquiries clearly proved that, on an average, a Scotchman required a larger hat than an Englishman. When the late professor related this fact to his class or in private, he frequently added that he trusted that this necessity for large hats arose from the size of the brain, and not from unusual thickness of skull.

There is, no doubt, much truth in the remark of the late Prof. Goodsir, in reference to the cerebral hemispheres—"Be-

sides quantity, we must have quality."—*Medical Times and Gazette*, May 28, 1870.

Milk, a Prophylactic against Lead-Poisoning.—At the glass-factory of St. Louis, there have been, for many years, numerous affections due to lead. Sulphuric lemonade alone prevented these accidents, but the workmen, tired of this beverage after a few days, refused to use it. Struck by the immunity enjoyed by two workmen, who habitually drank milk, M. Didierjean, director of the factory, ordered the use of milk, giving the workmen an addition to their daily pay for its purchase. Its use was introduced in February, 1868, and for a long time no case of lead-colic has occurred.—*Revue de Thérapeutique Medico-Chirurgicale.*

The *Albany Evening Argus*, of the 7th September, publishes somewhat prominently the announcement quoted below. We cannot but think, however, that the correspondent's enthusiasm, or possibly his belief that the medical millennium is about to dawn upon this stiff-necked generation, has led him into a statement calculated to convey an erroneous impression of the attitude of the college, for we do not believe that it is fraternizing with our homœopathic friends as such. The Hon. Mr. Harris, it is true, is a professor in the school, but he happens to hold the chair of Medical Jurisprudence only, and the application of his homœopathic doctrines to the jurisprudence of medicine will harm no one. Indeed, the more infinitesimal the doses of law, and therefore of litigation, for presumably these go hand in hand, appropriated by all sects and professions, the better for mankind. We do not speak with authority for the college, but judge only by its past record, and we think we are not wide of the mark in expressing our belief that at least the professors recently appointed from this city would not indorse for a moment any practical miscegenation of the two systems of medicine such as is claimed by the *Argus* correspondent:

Liberality of the Albany Medical School—Fraternization of Allopathic and Homœopathic Physicians.—The Hon. Ira Harris delivered the opening address at the college yesterday morning. The address was able and interesting, and we were pleased to see many homœopathic physicians in attendance. Mr. Harris is a firm believer in and patron of homœopathy, and

fills a chair in the college. It is indeed gratifying to know that the barriers which have hitherto divided the two schools of medicine are being removed, and to see our college taking the initiatory step toward such a desirable achievement. We believe this is the only allopathic medical institution in this country that possesses views sufficiently liberal to allow any of the chairs to be filled by men who firmly and practically believe in the homœopathic doctrine. It is also pleasant to know that several of the trustees of the college are firm believers in homœopathy.

Prizes at the French Academy.—M. Chenu has obtained the statistical prize for his Medico-Chirurgical Statistics of the Campaign of Italy in 1859–'60. The prize for Medicine and Surgery has been conferred on M. Junod for his Hæmospasia, £100. M. Luschka, of Tübingen, for his Topographical Anatomy, £80. MM. Paulet and Sarazin, for the same subject, £80. Dr. H. Roger, for his Chorea in Children, £60. M. Maurin, for his Typhus among the Arabs, £60. M. Knoch, of St. Petersburg, for his Bothrioeephalus Magnus, and M. Saint Cyr, for his Tinea Favosa among Domestic Animals, £40 each. Other prizes are conferred for investigations and proposals to prevent the evil effects of certain unhealthy trades, viz.: M. Pimont, for his Plastic Calorifuge, £100. M. Charrière, for his Apparatus for saving Shipwrecked Crews. The Cuvier prize has been awarded to Ehrenberg. The Barbier prize has been divided between M. Mirault, of Angers, for his Temporary Surgical Occlusion of the Lids in the Treatment of Ectropion arising from a Cicatrix; and Dr. Stilling, of Cassel, for the improvements introduced by him in Ovariotomy. The Godard prize has been presented to Hyrtl, of Vienna, for Genito-Urinary Organs of Fishes.—*Medical Press and Circular*, August 10, 1870.

Injections into the Peritoneal Cavity after Ovariotomy.—Prof. E. R. Peaslee, of this city, contributes an article on this subject to the last number of the *American Journal of Obstetrics*. As he himself first proposed and adopted this expedient, he has been held measurably responsible for its application, and yet that application has been made many times under circumstances not demanding it, and with evident detriment to the patient. Indeed, we fancy that Prof. Peaslee must have been frequently disgusted at the lack of appreciation of the proper indications for the use of this treatment, and annoyed at the looseness of opinion entertained by many medical men regard-

ing it. As a simple matter of necessity, therefore, we may assume that this paper was prepared, although, when the operation was first proposed, the indications for its application were definitively and clearly stated. With the hope of aiding to correct these disjointed opinions, independently of what we consider the importance of the subject, we make the following lengthy extracts from the paper alluded to. Want of space alone compels us to omit the illustrative cases, which are almost essential to the elucidation of his views:

The object to be secured by intra-peritoneal injections after ovariotomy is, *the prevention or the removal of septicæmia, by the removal of a fluid in a state of decomposition, or soon to become so, from the peritoneal cavity.* More than one-sixth (three-seventeenths) of those who die after this operation die of septicæmia, and it is a matter of the highest importance to reduce the number to one-sixth, or even to one-fifth of this proportion; as I feel assured the judicious use of the injections will do.

The decomposing fluid, whose absorption into the blood from the peritoneal cavity may produce septicæmia, may be either of the following:

1. It may be blood oozing, after the operation is completed, from surfaces to which the ovarian tumor had been adherent, or from its pedicle.
2. Fluid from the tumor, which had been left by the operator in the peritoneal cavity.
3. Ascitic fluid thus left or secreted after the operation in cases of ascites complicated with ovarian tumor.
4. Pus in the peritoneal cavity produced while some surface is healing by granulation. Septicæmia produced in this way is true pyæmia.

Some authorities assume, also, that septicæmia results from the slough produced by the application of a ligature to the pedicle of the ovarian tumor (Dr. Clay's method). But I have demonstrated that no such slough is formed, unless, possibly, in very exceptional cases,[1] as happens sometimes to the portion next the uterus when the clamp is used.

Since the fluid in the peritoneal cavity, from whichsoever of the preceding sources derived, does not at once become decomposed, and since, moreover, the peritonæum itself absorbs but very slowly, the symptoms of septicæmia are not developed under four to seven days (and in one of my cases on the eighteenth day) after the operation. I hardly think it possible that death should occur from septicæmia after ovariotomy in the space of thirty hours, as supposed in one of Mr. Spencer Wells's cases.

The symptoms of septicæmia are: loss of appetite; coated, dry, and then red or dark tongue; great debility, not otherwise to be accounted for; rapid, small, and weak pulse; dizziness; a tendency to sleep, and a typhoid expression of countenance. In some cases, also, an accumulation of fluid in the peritoneal cavity can be recognized by palpation, and a mawkish odor of the breath soon becomes apparent.

In the first case in which a trial of peritoneal injections was made, pure warm water was used, the catheter having been passed, at the time of the operation, through the vagina and behind the uterus into the Douglas *cul-de-sac.* Later, a

[1] Medical and Surgical Reporter for June 29, 1867.

solution of common salt in water (℥j to ℥ij to Oij) was employed, and this, still later, was alternated with a solution of liq. sodæ chlorinatæ (℥j to ℥ij to Oj of water). The results of this case seemed to have demonstrated:

1. That a mixture of water or of salt-water (℥j to Oj) with the fetid intra-peritoneal fluid is less mischievous than the latter alone.
2. That both salt-water and a solution of liq. sodæ chlorinatæ (℥j to Oj) are unirritating and decidedly antiseptic when applied to the peritonæum in the circumstances before specified.
3. That the peritoneal cavity may be evacuated of fluid, by a tube acting as a siphon.
4. That septicæmia may be removed by injections of the kind above mentioned, if it be not too profound or too far advanced. For no internal remedies were used in this case which are supposed to exert any special antiseptic influence.

In another similar case (septicæmia from ascitic fluid) I at first used an aqueous solution of salt and albumen in order still more nearly to imitate the natural secretion of the peritonæum.[1] But, finding that the albumen itself became decomposed by commixture with the fluid in the cavity, I returned to the salt and water and the liq. sodæ chlorinatæ. In this case I found it necessary to continue the injections twice daily, and then once daily—for *fifty-nine days* in all—when the fœtor ceased and the patient recovered. The symptoms of septicæmia did not appear in this case till the eighteenth day.

In the first four cases, in which a trial of this method of treatment was used, the object was simply to *remove* septicæmia. Subsequently, however, Dr. Peaslee applied the same method with a view of *preventing* this complication, and, with this purpose in view, he leaves a tent in the lower end of the incision in every case in which he does not feel absolutely certain that no blood, ascitic or ovarian fluid, or pus, could remain or collect in the peritoneal cavity after the operation. If no symptoms supervening demand its earlier withdrawal, it is removed on the fourth day, and the cavity examined with a silver tube (prostatic catheter), for the presence of fluid, and to determine whether the opening shall be closed or the injections commenced. In his last case, pure carbolic acid, gr. j to gr. ij, was added to a pint of the solution of salt and water.

At first I introduced a No. 10 gum-elastic catheter into the peritoneal cavity, and carried the fluid to be injected through it by means of an accurately-fitted ℥viij hard-rubber syringe. All air is of course expelled from the syringe before it is inserted into the tube. But I have recently adopted a method which, it seems to me, answers every possible requirement, and affords every facility both for the patient and the surgeon.

The apparatus used is simply a No. 10 (or No. 12) elastic catheter; and

[1] The composition of this artificial serum is common salt gr. iv; albumen, gr. vi; water, Oiv.

an india-rubber bag holding three quarts, with a tube attached to it four feet long and one half inch in diameter, with a stop-cock three inches from its distal end.

This bag is filled with the fluid to be injected in the following manner:

Place a large bowl containing the fluid upon a table or other support, and pour a tablespoonful (or more) of it into the bag. Then drop the distal extremity of the tube into the fluid in the bowl, and by sudden pressure force the spoonful of fluid into it from the bag, the next instant letting the bag drop upon the floor. The tube is thus instantly converted into a siphon, through which the fluid flows at once, and until the bag is filled.

Next the catheter is passed into the peritoneal cavity in any required direction, the tube is then attached to the catheter, and the fluid passed through the latter into the peritoneal cavity.

By elevating the bag to different levels during the operation, the amount of pressure of the fluid can of course be graduated. When the peritoneal cavity is filled, the surplus of the fluid escapes by the side of the catheter, and the whole three quarts may be used at once, or not, as is required. In detaching the tube from the catheter and depressing the end of the latter, slight pressure upon the abdominal walls causes the fluid to flow through it; and, by keeping its outer extremity lower than its inner, it becomes a siphon, and thus entirely drains the peritoneal cavity. This process is repeated at each time until the fluid returns as clear and as devoid of odor as it was before entering the cavity; and very frequently nine quarts have been required to secure this result. As in this method there is no jarring or other disturbance of the catheter, the patient suffers very little inconvenience from the operation.[1]

After the latter is completed, from two to four ozs. of the solution of salt and carbolic acid is left in the peritoneal cavity, and the tent is reinserted to prevent the opening from closing; or, if there is no danger of this, a compress is applied to absorb the fluid that may escape from the peritoneal cavity before the next injection.

The injections are repeated daily, or oftener, till the amount of decomposed fluid is reduced to ʒj or ʒss during the twenty-four hours, when it may be omitted for a day, the fluid being meantime pressed out, and the result noted. If no fluid accumulates, nor fœtor returns, in forty-eight hours, the tent may be finally removed, and the opening allowed to close. It is safer, however, two or three days afterward, to pass a smaller catheter, and, turning the patient upon the side, or even upon the face, ascertain once more if there is any accumulation of fluid.

It is not possible in the limits of this paper to reply to all the questions which may arise in connection with this subject in the minds of those to whom this is entirely untrodden ground. But the following may be briefly considered:

1. Does the patient suffer pain from the contact of the injection with the peritonæum?—Never, unless the fluid injected is too warm or too cold (above 100° or below 94°). A motion of the catheter among the convolutions of the intestines sometimes gives a slight unpleasant sensation, which ceases, however, at once, on keeping it at rest.

2. Is there any danger from the admission of air into the peritoneal cavity?—I at first took great pains to prevent this, but both found it impossible to do so for several days in succession, and that its entrance is of no importance. It rises, of course, to the highest point in the peritoneal cavity, and slight pressure after the injection insures its escape through the opening before the tent is replaced.

[1] This method of injection is also applicable to the bladder, the stomach in cases o poisoning, and the pleural cavity after paracentesis for empyema.

3. Does the tent produce any symptoms from contact of its inner extremity with any portion of the alimentary canal?—None at all.

4. Is there danger of hernial protrusion during the use of the tent?—None. Patients have had violent vomiting without any such result.

5. Is the opening prompt to close after the tent is removed?—Always in my cases. I therefore do not hesitate to use a tent for from two to four days after the operation of ovariotomy in *any* case, unless I feel very certain that no fluid will remain or will accumulate, in the peritoneal cavity.

CONCLUSIONS.

1. Intra-peritoneal injections of water, with the addition of liq. sodæ chlorinat. or carbolic acid, as before explained, are entirely safe after ovariotomy in the conditions requiring them.

2. They should be used with a *curative* intention in all cases of septicæmia already developed, and in all cases for *prevention* where it is feared, from the presence already of a fluid in the peritoneal cavity, whose decomposition will produce it.

3. Thus used they will diminish the percentage of deaths from septicæmia after ovariotomy from one-sixth (seventeen and eleven-seventeenths per cent.) of all who die after it, to one-thirty-sixth [1] (two and sixteen seventeenths per cent.); and increase the average success of ovariotomy from seventy to seventy-four or seventy-five per cent.

4. Intra-peritoneal injections are never to be thought of except for the purpose of removing a fluid already in the peritoneal cavity, which either already has, or assuredly will have, produced septicæmia.

5. A tent may be inserted for two to four days at the lower end of the incision, with entire safety, in any case of ovariotomy where the accumulation of such fluid is apprehended.

6. Finally, septicæmia would more rarely occur after ovariotomy if all fluid were removed from the peritoneal cavity by the most careful sponging before closing the incision.

The Toland Medical College, of San Francisco, has been merged into the University of California, and will hereafter be known and designated as the Medical Department of the University of California. By this change the property bequeathed to the school by Dr. Toland passes into the ownership of the Regents of the University. The school itself cannot fail to be immensely benefited by this alliance with a university which promises to be one of the foremost in the country.

Dr. Charles A. Pope, formerly Professor of Anatomy and also of Surgery in the St. Louis University, died suddenly, and, it is reported, by his own hand, in Paris, France, on the 5th of July. Professor Pope was one of the most prominent medical men of the West, although, for some years, he had retired from active practice, and spent most of his time in Europe.

[1] Since they save five-sixths of the cases, or reduce the mortality from septicæmia to *one-sixth of the original proportion.*

Prof. Gunning S. Bedford, M. D., died in this city, on the 6th of September, at the age of sixty-four years. His death was not unexpected, for he had long been an invalid, having been attacked with hemiplegia in 1864, while in the midst of an active practice, and since then he had three or four other attacks.

Dr. Bedford was born in the city of Baltimore, Md., in 1806, and graduated in 1825, at Mount St. Mary's College, Emmetsburg, with honors. While at college he distinguished himself for his oratorical powers and beautiful diction, becoming renowned as a lecturer and speaker.

Among his fellow-students at Mount St. Mary's, whose college acquaintanceship ripened into an ardent and lasting friendship in after-life, may be mentioned Archbishop Hughes, Rev. Charles Constantine Pise, Archbishop McCloskey, Archbishop Purcell, of Cincinnati, and Colonel Dangerfield, of Baltimore.

After graduating, Dr. Bedford's first idea was to study law. With that intention, he left Baltimore with letters for Daniel Webster, intending to study law in that distinguished gentleman's office.

When actually on his way to present his letters to Mr. Webster, he accidentally met an enthusiastic acquaintance who had just commenced the study of medicine. This acquaintance persuaded him before he saw Mr. Webster, and had fully determined to devote himself to the study of the law, to go with him and hear a lecture by Dr. John D. Godman. They went—the lecturer's subject was an interesting one—the circulation of the blood. Dr. Bedford was charmed and carried away with the eloquence of Godman, and determined at once to give up all idea of law and to commence the study of medicine. Immediately after the lecture, he went up to Dr. Godman and introduced himself, showing his letter to Mr. Webster, and frankly acknowledging that the eloquence of the lecturer had converted him, and that henceforward he would devote his time and energies to medicine. He accordingly became the pupil of Dr. Godman, who in turn became his preceptor and friend, and who did much to advance him in his profession. This same John D. Godman, who so accidentally changed the career and life of Gunning Bedford, the venerable Dr. Valentine Mott once had occasion to speak of, in the following manner: "In the perfection of his anatomical knowledge, in eloquence and efficiency as a lecturer, Dr. Godman was not surpassed in this and perhaps not in any other country. He was one of the meteors whose brightness

dazzles for the moment ere it fades, and leaves the darkness more visible than before. This country, in my opinion, has produced few abler men in the profession than the late John D. Godman."

In 1829, Dr. Bedford graduated at the Rutgers Medical College. Soon afterward he married, and then visited Europe with the intention of advancing himself in his profession. He remained abroad for years, during which time he devoted himself to his profession, visiting the hospitals and attending the different lectures and cliniques.

Shortly after his return to America in 1833, he was appointed Professor in the Charleston Medical College.

He was next appointed Professor at the Medical College in Albany. After delivering several courses of lectures at the Albany School, he resigned, and determined to visit New York, and make that place the field for his future exertions.

Dr. Bedford was the first to conceive the idea of founding the University Medical College in this city. He made the suggestion to Dr. Valentine Mott, whose valuable aid was of great assistance. The Medical College was soon established, with the following distinguished Professors: Paine, Revere, Draper, Patterson, Mott, and Bedford. The school was a great success. Dr. Bedford held the chair of Obstetrics until ill health forced him to resign, which was in 1862. During his connection with the college he established an obstetrical clinique—the first ever held in this country.

Dr. Bedford wrote much for the different medical journals, but his two great works are, "Diseases of Women and Children," and "The Principles and Practice of Obstetrics." The former has gone through ten editions, and the latter five editions. They have been translated into the French and German languages, and have been very generally adopted as the text-books in the medical colleges in this country and Europe.

Liquid Glass as a Surgical Dressing for Immovable Apparatus.—Prof. John T. Darby, M. D., of the University of South Carolina, has published in pamphlet form an interesting paper on this subject, the importance of which induces us to present the principal points brought out by the author. He says:

I was first led to its use by seeing M. Dolbeau apply the solid silicate, partially dissolved in hot water, in the treatment of a simple fracture of the right leg, in 1867. The hardness, durability, adhesiveness, and inexpensiveness, of the crystalline mass were admirable in the light, firm, and solid casing of the limb, but the dirty color and roughness of the sandy, gritty,

undissolved material, after application, were objectionable. To do away with this condition, and to give neatness without sacrificing utility, the liquid silicate, as first obtained by Fuchs at Munich, presented, I thought, advantages which I resolved to test. The use of this liquid for rendering wooden buildings, linen, cotton and paper fabrics incombustible, and for protecting frescoes from atmospheric influences, is well known, and from a few of my own experiments upon animal tissues, I believe it could be made of vast service in the preservation of anatomical preparations. As procured from the laboratory for commercial uses, it is a clear, light, amber-colored fluid, remarkably adhesive and tenacious, almost insoluble in cold, and dissolved in four or five parts of boiling water.

The mode of application as a surgical dressing is very similar to that in making immovable apparatus with other substances in general use; but the neatness, lightness, firmness, durability, and the ease with which it is applied, render it preferable to gypsum in being lighter and not subject to renewal from cracking and breaking; in application, it is far more convenient than dextrine and glue, and in comparison with starch it is more tenacious and firm, and dries more rapidly. An extensive experience in the use of plaster, starch, glue, and dextrine, induces me, after a fair trial, to place it above these materials for general usefulness. In applying the dressing, the limb should be first enveloped in cotton-wadding to protect prominences of bone from undue pressure, to cause bandages to closely fit irregularities of surface, to absorb moisture, and, at the same time, to yield to any swelling which might occur. After the wadding has been well fitted, unglazed muslin should be used as a bandage, and to this, with the hand, or better, for economy, as well as neatness, with a painter's brush of moderate size, the silicate of potash should be thoroughly applied to this the first bandage. Another, the second bandage, should be then adjusted immediately over the first, and a liberal covering of the liquid glass be made; to give stability to the mobile parts, as at the seat of fracture and the joints, strips of muslin well soaked in the liquid, should be placed one over the other to the thickness desired and required, or pasteboard, felt, veneering of mahogany, cedar, pine, or other wood, may be added or substituted. The third and final bandage should be made to completely cover the second, with the strips of cloth, paper, wood, or other material, and then be saturated with the solution. If regarded necessary, to furnish additional strength and security from mobility, short strips dipped in the liquid substance can be applied to such parts as cause the apprehension, without enveloping

the entire limb in a fourth bandage. The dressing having been made, the limb should be kept at perfect rest until drying is shown in the hardness and solidity of the apparatus by immobility; the time for this condition depends upon the thickness and quality of the materials, and the quantity of the substance applied. With two or three layers of bandage, three or four hours will suffice; when five or six thicknesses, including paper, felt, or an absorbing material, are used, from eight to twelve. For the lower limb of an adult two and a half pounds of the liquid are sufficient, and half this quantity for the upper extremity. In the removal of this dressing, difficulties exist, as with plaster, starch, glue, and dextrine; hot water is an adjuvant, but fear of scalding forbids use unless with greatest caution. The scissors or knife, such as used for the removal of starch-bandage, is applicable in this; and in the event of the dressing becoming loose from congestion subsiding, by cutting out a portion and boring holes, it can be laced as a boot to fit the limb, or by bringing the edges together and placing a longitudinal strip, and binding this by short strips partially or completely encircling the limb, the apparatus is made as solid, firm, and immovable, as when first put on the part.

In compound fractures or in ulcers, by making a point upon the superimposed bandages, corresponding in shape and size to the injured or diseased parts, and cutting out the parts thus marked, the wound can be dressed, or by leaving a portion attached, a door over the fracture or ulcer can be made to open and shut as required. In œdema of the limbs, in chronic arthritis, in club-foot, and other deformities, in firmly-fitting bandages for reduced luxations, in fractures, simple, compound, and ununited, in sprains, in truth, wherever absolute rest is required and immobility should be maintained, I know this to be a superior method of dressing.

Six cases in detail are narrated in Dr. Darby's paper, showing most satisfactory results from the use of this dressing, and the opinions of other surgeons are collated, tending to confirm the same conclusion.

Dr. J. J. Mallory, in the August number of the Richmond and Louisville *Medical Journal*, reports a case of occlusion of the vagina with retention of the catamenia, for five years. The case somewhat resembles the one quoted in the last number of this Journal, and, like that, was relieved by an operation.

Vital Statistics of Rhode Island.—From the Sixteenth Annual Registration Report of this State, compiled by Dr. E. T. Caswell, we learn that the proportion of male to female children, born in the State of Rhode Island, for the year 1868, was as 106.5 to 100. This is slightly less than the ratio for the year previous, which has already been commented on in the JOURNAL, vol. xi., p. 330. The number of children born of foreign parentage was, as in the several previous years, greater than the number born of native parents.

During sixteen years—1853 to 1868 inclusive—there were recorded 62,041 cases of childbirth, producing 62,731 children, as follows:

61,364	cases	of single births,	giving	61,364 children.
664	"	twin births,	"	1,328 "
13	"	triple births,	"	39 "
				62,731

Among the colored population of the State there has been now, for three years, a steady diminution in the excess of deaths over births, and an increase in the number of marriages. The indications are, therefore, that this class of the people are recovering from the decline which had so long been manifest in their condition.

IN San Francisco recently occurred a case of sudden death, which, in a medico-legal point of view, was highly interesting. A boy ten years of age died suddenly, shortly after having been whipped by his father. The circumstances seemed sufficiently suspicious to warrant an examination by the coroner, and, accordingly, Dr. Bentley carefully examined the various organs, and finding nothing to account for death, removed the stomach in order to have its contents subjected to chemical analysis, and sewed up the body. The father had, in the mean time, been arrested, under the supposition that he had caused the death of the child. After completing the autopsy, from some singular afterthought, Dr. Bentley was induced to examine the larynx; he therefore reopened the body and removed that organ. Upon making section of the larynx, there was found a large bolus of beef quite filling its cavity, fully accounting for death, and completely exonerating the parent. It was learned subsequently, that the boy had eaten freely of beefsteak before going to bed. In the night he was roused from sleep by an attack of vomiting, during which a piece of

the imperfectly-masticated beef caught in the larynx, and produced suffocation.—*Pacific Medical and Surgical Journal.*

Another death from a similar cause occurred in the same city recently. The lad, however, was under the influence of chloroform at the time for the purpose of amputation at the shoulder-joint. He had, contrary to the doctor's orders, partaken of a heavy meal a short time previous to the operation, and a portion of the food being ejected by vomiting, lodged in the larynx, and produced suffocation in spite of every effort to prevent it.

The Bullet-Cure for Ileus.—The old remedy for colic, of a bullet or quicksilver taken into the stomach, has been revived, in a modified form, by Dr. Maydieu, of Argent, France. In the *Journal de Méd. Pratique*, Dr. M. declares that, after seventeen years of the ordinary treatment, in which he always failed, he has been invariably successful in the twelve cases which he has treated with *shot*. He mixes No. 5 shot, after careful washing, with olive-oil sufficient to cover them, and gives a dessertspoonful every half hour. In five or six hours the vomiting ceases, gases are expelled, and the bowels are moved. Warm baths, fomentations, and injections of milk-and-honey, are always supercadded. *A propos* of this treatment, we take the liberty of telling a little anecdote. Some forty years ago a travelling preacher in England was taken sick with colic, in the house of a kind old lady where he was spending the night. The good lady brought a bullet, which after warming she induced him to swallow. He was soon relieved from pain, and then began to reflect on the course of the bullet, and at last suggested to his nurse a doubt whether a body so heavy could find its way through the intestinal labyrinth, fearing that it would lodge there permanently. "You need not be the least afraid," said the lady, cheeringly, "for that very bullet has gone through me at least twenty times!"—*Pacific Medical and Surgical Journal.*

Results of the Injection of Parasitic Spores into the Blood of Animals.—The interesting discoveries of Hallier, Zürn, Chanveau, and Davaine, that there is contained in the blood in several contagious diseases numerous parasitic growths, known as micrococcus, mycothrix, leptothrix, etc., have stimulated further investigations in this comparatively new field, among the more recent of which are those of E. Semmer, Prosector at the Veterinary Institute at Dorpat, reported at length in *Virchow's Archiv* for April 16, 1870. His experiments consisted first in the repeated examinations of the blood of animals which had died of contagious diseases, with the view of de-

tecting therein any parasitic growths, and his results may be briefly summed up as follows:

In cases of glanders, micrococcus-cells and bacteridiæ are found in the blood, lymph, and pus, in animals which have died of this disease.

In charbon (malignant vesicle) and septicæmia, the blood is found to contain numerous micrococcus-cells, and bacteridiæ (micothrix and leptothrix), both in the form of simple filaments and also arranged together so as to form a chain, the latter growths having been long known under different names.

That these infusoria, having the form of slender cylindrical filaments, really are parasitic growths, was proved in the case of five pigs, which had died of septicæmia.

In the blood of these animals, the actual growth of the filaments from the micrococcus-cells was demonstrated under the microscope. The bacteridiæ seen in cases of charbon are, for the most part, shorter, more slender, and have a less distinct outline, than those found in septicæmia, where they vary in length, and consist of a single well-defined filament, and are, at the same time, less numerous than in the former disease.

These filaments, however, are not always of the same form, even in charbon, for here also variations are noticed, so that, at times, the parasitic growths in this disease resemble both in form and size those found in septicæmia.

These parasites, moreover, are found in other diseases characterized by blood-poisoning, and even in the blood of some healthy animals a few micrococcus-cells (penicillium glaucum) have been found, and in other cases both leptothrix and micrococcus (bacteridiæ) have been seen in the liver and intestines.

In order next to determine whether the contagious diseases above referred to are really caused by the parasites found in the blood, the author has tried a series of experiments, with the following results:

Penicillium-spores, of the size of a red-blood corpuscle, were mixed with distilled water, and then injected by means of a small subcutaneous syringe into the jugular veins of two colts. The animals remained perfectly well, however, after the injection.

Several weeks later micrococcus-cells were injected into the same animals, and here again the injections were not followed by any symptoms of disease.

Injections of anthrococcus-cells were likewise followed by negative results.

A second series of injections was next made with large masses of the spores of penicillium glaucum. In these cases, slight feverish symptoms were created, which soon disappeared, however, and, upon an examination of the animals after they

had been killed, all the organs and textures of the body were found to be quite normal.

The author next injected bacteridiæ from the blood of an animal affected with charbon, using, in this instance, a bottle with a glass tube attached, as recommended by Hallier.

The spores of this parasite were put into distilled water, and a few drops of this mixture were then forced into the jugular vein of a colt. At the end of five days the animal remained, to all appearance, quite well.

Five days after the first injection, two ounces of the same fluid, containing bacteridiæ and micrococcus-cells, were thrown into the jugular vein of the same animal, by means of a large syringe, armed with a small needle-like cannula. This was followed by symptoms of fever, without loss of appetite, and the animal appeared soon to recover. On the tenth day after the inoculation, however, fever again set in, the appetite failed, the animal exhibited an unsteady gait, and died during the night.

The following was the result of the autopsy:

In the neck, around those spots where incisions had been made for the purpose of injections, the connective tissue was thickened and infiltrated with serum, exhibiting here and there ecchymosed patches. The jugular vein was filled with a dark-colored blood of the consistence of tar, but otherwise not changed. Lower down on the neck there was well-marked serous infiltration in parts remote from the point of injection.

On the left shoulder there was extensive extravasation of blood beneath the superficial integument, involving the connective tissue, and extending down beneath the muscles. In the abdominal and thoracic cavities and pericardium slight serous exudation. Numerous ecchymosed patches in the peritonæum, intestines, pleuræ, heart, and lungs. Spleen enlarged, friable, and gorged with blood. Liver of a yellowish-brown color, and the microscope showed beginning fatty degeneration in this organ. Kidneys studded with large, yellow, hardened and congested masses; while fatty degeneration of the epithelial cells of the uriniferous tubules communicated a yellowish-gray color to these entire organs. Lymphatic glands enlarged, softened, and several were of a brownish-red color, caused by extravasation of blood. Braid and spinal cord infiltrated with serum, while the minute blood-vessels were distended with blood. Ventricles filled with a clear, colorless liquid. The blood was everywhere of a dark-brown color, of the consistence of tar, and contained large numbers of parasitic growths characteristic of charbon.

Here, then, charbon was produced in a colt by the injection of parasites taken from the blood of animals affected with

that disease. In this instance the symptoms broke out on the ninth day after the injection, death occurring on the tenth day.—*Dr. A. H. Nichols, in Boston Medical and Surgical Journal.*

The epidemic of small-pox in Paris has very materially declined. The deaths for the week ending August 3 were 151.

Sir Thos. Watson has been appointed Physician-in-Ordinary to her Majesty Queen Victoria, *vice* the late Sir James Clark.

The College of Pharmacy of the City of New York will commence its forty-first annual course of lectures on the 3d of October, and continue until March next. The branches taught are chemistry, materia medica, botany, and pharmacy, in their relation to the wants of the pharmaceutist.

The necessity for the more extended education of our dispensing apothecaries is almost every day apparent, and physicians have it in their power to compel this education by refusing their patronage and recognition to such as are not so educated. We are informed on most excellent authority that the proprietors of many drug-stores withhold permission from their young clerks to attend the evening lectures of this college on the distinct claim that the physicians take no interest in the elevation of the professional standard of the drug-clerk. The proprietor, therefore, will not lose the services of his clerk when there is nothing to be had in return, and he will continue from merely commercial motives to employ the cheapest possible help. If the medical profession will only change their attitude toward the druggist, it will then become the shopkeeper's policy to afford his clerks every possible opportunity for self-instruction, and to secure the best educated for his assistants.

The aim of the institution is to furnish competent and well-educated pharmaceutists, and in this effort it deserves the support and encouragement of all our physicians. Every possible facility is offered by the college for students who desire to perfect themselves in the profession of pharmacy. The lectures are held at the University Building, corner of University and Waverley Place, the Faculty consisting of Profs. E. R. Squibb, Charles F. Chandler, and W. De F. Day.

THE LATE SIR JAMES CLARK, BART., M.D.

(See page 119, August, 1870.)

NEW YORK

MEDICAL JOURNAL:

A MONTHLY RECORD OF

MEDICINE AND THE COLLATERAL SCIENCES.

VOL. XII.] NOVEMBER, 1870. [No. 4.

Original Communications.

ART. I.—*Syphilis of the Nervous System. A Clinical Study,*[1] *chiefly in regard to Diagnosis and Treatment, founded on the Cases of* Prof. WM. H. VAN BUREN, M. D., with those of the Author, E. L. KEYES, M. D., New York City.

THE object of this paper is to endeavor to bring out more prominently before the profession some points of practical importance within the domain of nervous syphilis, which do not yet seem to have been sufficiently insisted upon in the works specially devoted to that subject, and which hardly appear at all in the ordinary text-books on syphilis. The points to which I have reference relate chiefly to diagnosis and treatment.

I have been following up the subject of the nervous forms of syphilis for several years past under the direction of Dr. Van Buren, and it is from his note-books that most of the cases, which I shall make use of, have been drawn. It is due to Dr. Van Buren to state that my attention was directed by him toward observing most of the special points to be brought out in what follows. Of the cases forming the basis of my re-

[1] Read before the New York Medical Journal Association, Friday, October 14, 1870.

marks, some were under the eare of Dr. Van Buren exclusively (the earliest case is dated 1850), other cases are my own, while others again have been observed by us jointly. I must further premise that no hospital patients are ineluded in the following statement. All the cases have been seen and treated in the course of private praetiee, or encountered in consultation with other physieians. Henee, most of those patients, who are still alive, are aceessible, and their aetual eondition to-day is known.

The whole number of cases of nervous syphilis, from which I have to draw, is thirty-four; a number suffieiently large, eonsidering the comparative rarity of the disease. Many of these cases presented several nervous symptoms due to syphilis at the same or at different times. Classified aeeording to the most prominent symptom, there were—fourteen cases of hemiplegia, nine of paraplegia, four of epilepsy, two of facial paralysis, one of paralysis of bieeps and deltoid, and four of intellectual derangement.

From this general outline of the more prominent nervous symptoms, it will be notieed that fourteen out of thirty-four—more than two-fifths of the whole number—were eases of hemiplegia, a proportion larger than what is usually met with. Among one hundred and twenty cases of syphilitie paralysis, collected by Ladreit de la Charrière,[1] hemiplegia oeeurred in only thirty-three. About one-quarter of the thirty-four eases were paraplegie, a proportion whieh I believe also to be rather large.

Result at the date of writing.

Recovery	11
Arrest of the disease, with improvement sufficient to allow the patient to continue business	5
Doing well, still under treatment	5
Death	7
Unknown	6

In the following reports of eases, for the sake of brevity, I have endeavored to suppress all details of minor importance:

Case I.—(First seen in July, 1856.) ——, aged twenty-nine, a pallid and delicate young man, had drunk to excess until he was twenty-four years old. In December, 1855, he contracted chancre, for which, and the erup-

[1] Rollet, Traité des Maladies, Vénériennes. Paris, 1866, p. 930.

tions which followed, he had received no systematic treatment. About six months after infection, having at the time groups of syphilitic papules interspersed with scaly patches upon his body, he began to complain of severe headache on the right side of his head, worse at night. Symptoms of mental disturbance came on with his headache, and gradually increased in severity. He would commence a sentence and not finish it, suddenly changing the topic. He would assert that absent friends and relatives, some of whom were dead, were present, and would address them. He manifested curious defects in memory, such as, on one occasion, while out walking, insisting upon returning home to a house occupied by his family three years before. He became stupid, silent, and sleepy, always complaining of his head, and his temper increased in irritability.

With these premonitory symptoms he awoke one morning, six weeks after the beginning of his headache, and attempted to get out of bed as usual. Sitting upon the edge of the bed, he endeavored to make a step forward upon the floor, but fell in a heap into the opposite corner of the room, without, however, losing consciousness. He was found by his brother, unable to rise or to articulate distinctly, with complete paralysis of the left side. Paralysis of the left side of the face had been noticed by his friends ten days before the hemiplegia occurred, and was worse then than during the attack.

After some hours (having been meantime cupped on the temples and nape, and a vain attempt to purge him having been made), he was found asleep in a semi-stupid way; but he answered questions promptly, although not always to the point. The tongue when protruded turned toward the paralyzed side. Sensation was perfect, and there was slight motion of the leg. The pupils were alike. There had been no loss of consciousness during the attack.

In this case, mercury was pushed to salivation, with rapid improvement at first, which, however, soon became arrested. After six weeks, considerable paralysis still remained. The iodide of potassium was never given in greater doses than five grains.

The patient became well enough to get out; but the leg never recovered as much motion as the arm. A marked impairment of the intellect remained—a condition of hebetude and stupidity, added to a state of childish simplicity. As nearly as the subsequent history could be gained, he died a few years afterward in a private ward of one of our hospitals, from what on inquiry was spoken of as "softening of the brain."

In this case the mercury had not a sufficiently powerful effect to prevent permanent injury to the nerve-tissue at the time of the occurrence of the hemiplegia, and the iodide of potassium was not commenced early enough, nor pushed with sufficient vigor.

Case II.—(First seen March, 1866.) ——, aged sixty-one ,contracted chancre in January, 1866, followed by iritis and eruptions, and treated with mercury, later with the iodide of potassium. He never rallied well, however, but had an eethymatous eruption, and, ten months after, an attack of right hemiplegia, which came on in the night without loss of consciousness. His mind was clear, though his speech was thick. For six weeks previous to the attack, he had been suffering from constant severe headache, worse at night. On the evening of his attack, he first noticed numbness in the right arm, then a thickness in his speech. The hemiplegia was not fully developed until the next day. Mydriasis existed on the right side. The tongue protruded to the right side. The patient had been purged, blistered, and leeched on the nucha at first. As soon as he was seen (three days after the attack, November, 1866), the iodide of potassium was administered, and continued at between five and ten grain doses, with improvement for a few days. But the improvement was slight, and recovery never fairly set in. As was afterward learned, death occurred in a few months, and no *post mortem* was obtained.

This case was grave from the first. The symptoms were progressively more severe. Perhaps the extreme age of the patient (sixty-one) contributed toward making the disease so rapidly fatal.

Case III.—(First seen in October, 1867.) ——, aged twenty-eight, contracted chancre at twenty-one, followed by eruptions. Eighteen months after infection, being apparently in good health, he went out one day to shoot blackbirds, and lay down beside a fence waiting for a shot. He presently saw a bird, raised himself to the sitting posture, and shot it; but, on attempting to get up and go after the bird, he found that his left leg was paralyzed. The paralysis proved slowly progressive, and in twenty-four hours complete left hemiplegia was established, there having been no moment of loss of consciousness.

No efficient treatment was adopted for about five years, and atrophy, with contraction of the muscles of the arm, was the result. The leg participated to a slight degree in the contraction. In this condition, he came to New York. The leg and arm were found as described. Sensation was unimpaired. Intelligence perfect. The testicle was enlarged, and several syphilitic ulcerations existed on the legs. The patient also was very thin, and much reduced in general health and strength.

Under the use of mercury, and increasing doses of iodide of potassium, assisted by electricity and cod-liver oil, the patient improved greatly in every respect, gaining some twenty-three pounds in a few months, and getting back a good deal of strength and motion in his arm and leg; but early in the spring of 1868, an old ague cropped out upon him. He could not take his medicines. His arm recontracted, and he gradually sank, and

died during the same summer at his home in the South, diarrhœa being a prominent symptom.

Case IV.—(First seen November, 1859.) ——, aged forty-nine, contracted chancre, followed by sore-throat and specific eruptions, in 1857. He took mercury and remained well for about a year, when he began to feel pain across the back of the head (not worse at night), sometimes accompanied by giddiness. He now had an epileptic convulsion in the night, and another in a week, in the daytime. He had never had convulsions in his youth. After these attacks, he became stupid and queer, and his memory showed decided impairment.

He was put upon five-grain doses of iodide of potassium three times daily, and had no more fits. He was awakened one night in about a week by a queer feeling, but slept again without further disturbance. He now considered himself well and returned to his home in the country, but came back after six months with the amnesia more marked and some paralysis of the right side of the face. The iodide of potassium was resumed, for he had left it off, and continued at a dose of eight and a half grains for a month, when the patient reported himself perfectly well and went home. He has not been heard of since.

Case V.—(First seen March, 1856.) ——, aged forty-nine, contracted chancre in February, 1856, followed in one month by rheumatic pains (not worse at night), and during the second month by total facial paralysis of the right side, attended by constant slight headache, accompanied with dizziness and depression of spirits. Shortly after this, a general papular eruption appeared with induration of the inguinal, epitrochlear, and post-cervical glands. Ten-grain doses of iodide of potassium dissipated the paralysis shortly, and no return of nervous symptoms occurred. The patient was lost sight of some time afterward.

Case VI.—(First seen December, 1862.) ——, aged thirty, a perfectly-healthy man, contracted chancre with indolent bubo, which was followed by sore-throat, osteocopic pains, headache, and a general specific eruption, and, eight months after infection, by paralysis of the bladder, shortly succeeded by paraplegia, to which no other than a syphilitic origin could be ascribed. Treatment continued for three years, consisting of mercury and iodide of potassium, failed to effect a cure, but produced enough improvement to allow the patient to continue his business and to get around without much difficulty. The disease made no progress, but the damaged cord remained permanently impaired in function.

Remarks.—I have grouped these six cases, seemingly without order, not for the purpose of studying the symptoms (which I will take up farther on), but to call attention to one point, common to all of them, namely, the early date in the general malady at which the symptom occurred. The periods after infection, at which the nervous symptom in question in

these six cases appeared, were respectively eight months, ten months, eighteen months, twelve months, two months, and eight months; while the nervous manifestations under which the patients labored were hemiplegia, paraplegia, epilepsy, facial paralysis, intellectual aberration, mydriasis, etc.

The characteristic features of these cases are clearly those laid down for syphilis, and no reasonable doubt of the diagnosis can exist. The hemiplegia occurred without loss of consciousness in all the cases (I shall lay special stress upon this point farther on). Its advent was gradual in two of them. It came on before the age of forty in two of the cases (twenty-one and twenty-nine); in the other the patient did not get his chance till he was sixty. Specific eruptions had existed in all, and constant severe fixed headache had preceded the attack by several weeks in two of the cases. Mydriasis existed in one, and in the other two special mention is made of the fact that sensation was not abolished with motion. All these conditions seem to be the rule with cases of syphilitic hemiplegia.

As for the epileptic patient (Case IV.), the case is a typical one. The patient was forty-nine years old, and had never had convulsive attacks before. Idiopathic epilepsy occurs in early life, almost always before thirty. The rule is reversed for syphilitic epilepsy. Beau's statistics of two hundred and nine cases of idiopathic epilepsy give one hundred and seventy-seven before thirty. Of sixty-six cases observed by Bouchet and Cazauvielh, fifty were under twenty years of age; while, on the other hand, of thirteen cases observed by Gros and Lancereaux,[1] of syphilitic epilepsy, ten occurred at about the age of thirty; and, among forty-three others observed by Jaksch,[2] only one occurred before the age of thirty.

The occurrence of headache before the attack was held by Moreau to be of value in deciding the syphilitic origin of epilepsy, and Gros and Lancereaux[3] agree with this statement. The continuance, or rather aggravation, of the stupidity and general condition of *malaise* between and after the attacks, a

[1] Gros et Lancereaux, Des Affections nerveuses syphilitiques, Paris, 1861, p. 85.

[2] Lancereaux, Traité de la Syphilis, Paris, 1866, p. 450.

[3] *Op. cit.*, 492.

point first alluded to by Vidus Vidius, is considered by Maisonneuve [1] to be pathognomonic of a syphilitic cause for a given epilepsy.

In Case IV., too, the attack came on in the night; but this sign, considered of so much value by Franck, has been proved to be unreliable for determining the specific character of an epileptic attack. But the local paralysis following the attack is very suggestive of syphilis, and the speedy relief afforded by the iodide of potassium makes out the case beyond a doubt.

Of the facial paralysis of Case V., I have nothing to say, except that none of the usual causes of paralysis of the portio dura were present, that pain in the head preceded the attack, and that a specific eruption shortly followed.

As for the diagnosis in Case VI., the patient was young and in seemingly excellent health before the acquisition of his chancre, and no other cause for his paraplegia could be made out.

All the nervous symptoms presented by the six cases I have detailed may be said to have been unusually precocious, except the facial paralysis. This latter, when it occurs alone, is observed early in syphilis as the rule. Bassereau and Vidal (de Cassis) have each left on record two cases where it occurred within the first few weeks after infection, and the number of cases reported to have come on within a few months after the chancre is not small. Several new cases have recently been placed before the profession by Dr. Alrik Ljunggrén,[2] in an interesting article devoted to the consideration of the forms of nervous syphilis, which occur early in the disease. A good many cases are given, but no autopsies were furnished. The author considers cerebral congestion, caused by the syphilis, to be the pathology of these earlier nervous manifestations.

The chief of the other symptoms — hemiplegia, paraplegia, epilepsy—all belong decidedly to the later manifestations. Occasional cases of hemiplegia have been reported as early as six months after infection, by Zambaco, Ricord, and others, as well as of paraplegia; but the former

[1] Quoted by Rollet, *op. cit.*, p. 930.

[2] Klinische Beobachtungen über visceral Syphilis. Archiv. für Derm. und Syph., No II., 1870, p. 141.

rarely appears before two or three years,[1] or the latter before from three to five years.

As to epilepsy, I quote from Rollet: "Epileptiform attacks are among the later symptoms of syphilis. The interval between the primitive chancre and the epilepsy has never been less than one year."[2] In the case I have recorded the attack came on just after a year.

Now, as none of the three fatal cases afforded autopsies, what was the probable lesion? Were they cases of paralysis *sine materiâ?* And this suggests a third question. Is there any constancy of relation between the nature, the severity, and the situation of the lesion in syphilis, and the nature, the severity, and the situation of the nervous symptom caused by it?

I think the last question can be decidedly answered in the negative. For, although a gummy tumor in an optic thalamus or a corpus striatum will give rise to a hemiplegia of the opposite side, yet a syphilitic pachymeningitis may occasion the same symptom, as may also an internal exostosis of the bones of the skull, or even a peripheral gummy tumor or a purulent collection under the dura mater, connected with necrosed bone; yet, again, a convulsion, or some other nervous symptom, may be caused by many, if not by all, of these same lesions—in proof of all of which assertions I might cite cases did time allow. Although in a given case certain symptoms connected with the paralysis may make this or that situation of the lesion the more probable, yet nobody, who has seen or read the account of any number of autopsies, can claim a *constancy* of relation between the nature of the lesion and its situation in syphilis, and the nature and situation of the symptom to which it gives rise.

As to the relation between the severity of the lesion and that of the symptom, that point may well be considered along with the second question—of syphilitic paralysis *sine materiâ.*

A few cases will, I think, show the impossibility of certainly predicting the lightness or severity of the lesion from the lightness or severity of the symptoms.

[1] Rollet, *op. cit.*, pp. 927, 932.

[2] *Op. cit.*, p. 929.

In Botal's case,[1] the only nervous symptoms were headache and amaurosis, while the autopsy revealed a disorganization of the brain, "corruptum et cerebrum et nervi optici." In the case of Duhamel and Legraud, obs. 97, Lagneau fils, where headache with nocturnal exacerbation was the only nervous symptom, the autopsy showed carious perforation of the ethmoid plate, pachymeningitis over the anterior lobes of the cerebrum with points of calcification in the dura mater, the brain-substance hardened, hypertrophied, changed in color, and adherent in front.

But most striking of all is the case of Gama, obs. 87, Lagneau fils, where, although the syphilis caused fearful ravages in the way of necrosis of the bones of the face and nose, including the ethmoid, yet severe pain in the head was absolutely the only nervous symptom, and the patient died, having "preserved the use of all his movements and of his intellectual faculties." On *post mortem*, the frontal bone was found carious in an areolar manner. The most altered points of the bone internally corresponded with little erosions of the dura mater, from which pus flowed. An incision through the dura mater gave exit to about four ounces of pus, with which fluid the cerebral hemispheres were covered. Of the cerebral arachnoid there were only a few black shreds left, while the cranial reflection formed a sort of black pulp on the surface of the dura mater. The pia mater tore off in pieces, and the whole surface of the cerebral hemispheres was of a greenish-black for a depth of two or three lines. A portion of the front of the left hemisphere was putrid, and the cerebral lobes all softened. The cerebellum was similarly affected, but to a less degree.

For the other side of the question, the syphilitic paralysis *sine materiâ*, there are scores of observations. Rodet[2] gives two cases of autopsies made on syphilitic hemiplegics, where no lesion of the nervous centres or their envelopes could be found. Zambaco's 73d observation[3] is another, where the

[1] Obs. 3, Gustave Lagneau fils. Maladies syphilitiques du Système nerveux. Paris, 1860.

[2] Gaz. Méd. de Lyon, 1858.

[3] D. A. Zambaco. Des Affections nerveuses syphilitiques. Paris, 1862.

patient became hemiplegic in the seventh month after infection, yet the autopsy revealed nothing. Folin [1] gives a similar case with a similar result at six months. Gjör, obs. 60, Gros et Lancereaux, tells of a syphilitic woman of thirty-one, who became paralyzed in the right arm, then in the right leg, and finally on the left side as well, while the autopsy showed nothing abnormal in the brain, the cord, or elsewhere.

Delaunay tells of one of Ricord's patients of 37, obs. 86, Gros and Lancereaux, who, during a pustular syphilide in the sixth month after infection, suffered from an attack of right hemiplegia, without loss of consciousness, and after improving a little died in a month, with sudden aggravation of the paralysis. The autopsy revealed absolutely nothing. This case occurred early after infection; but Ricord gives a case in his Clinique Iconographique (obs. 78, Gros and Lancereaux), where a woman of thirty-seven, five years after infection, had ringing in the ears, diplopia, paralysis of the third pair on the left side, followed by enfeeblement of the left side, amounting to hemiplegia, with loss of memory, impairment of intelligence, insanity during one month, all of which symptoms were calmed by the iodide of potassium; but, the patient dying suddenly of cholera, the brain with its envelopes and the bones were all found perfectly healthy. Ricord [2] lost another patient affected with permanent hemiplegia and presenting all the symptoms of cerebral softening, yet not the slightest lesion could be discovered at the autopsy.

Tarnowsky,[3] who has collected all the cases of syphilitic aphasia, which had been recorded up to 1868 (fifty-six cases), in a work full of erudition, has only one among the many autopsies of syphilitic aphasics, where there was no lesion to be found (case of Delaunay quoted). The patient had right hemiplegia and aphasia six months after his chancre. Tarnowsky quotes another case, occurring at six months after chancre (case of Engelstedt, quoted), of left hemiplegia with aphasia, where the only lesions found were a slight meningeal hyperæmia, and a little bloody serum in the ventricles. It is

[1] Quoted by Rollet, *op. cit.*, p. 913. [2] Gros et Lancereaux, p. 13.
[3] Aphasie Syphilitique. Paris, 1870.

perhaps needless to add that, where lesions were found, the third convolution of the anterior lobe on the left side was not always involved.

The first and thirtieth of the "conclusions" of Gros and Lancereaux read as follows:

I. "Nervous affections may be developed during any period of constitutional syphilis."

XXX. "Nervous affections without appreciable lesion may arise in all the periods of syphilis."

From what I have been able to gather, however, the majority of autopsies, which have shown no lesion, were made upon cases where the nervous symptoms appeared at an early period of the general malady; but that they also occur later, Ricord's case at five years is a proof.

To explain these cases of paralysis *sine materiâ*, which of the many theories that have been advanced shall we accept? Shall we agree with Virchow and Ricord that positive lesions probably did exist, but had been removed by treatment before death, so that no discernible trace was left behind? If death occurs a long time after the disappearance of the paralysis, well and good; but, although it is unbecoming to doubt such high authority on merely plausible grounds, yet it is hard to believe that, where the paralysis is progressive and kills the patient in a month (as in Delaunay's case), treatment has been able to dispose of the lesion, without some corresponding amelioration in the symptoms. Or is it that the lesion is some mysterious, undiscoverable change in the nerve-cells and tubes? The hypothesis does not seem so plausible as some others. Or is it that the blood is poisoned by the virus, and the symptoms produced by that virus without any material change in the nerve-tissue? This theory sounds more rational than the last one; but, if it were true, we ought to have these nervous phenomena occurring more frequently in those cases where there is every reason to suppose the quantity of that virus to be excessive, as in those severe malignant forms of syphilis where the late cutaneous symptoms appear during the first few months, and the patient seems saturated with the poison—the *syphilide maligne précoce* of French dermatologists—but this does not seem to be the case. Is it a chlorotic

state of the blood, as has been advaneed? The majority of patients with syphilitic ehlorosis are not affeeted with serious nervous symptoms. Shall we adopt the ingenious theory of Knorre, or that of Zeissl, that efflorescences on the pia mater may coincide with the earlier cutaneous lesions, and like them disappear after death, or that the pia mater is subject to an eruption like that which we see in syphilitic punctiform iritis? These theories are by no means as simple nor as easily accounted for as eerebral congestion, partial or general, and this it seems to me is probably often the cause of the paralyses *sine materiâ*.

Of the autopsies, whieh I have been able to find, where no lesion was discovered, the majority of the patients had suffered from their nervous manifestations early in the general malady, before it was likely that serious organic lesions would have oecurred and when congestion was the general habit of the disease—as shown in the earlier exanthematic eruptions, especially roseola, which leaves no trace behind after death. The eongestions which are sometimes seen on the conjunctiva in syphilis, sometimes preceding inflammation, sometimes subsiding without inflammation, form another support by analogy. A syphilitic eongestion of the liver has been admitted by Gubler.[1]

In favor also of the probability of eongestion of the brain from the poison of syphilis, we have the analogy of the gouty poison and of urea in the blood producing a similar effect.

Henee, it seems probable that congestion is the pathology of many cases of nervous syphilis whieh occur early, or, carried a step higher, aetual inflammation, in the form, perhaps, of pachymeningitis.

HEMIPLEGIA.

Case VII.—(First seen May, 1869.) ——, aged twenty-three, contraeted chancre at twenty (1866), followed by a general eruption, with osteocopic pains, which got well under mercury. In December, 1868, two and a half years after infection, he was attacked with constant headache, worse daily at 5 P. M. Six weeks after the commencement of the headache, he felt one morning a tingling and weakness in the left hand and arm, which passed off quickly, but returned five times during the day, leaving

[1] Quoted by Gros et Lancereaux, *op. cit.*, p. 144.

no trace behind until the last time, when he fell, without loss of consciousness, and found himself suddenly paralyzed on the left side. Under mercury and the iodide of potassium he improved slowly for four weeks, so that his face became well and his leg nearly so, but the arm and hand contracted and remained almost powerless. Both legs now became a little weak, and the bladder lost some of its expulsive power. Left mydriasis existed, and a gummy tumor on the dorsum of the left foot. Every few weeks this patient would suffer a slight relapse in the way of a more positive feeling of weakness in both his legs and in his left arm, and these relapses could always be predicted by him, from noticing a congestion of both conjunctivæ some hours before. (I observed this phenomenon personally several times.) He complained also of a feeling of lightness in the legs, as if his body ended at the waist, and was swaying in the air. Slight constant headache was still complained of. He was put upon rapidly-increasing doses of iodide of potassium, but it was not until the dose reached one hundred grains, three times daily, that the gummy tumor on his foot disappeared, and positive improvement in his nervous symptoms was evident. The iodide was held at this dose for several weeks. Mercurial inunctions were employed during a portion of the time, and a little mercury internally during another portion. An abundant crop of acne was the only sign of iodism. He improved sufficiently to resume his trade as a piano-polisher, but his legs never recovered their original strength, and his hand and arm failed to respond to treatment beyond a certain point, which left him with but little use of the member. The headache, however, got better, and finally, when improvement ceased, the iodide was suddenly discontinued for a few days, without bad effect, and then resumed, to be given up gradually. When last seen, some months afterward, he was in a condition of *statu quo*, following his trade. The iodide of sodium was substituted at one period of the treatment for the iodide of potassium, in a slightly-diminished dose, but the effect did not seem to be as good. Iron and strychnine were used during the treatment at intervals. The intellect was only noticeably touched, in that the patient seemed to think slowly. He always appeared to deliberate a little over a question before he answered it, and then to speak slowly. He had been absent from his wife during the early part of his treatment, but joined her again, and stated that his sexual power and appetite had not diminished.

Case VIII.—(First seen May, 1870.) ——, aged thirty-four, had chancre in 1863, followed by sore-throat and eruptions. Nodes on tibia in 1865, with violent pain in the head, worse at night. In 1869 his wife was delivered of a dead child at term, said to have been strangled by the cord. Later in the same year a severe neuralgia of the right arm came on, lasting three weeks. In November, 1869, he had a sudden attack of left hemiplegia at night, without loss of consciousness, and attended with thickness of speech. He was in bed, but awake, at 2 A. M., and, in passing his left hand over his face, he noticed a strange feeling of numbness in it, which seemed to increase. He awakened his wife and tried to get out of bed, but fell upon

the floor, and found himself paralyzed on the left side. The hemiplegia passed off entirely in three hours, leaving only a little increased weakness and nervousness behind. In April, 1870, he had an attack of aphasia in the daytime, which passed off in a few minutes. It recurred again in May, and passed off in the same way. With the first attack of aphasia came neuralgia in the left arm and paresis of the bladder, both worse at night. Memory had been gradually growing more and more defective; he has had also, at different times, about a dozen attacks of vertigo, a sudden feeling of dizziness, which causes him to put out his hands against the wall for support. His condition had never been thoroughly appreciated, nor had any systematic treatment ever been carried out, but iodide of potassium had always benefited him. He has improved slowly, but positively, in all respects, under large doses of the iodide of potassium, with a little mercury, and is still under treatment.

Case IX.—(First seen October, 1864.) ——, aged thirty-nine, had chancre, followed by sore-throat and eruptions at thirty-two (in 1857), and later an exostosis involving the upper margin of the right orbit. This exostosis remained, and occasionally afterward became the seat of pain, extending over the whole side of the head, and giving the sensation of pressure on the brain. In November, 1865, he lost sight suddenly in one eye, as he said. (This was probably a symmetrical lesion in both retinæ, as half the field of vision was blank.) He experienced a sensation of pressure on the top of his head, numbness of the tongue, aphasia, and partial left hemiplegia. In January, 1866, a node appeared on the top of the head, just to the left of the median line, attended by constant headache, which a hundred grains daily of the iodide of potassium, continued for six weeks, failed to relieve. Among his other symptoms at this date may be enumerated twitching and numbness of the right hand and forearm, right mydriasis, despondency of spirits, and impairment of sexual power. Tonics and mercurial vapor-baths were followed by improvement. In November, 1866, he had the same symptoms as a year before, sudden loss of sight, tenderness on pressure on the top of the head, partial loss of consciousness and of speech, but this time no hemiplegia. The attack passed off quickly without the use of specifics. Small doses of iodide of potassium with the biniodide of mercury now relieved his headache decidedly. The cranium seemed to be permanently thickened. Mercurial vapor-baths at about this time appeared to relieve the headache, but constant attacks of dizziness occurred, for which the patient was advised to give up the use of tobacco, go into the country, and take a mixed internal treatment in place of the baths. When last seen, in April, 1867, he was continuing his mixed treatment, but was running down a little. His mydriasis still persisted. Dr. Agnew found the retinal veins tortuous and varicose, suggesting obstruction (congestive or otherwise) in the cranial cavity along the course of the return channel of blood from the eye.

This patient is an example of the inveterate sort of nervous syphilis,

which treatment seems to have but little effect upon. He was lost sight of after his last visit, and his present condition is unknown.

Case X.—(First seen October, 1869.) ——, aged thirty-nine. Date of chancre uncertain. Seven years ago the patient had a general eruption, which got well after "taking pills" for six months. When first seen, ulcerations of a distinctly syphilitic character existed upon the legs, and numerous old cicatrices, whose smooth surface, round form, pigmented circumference, and whitening centres, were no less characteristic. There was also a node on the left femur. When first seen, the patient had already had two attacks of almost entire loss of speech, which had greatly improved under specific treatment. He had been taking medicine for three years previously for partial hemiplegia of the left side, and partial paralysis of the tongue, which made articulation difficult. In October, 1869, while taking half a drachm of iodide of potassium daily, his speech began to get worse, and he complained every morning of a severe pain in the back of his head. A week after the headache had set in, he came home one night at 11 P. M., unable to articulate a word, and sank gradually into a state of stupor, which attained its height in about eight hours, but never reached actual unconsciousness. He had slight mydriasis. He tried to say the word "no," but failed, and had to indicate affirmation and negation by the appropriate motions of the head. Sensation was blunted but not abolished. There was retention of urine, although the expulsive power of the bladder was unimpaired. A catheter was introduced, but it was quickly forced out by the stream, and more than a quart of urine followed, the presence of which had been unnoticed by the bladder. During the day, the patient came out of his stupid state into a condition of acute mania, with partial paralysis of the right side. Mercurial inunctions were administered, and he took ten grains of iodide of potassium every three hours. He rapidly improved, and in a week had lost most of his aphasia, and had become perfectly quiet and rational. The hemiplegia improved, but loss of memory was marked, and the pain in the head continued in spite of one hundred grains of iodide of potassium daily. Improvement continued, and the dose of the iodide was gradually diminished. Early in December, 1869, the headache became suddenly aggravated, and, on the fourth day, the patient, having just returned from a walk, while standing in his room, was suddenly seized with convulsive motions in the right arm and leg, and imperfection in his speech, and in a few minutes was paralyzed on the right side. Consciousness remained, but intelligence almost disappeared. Occasional slight convulsive movements occurred in the paralyzed members, which, when not convulsed, were relaxed. There were retention of urine and mydriasis, as in the previous attack, and acute mania set in with reaction as before. This attack passed off in a few days under mercurial inunctions and one hundred and twenty grains daily of iodide of potassium. The paralysis nearly left him, but headache and mydriasis continued as before. He had next a slight relapse in the way of complete

paralysis of the right hand and twitching motions of both sides of the face, but this time his speech was not troubled, his intelligence was perfect, nor did he pass through any maniacal stage. The dose of the iodide was now run up to one hundred and eighty grains daily, and the headache disappeared entirely for a time, while the general condition became greatly improved. But the stomach began to show irritation under these large doses, and the appetite ran down; consequently, the dose was reduced a little. The headache returned, and, early in January, 1870, the aphasia reappeared, and there were some convulsive movements in the fingers. The iodide was now at once run up to one ounce daily, and the nervous symptoms and headache again disappeared, and the patient remained comparatively well, up and about, without any headache for six weeks, until the middle of February, when a general sinking came on, attended with tremulous motions of both sides of the body, which progressed nearly to unconsciousness. After five or six days, reaction set in with acute mania, mydriasis disappeared, there was no paralysis on either side, a constantly-increasing debility overcame the patient, and he died, intelligence returning, but not fully, before death. The iodide was discontinued seventy-two hours before death, but no change in the symptoms ensued. Profuse acneic eruptions were the only signs of iodism. During all the treatment, nourishment was pushed and tonics given interruptedly. Unfortunately, no *post mortem* was allowed.

Case XI.—(First seen November, 1863.) ——, aged sixty-three. Date of chancre and early eruptive symptoms uncertain. In 1859, paralysis of the portio dura had come on, and been cured by the iodide of potassium. For some years past, he has complained of a "misery" on the left side of his head, always worse at night, and always relieved by the iodide of potassium. He had, also, when first seen, a severe pain over the eyes.

Iodide of potassium was given in five-grain doses, but no relief was obtained until two or three mercurial vapor-baths had been taken, and an acneic eruption had been produced by the iodide, upon which the headache entirely disappeared. He remained well for a year, when his headache returned at intervals, and he began to run down and have a poor appetite. The mental condition was one of despondency. He was taciturn, indifferent to natural appetites, and desired to die. He was morose, had a defective memory, and difficulty in fixing his attention. Mercury, in the shape of vapor-baths, and internally with quinine, relieved the headache, as soon as the mouth became a little tender, and then a mercurial vapor-bath soon brought him to a happy, healthy condition, where he remained for six months. Late in the fall of 1865, he returned with some uneasy feelings on the left side of the head, which were relieved shortly by a few mercurial vapor-baths, and the mixed treatment internally. He now disappeared again for six months, as he always did on getting the better of his troubles. He never continued a mercurial treatment for more than three weeks at a time. In May, 1866, he was suddenly stricken in the early

morning with hemiplegia on the right side, without loss of consciousness—although his mind at the time was much obscured. He was found by his daughter lying on the floor in the corner of his bedroom dressed. He had evidently dressed as usual for church, and then fallen suddenly paralyzed, and remained where he was until his daughter found him, recalling Case I. of this paper.

He had convulsive movements coming on every ten minutes in the paralyzed side, and lasting a minute or two. Iodide of potassium was given, but the patient never rallied, and died shortly with symptoms of cerebritis. A *post mortem* was not permitted.

Case XII.—(First seen June, 1870.) ——, aged fifty-one. Contracted chancre fourteen years ago, followed by eruptions, nodes, loss of bones from the nose, etc. About the middle of February, 1870, after long-continued complaint of severe headache, he had an attack of hemiplegia, which came on without loss of consciousness, attended with impairment of the intellect and defective articulation. The cause of the attack was not recognized, and no appropriate treatment had been brought to bear upon the patient; but he gradually recovered up to the end of May, 1870, when improvement ceased. In June, when first seen, he was found to limp, and to have but little use of the affected arm. His emotional manifestations were exaggerated, his mind weak, and his memory, especially of time, very defective. He seemed totally unable to measure time, and made very curious statements where dates were concerned. A little neuralgia in the left shoulder was the only pain complained of. He was put upon a mixed treatment, and, after improving a little, came to a condition of *statu quo*, where he now remains.

The long interval between the paralytic attack and the commencement of antisyphilitic treatment probably allowed irreparable injury of nerve-tissue, which no treatment could entirely do away with. Had treatment been commenced early, the result might have been different, for the attack could not have been a very severe one, since the patient was old and had no treatment, yet rallied without help quite promptly. He is still under observation.

Case XIII.—(First seen December, 1869.) ——, aged thirty. Had often had ulcers upon the penis; but at what time his chancre occurred could not be positively fixed. His early syphilitic eruptions had come and gone many years back. They were light (as his family physician stated, and passed away quickly), so that no systematic nor protracted course of treatment had been kept up; nor was it at the time considered necessary. During the winter and spring of 1869 he had suffered very much from constant severe headache, in front on the left side, and had been put upon

thirty grains daily of the iodide of potassium, with a little of the bromide, with the effect of quieting the pain greatly.

In August of the same year, having been working in the sun all day, he felt a numbness coming over his right hand, and gradually lost the power of speech, and became hemiplegic on the right side, without any change in the pupils, or any loss of consciousness. His thinking and intellectual faculties were also unimpaired. The attack was considered one of sunstroke. The patient was a German, but had lived in France and in America. He spoke all three languages fluently, but, as he recovered the use of his speech, he, strangely enough, did not use English, the language he had been last accustomed to, nor German, his own language, but preferred French, and afterward wrote it rather than either of the other languages. His iodide was continued at the same dose through this attack, and in six weeks he resumed his business, having moderate use of his extremities, and talking pretty well. In December, 1869, he had another attack of paralysis on the same side, but this time with right mydriasis, some mania, and great impairment of intellect, but without loss of consciousness. He came out of his mania into a condition of hebetude and silly stupidity. Pressure upon the skull made him weep copiously. He would soon become quiet, however, and then pressure upon his enlarged tibiæ would again dissolve him in tears. This exaggeration of emotional expression was the more noticeable, as the patient became brighter under rapidly-increasing doses of iodide of potassium, and came out of his condition of hebetude. He would laugh immoderately if he was smiled at, or if any thing amusing was said which he could understand, and was moved to tears on the slightest provocation. "No," was the first word he could utter, as he began to improve after his second attack, but he would get vexed and angry with himself for saying it when he meant "yes," which latter word he could not speak. He understood questions perfectly, whether given in German, French, or English, but could only answer "no." He spoke this word, however, with a shake of the head to indicate negation, and a nod to denote affirmation.

He quickly reached three drachms daily of the iodide of potassium, his appetite returned, and his intellect greatly improved, as did also his paralysis, so that he could walk a little without his cane, could write his name, and had several words in his vocabulary.

He returned to France in January, 1870, and has been heard from during the summer. He was continuing his medicine, and doing well in every respect.

Case XIV.—(First seen August, 1868.) ——, aged thirty, contracted chancre in December, 1864, followed by sore-throat and eruptions, later by circular ulcerations on the arms and legs. In April, 1868, he had hemiplegia, without loss of consciousness, for which he was bled and salivated in Savannah. His hemiplegia got better, and he came to this city in August of the same year, complaining of "crushing, sharp, prickling" sensations

in his head, and with his hemiplegia still persistent. He was put upon the mixed treatment, and recovered rapidly. He considered himself cured, discontinued treatment, and returned home to Savannah. After remaining well for nearly two years, he returned to New York in April of the present year, run down in health, and complaining of all his old symptoms, except the paralysis. Large doses of the iodide of potassium speedily mastered his troubles, and built him up again. He returned home in the summer, to all appearances well.

Case XV.—(First seen April, 1866.) ——, aged forty-seven. Date of chancre uncertain. He has suffered from specific eruptions, among which are syphilitic psoriasis of the palms, and a scaly eruption of the scalp. All these were treated with mercury, and disappeared. In September, 1865, he had slight paraplegia, followed by hemiplegia, without loss of consciousness, which gradually improved under treatment, leaving behind headache, numbness of the limbs and fingers, and a desire to pass water very frequently. A slight stricture existed at the bulbous portion of the urethra. Hydrarg. cum cretâ in three-grain doses soon touched his mouth and produced very slight improvement, and his condition was still further bettered by a little iodide of potassium. No more nervous symptoms occurred, but the vesical affection remained, and when last seen, in 1867, was the only thing that gave him any trouble.

Case XVI.—(First seen July, 1863.) ——, aged twenty-eight, had chancre in December, 1862, followed by sore-throat and specific eruptions, which were successfully combated with mercury. A slight attack of hemiplegia, without loss of consciousness, came on at the South in the spring of 1864, while taking mercury. Entire recovery followed shortly, and under the mixed treatment the patient's general condition steadily improved, in spite of a relapse in the shape of slight necrosis of the bones of the nose, and up to the date of his last visit, in August, 1870, there had been no recurrence of any nervous symptom attributable to syphilis.

Case XVII.—(First seen June, 1870.) ——, aged forty-nine, had solitary chancre at twenty-three, without bubo, followed by sore-throat, which lasted several months, and at twenty-eight, five years afterward, by an attack of right hemiplegia, which came on gradually, without loss of consciousness, while he was walking in the street. The nature of the attack was not recognized, but no recurrence has taken place, and now a little atrophy and retraction in the leg and impairment in the use of the arm is all that remains. For twenty-one years past he has had no symptom of syphilis in any form.

Remarks.—In these fourteen cases of syphilitic hemiplegia, the average length of time which elapsed after infection, before the occurrence of the paralysis, was a little over five years. The ages of the patients varied between twenty-three and sixty-three, but only four of them were over forty, and of these

four, one did not contract his chancre till he was sixty-one, and the date of infection in two others could not be positively ascertained. These statistics correspond with all the experience which has been gathered on this point. The early age at which the attack occurs, especially if it is apoplectiform in character, is one of the marks which distinguishes syphilitic hemiplegia from hemiplegia depending on apoplexy, as Thomas Inman and Vidal de Cassis pointed out. Gros and Lancereaux met with thirty-six cases of syphilitic hemiplegia, and of these, thirty occurred in patients under forty years of age, while of the one hundred and twenty-eight cases of apoplexy reported by Morgagni, Rochou, and Andral, in only sixteen cases was the age less than forty. Hence the earlier in life that hemiplegia comes on, the more reason is there to suspect syphilis to be the cause.

Headache, that symptom which is almost a *sine quâ non* of syphilitic hemiplegia, was noted as being particularly severe several weeks before the attack in the majority of the foregoing cases. Andral and Rostan[1] consider it of diagnostic importance, in the later headaches of syphilis caused by organic change within the cranium, that the pain is located permanently in one spot, and that pressure increases the pain—although there may be no external humor, nor evidence of diseased bone at the point pressed upon; whereas the headache which comes on in the early months is not increased by pressure.

The sensibility in syphilitic paralyses seems, as a rule, to be preserved, or, if affected, to be so in a less degree than the motility—although loss of sensibility without loss of motion does sometimes occur. The paralyzed parts are relaxed as a rule, except, of course, when convulsed. One point, however, remains to be touched upon, and that one of great importance, from the fact that it occurs so frequently, but yet is so little insisted upon: in all the fourteen cases of hemiplegia *there was not in any one of them loss of consciousness with the attack.*

Syphilitic hemiplegia may come on in three ways: 1. Gradually, without loss of consciousness. 2. Suddenly, with-

[1] Quoted by Gros et Lancereaux, *op. cit.*, p. 429.

out loss of consciousness. 3. Suddenly, with loss of consciousness. Usually the attack is progressive. Paralysis of the face may come on and last a few hours or days, as in Case I., before the extremities become powerless. The leg may be first affected, as in Case III., or unnatural feelings may first appear in the arm, as in Cases II. VII., VIII., and XIII. There may or may not be numbness or tingling in the member previous to the attack. Vertigo or localized convulsions may precede the paralysis, as in one of the attacks of Case X. Sometimes it takes twenty-four hours for the paralysis to reach its height, and the loss of motion is often not complete. With this form of attack I believe there is never any moment of entire loss of consciousness, although the intelligence is generally more or less impaired.

Second in frequency is that form of attack where the whole side becomes suddenly paralyzed without loss of consciousness, of which the foregoing cases present several examples. Thus the patient may wake up in the morning, feeling nothing unusual, but, on attempting to get out of bed, he finds that one side is powerless, as in Case I. This second form may also be introduced by a general convulsion or by convulsive twitchings in the side about to be paralyzed.

The third and least frequent form is the true apoplectiform seizure, with loss of consciousness, of which there are cases on record, but of which I have seen none.

A very important distinguishing feature, then, of hemiplegia depending on syphilis, is the great relative frequency of its occurrence *without loss of consciousness*, even when the attack is in other respects apoplectiform. If a hemiplegic attack comes on without loss of consciousness, that circumstance alone, it seems to me, is of sufficient importance to call attention always to the investigation of syphilis as a cause. This fact has been noticed by most of the special writers on nervous syphilis. Zambaco[1] says that syphilitic patients affected with cerebral syphilis (encephalopathie) rarely have their attacks preceded by the group of phenomena with loss of consciousness, which constitutes the apoplectic seizure.

[1] *Op. cit.*, p. 557.

Rollet[1] puts it even more strongly, saying that sometimes the *début* is sudden, like an attack of apoplexy, but "the patients rarely lose consciousness; they say that they have experienced a sensation resembling vertigo (*éblouissement*), which caused them to fall, or that they waked up paralyzed."

These statements are clear enough, but yet neither of the two most recent standard works on syphilis in French or English, neither Lancereaux ("Traité de la Syphilis," 1866) nor Berkeley Hill ("Syphilis and Local Contagious Disorders," 1869) make the slightest allusion to this point, that I can discover.

I believe it to be of the first importance, and of sufficient value to decide the treatment in a doubtful case.

Those forms of paralysis, either hemiplegic or paraplegic, which come and go very rapidly, of which the foregoing cases contain several examples, often owe their origin to syphilis. Lancereaux mentions this form, and Yvaren has reported a case, in which, however, there were temporary losses of consciousness as well, and where antisyphilitic treatment brought about a cure.

Another point of importance, tending to make out a diagnosis of syphilis for a given paralysis, is the existence of mydriasis occurring either in the eye of the affected side or in the other eye, with or without ptosis or paralysis of any of the muscles of the eye, and without any disease of the eye itself. Mydriasis may precede a paralytic attack, remain after the latter has subsided, or may come on by itself, apart from any other paralysis in the body, during the course of syphilis, in which latter case it is of significance, and puts us on our guard to look out for other nervous symptoms. Examples of all these forms are contained in the cases of this article.

Mydriasis has been occasionally mentioned as occurring in nervous syphilis ever since that subject has been written upon, but its importance as a symptom has not been appreciated until quite recently. Victor de Méric,[2] in an article on the

[1] *Op. cit.*, p. 932.

[2] "Cases of Syphilitic Affection of the Third Nerve, producing Mydriasis with and without Ptosis." (British Medical Journal, January, 1870, pp. 29, 52.)

subject, gives five well-marked cases of syphilitic mydriasis, mostly, however, with ptosis or paralysis of some other muscle of the eye, but coinciding with no other syphilitic nervous symptom, and without disease of the eye proper in any case. There was, however, some enlargement of the retinal veins in one case. When mydriasis occurs alone, it is believed to be caused by paralysis of that branch of the third nerve only, which goes to the lenticular ganglion.

Victor de Méric states that only the short ciliary nerves coming from the fore-part of the ganglion are affected, when mydriasis occurs without paralysis of any other of the parts supplied by the third nerve. De Méric believes also that the pathology of the affection consists in a thickening of the nerve-sheath. All of De Méric's cases, except one, recovered entirely in a few months, under the use of mercury and iodide of potassium together with calabar-bean, and, in one case, electricity. The same article contains a curious case by Lawson Tait, of myosis, which had come on without any iritis in the course of syphilis, and had existed for a long time. The patient had also a gummy tumor on the clavicle. The myosis disappeared entirely under ten-grain doses of iodide of potassium.

PARALYSIS OF SPECIAL MUSCLES.

Case XVIII.—(First seen November, 1850.) ——, aged thirty-five, had chancre with eruptions in 1849, and iritis in 1850. He improved under the bichloride of mercury, to whose action he was excessively sensitive, but he always discontinued his treatment as soon as he experienced a certain amount of relief, resuming it on running down a little. In the fall of 1850, after a severe headache lasting a few days, slowly relieved by the iodide of potassium, he suffered on several occasions from anomalous head-symptoms, and gradually had become stupid, making mistakes in his business, calling things by their wrong names, commencing sentences without finishing them, complaining of pain in the head, etc. One side of the face became paralyzed, but the tongue was straight. He was blistered successively on the nape and behind the ears, and calomel was given to salivation, which was unavoidable. He slowly improved to complete recovery in four weeks. Four months later, though improved in general health, he was still a little forgetful and slow in thinking. He now disappeared until June, 1859, when he returned, complaining of obstruction in the larynx, with hoarseness. He stated that, since 1850, he had been salivated twice for brain-symptoms, but that for the last five years he had been perfectly well in every way.

I add this case in this place, so that it may follow upon the last case (XVII.), where the disease seemed to arrest itself, and Cases XV. and XVI., where treatment appeared to arrest and even cure the nervous manifestations of the disease—other symptoms, however, persisting. In the present case the laryngeal disease was syphilitic, but the nervous symptoms, which had been cured five years before, had not recurred, nor have they to this day, as far as I am able to learn. These cases seem to show a continuance of the general malady, without its becoming progressively more severe.

Case XIX.—(First seen April, 1854.) ——, aged twenty-eight, contracted chancre at twenty-one, with non-suppurating bubo, for which his mouth was kept sore during three weeks. After this he had no further symptoms, and considered himself perfectly well during six years and a half. He now began to have pain in the shoulders and arms, and above the elbows at night, without any falling off in his general health. A month before these pains commenced a node came out on the frontal bone. As the pains came on, he began to lose power in his right arm. At the date of examination, all the muscles of the right arm were found atrophied, especially the biceps and the deltoid. He was put upon the iodide of potassium in five-grain doses, under which his pains disappeared and his strength returned, so that, in three months after the dose had reached ten grains, he had recovered the use of his biceps sufficiently to resume his trade as a stone-cutter, and, continuing his medicines, he had no relapse as long as he was under observation.

This case illustrates a large class where localized paralyses occur. Sometimes all the muscles supplied by one nerve are affected, sometimes only a single muscle. The paralysis of a single muscle or group of muscles is very significant of syphilis.

PARAPLEGIA.

Case XX.—(First seen November, 1860.) ——, aged forty-four, had chancre at twenty. In 1852 paralysis of the portio dura came on, and, at the time of his examination in 1860, still persisted. In 1858 he had necrosis of the bones of the nose, and loss of a portion of the soft palate. About sixteen years after the date of his chancre, he commenced to have difficulty in commanding the use of his lower limbs on first arising from a sitting posture. This progressed for six years up to the date of his first visit. He would frequently trip while walking, had numb feelings in his legs, and twitchings in his muscles. His bladder had also been losing power for about five years, but more particularly for eighteen months be-

fore his examination. His calls occurred every two hours, and he had great difficulty in starting the stream. His bladder always contained three or four ounces of residual urine which he could not pass. His memory and mental activity were lessened. Under iodide of potassium pushed to ten-grain doses, and injections of the bladder, his legs gained power, and the paresis of his bladder diminished, so that he was able to get around and resume business. He was seen eighteen months afterward, and there had been no aggravation of his symptoms.

Case XXI.—(First seen January, 1869.) ——, aged forty, had chancre, followed by crops of eruptions several years before date, and two attacks of retention of urine in 1868. At the date of examination there was weakness with slight wasting of the lower limbs, constipation, and inability to empty the bladder entirely. He had been treated for reflex paralysis. A slight stricture also existed, the result of three attacks of gonorrhœa. He was put upon the mixed treatment, with excess of iodide of potassium, and his bladder was treated locally by injections, etc. He improved steadily with occasional set-backs, never being able to take a higher dose of the iodide than twenty grains. His legs recovered their strength in a measure, and his bladder its power in part. In the spring of the present year he sailed for Europe, and was doing well when last heard from.

Case XXII.—(First seen September, 1867.) ——, aged fifty-two, had chancre at twenty-eight, with non-suppurating bubo, followed by sore-throat. No symptoms due to syphilis seem to have followed this for more than twenty years, when he was attacked with a numbness in his legs, which rendered them hardly movable, but which gradually subsided into a clumsiness, a "stiffish feeling," with some paresis of the bladder. Ordinary treatment, persisted in for some time, failed to afford any relief, until finally five-grain doses of the iodide of potassium were given. After two doses (as the patient described it), he caught a severe cold, with violent catarrh, sneezing, spasmodic irritation of the glottis, headache, pains in his bones, etc., followed by a profuse sweating, which left his shirt and the sheets stained yellow where he was lying. His cold, however, gave him no further trouble, and, after the subsidence of this severe attack of iodism, all his symptoms lighted up in a marked degree. His legs became more manageable, and his bladder acquired force, while the feeling of constriction around his body, and an old pain in the back, disappeared, to return no more. A little mercury was added to his treatment, and he continued improving until his condition was satisfactory to himself, when he disappeared. The diagnosis of syphilitic disease of the cord in this case was made certain by the effect of treatment, without which it could have been at best but problematical.

Case XXIII.—(First seen July, 1864.) ——, aged thirty-two, had chancre, followed by eruptions, at twenty-five. After this, in 1860, he had paraplegia, which came on gradually, with paresis of the bladder, retention of urine on two occasions, and an epileptic fit in 1863. His paresis of the bladder persisted, as did his paraplegia, and, as he was very cachectic, spe-

cific treatment was not ordered at first, but he was sent to Saratoga for the summer. There his general health greatly improved, and after he returned to the city antisyphilitic treatment was commenced. The result of the case is not known, as the physician in whose immediate charge he was has since died.

Case XXIV.—(First seen April, 1859.) ——, aged forty, had chancre followed by eruptions several years before, and at the time of examination had still a milk-spot on the inside of his cheek. Paraplegia came on gradually in August, 1858, without pain in the spine or any apparent cause. Walking was difficult, sensation good. He was put upon increasing doses of iodide of potassium and improved to a certain extent, but the physician in charge not being now accessible, the final result of the case is unknown.

Case XXV.—(First seen October, 1866.) ——, aged thirty-eight, had chancre in 1862, treated with mercury, and followed by nocturnal pains. Two years afterward he noticed weakness in his legs, which gradually increased, accompanied by diminished force and volume in the stream of urine. Sensation as well as motion became impaired. A gummy tumor formed on the left leg. Iodide of potassium gradually pushed to ten-grain doses increased the power in his legs, and diminished the size of the gummy tumor. Three years from commencement of treatment he could walk without crutches, taking fifteen grains of the iodide at a dose, but he fell off again in a few months, having relaxed his treatment on account of mental disturbances connected with the late civil war. He again improved under treatment, but soon after disappeared, and has not been heard of since.

Case XXVI.—(First seen January, 1864.) ——, aged forty-two, had chancre followed by sore-throat and eruptions in 1851, for which he was treated during two years with mercury and iodide of potassium. For ten years he enjoyed perfectly good health until 1863, when he noticed commencing loss of power in his legs and feet, slowness of action of the bladder, afterward loss of sensation in his fingers and toes, and ptosis of the right eyelid. For several months before the date of examination, the patient had had no actual desire to pass water. He had been treated by Brown-Séquard for locomotor ataxia. Under increasing doses of iodide of potassium he improved to a certain point, where he remained stationary—able, however, to continue his business. His condition has since been one of *statu quo*.

Case XXVII.—(First seen in 1867.) ——, was born in January, 1862, of syphilitic parents. Three weeks after birth, an eruption spread over his whole body, having commenced at the corners of his mouth and nose. The eruption disappeared under the use of gray powder. Early in his fifth year large nodes developed on each tibia and on one ulna, attended by nocturnal pains. The boy was affected also with complete paraplegia on two separate occasions, the attack lasting only one day each time, and he habitually suffered from too frequent desire to urinate, especially at night. He

had headache, and was irritable, pallid, run down, dejected, and miserable. No specific treatment had been employed since the first three months of his life. Two-grain doses of iodide of potassium, increased shortly to four grains, with cod-liver oil, brought the patient up quickly to a condition of good health, though he still remained delicate. All the symptoms disappeared except the nodes, which remained in part. After leaving the city for his home, treatment was continued irregularly, and he ran down again somewhat. When the permanent incisors came out, they were syphilitic. The boy is now eight years old, and has had no return of his nervous symptoms.

Remarks.—These nine cases of paraplegia present nothing particularly remarkable. The extreme ages of the patients were four and forty-nine years, averaging over thirty, and the extremes of time, after contraction of the chancre, eight months and twenty-one years. In three cases the time was not accurately made out; and in one the disease was inherited, making a mean for the rest of about nine years. The bladder was sometimes simultaneously affected, sometimes first, and an actual cure was arrived at in only two cases. In one of these the attack was very mild, and in the other the disease was hereditary. In every case the bladder was affected, and the general treatment had very little influence over the bladder-symptoms. Local treatment had to be employed as well, to keep the bladder in a good-humor. Most of the cases were already old before they were seen, and a permanent effect seemed to have been produced upon the cord, so that, although treatment resulted in some improvement, and was always able to hold the disease in abeyance, yet it was powerless to reconstruct the delicate nerve-tissue which had suffered permanent impairment. All the patients are still on their feet, as far as heard from, but they all suffer more or less from the results of the injury inflicted by the disease upon the cord. The expulsive power of the rectum was impaired in several cases, but in none was the control over the sphincters lost, nor was the paraplegia ever complete. The bladder was involved in nearly all the cases, and did not respond well to general treatment, but had to be attended to locally. In hemiplegia the bladder nearly always escapes. The onset of the disease in the foregoing cases followed what seems to be the rule, in that they came on gradually, almost always without any complaint of pain in the back,

or other local symptom which might call the patient's attention to the seat of the mischief. Zambaco[1] states that there is no sign peculiar to paraplegia caused by syphilis, except rapid amelioration if specifics are used early—adding that, later, they (specifics) are often inefficient to bring about a cure. In none of the many cases to which he had access was the paralysis complete. Convulsive motions of the legs were rarely present, and very rarely was there any pain either spontaneous or provoked by pressure along the vertebral column. The onset of the disease also was nearly always insidious. Zambaco believes that the lesion is rarely an exostosis, more often gummy exudation. These cases may also be "*sine materiâ*." Rollet[2] mentions the feeling of the girdle as not being uncommon, and further states that syphilitic paraplegia almost always comes on after all the other syphilitic symptoms, secondary and tertiary, have disappeared.

Paraplegia depending upon inherited syphilis is rare, but it differs in no essential particular from the paraplegia attending acquired syphilis. In Case XXVII. it was fleeting in character, and the bladder seemed to suffer most; but the treatment was commenced early, and was thoroughly effective. Loss of memory and some degree of intellectual impairment were noticeable in one or two of the foregoing cases, but not in the majority.

Berkeley Hill states that syphilitic paraplegia never occurs until several years after contagion (which statement Case VI. of this paper seems to contradict), and further, that, in these cases, "the eruptions of the skin have been obstinate and repeated, and in other respects syphilis has run a severe course." The above cases do not seem to agree with this statement, but rather appear to indicate that the disease has been inveterate without having been exceptionally severe. The date of the appearance of paraplegia after infection, in the foregoing cases, was nearly twice as long as that of hemiplegia.

[1] *Op. cit.*, p. 235, *et seq.* [2] *Op. cit.*, p. 927.

EPILEPSY.

Case XXVIII.—(First seen May, 1866.) ——, aged thirty-eight, had chancre at eighteen, with non-suppurating bubo, followed by sore-throat, for which he took mercury. Afterward he was troubled with pains in different parts of the body, which were always relieved by the iodide of potassium. In October, 1865, he had several epileptic seizures, followed by paralysis of the external rectus of the left eye, causing diplopia. Iodide of potassium in increasing doses was followed by a disappearance of the diplopia, and no more convulsive attacks occurred until 1868, when they reappeared and were attended by numbness along the course of the ulnar nerve. The iodide of potassium again removed the symptoms. The patient is now living in the Far West, and has not been heard from for about two years. Previously to 1866 he had been treated in New Haven, by the late Worthington Hooker, for a very grave condition of the brain, threatening life, which the doctor called "encephalitis," and from which he recovered.

Case XXIX.—(First seen in November, 1863.) ——, aged thirty-six, had chancre in 1846, with non-suppurating bubo. In May, 1862, he had in rapid succession six epileptic convulsions, preceded by aura, controlled by ligature around the arms. A gummy tumor existed on the leg at the date of the examination, and a cluster of little indolent ulcers on the shoulder. There were also some irregularities on the back part of the skull, attributed by the patient to blows and falls. Mercurial inunctions with the iodide of potassium internally were ordered, but the result of treatment is not known. This patient was seen in consultation.

Case XXX.—(First seen February, 1870.) For the history of the following case I am indebted to the kindness of Dr. Wm. H. Draper, the physician in charge, with whom the case was seen in consultation. ——, aged about forty, contracted chancre, without attendant bubo, in 1861, which was treated (probably with mercury), and was followed by no symptoms attributable to syphilis for two years. At this time, however, osteocopic pains came on, chiefly about the joints, and a circumscribed superficial ulcerated syphilide about the face and in the beard. Under mercurial fumigations the ulcers healed, but the pains continued with more or less severity, and the patient acquired the habit of opium-eating (taking about a bottle of McMunn daily). He took also, under advice, small doses of iodide of potassium, but not enough to affect his pains materially. In the winter of 1868 he came under the care of Dr. Draper, greatly run down in general health, with his pains still persistent and nodes on the forehead and vertex. He was put upon the regular use of rapidly-increasing doses of iodide of potassium, and at the end of six months had nearly discontinued his opium, and his pains had left him. He had reached at this period a daily dose of ninety grains, and continued at that amount, free from his pains and in a condition of robust health which he had regained. In Feb-

ruary, 1870, he noticed some dimness of the eyes, not sufficiently marked to keep him from business, but becoming progressively more severe during several days, until one morning at breakfast he experienced a severe pain through the back of the head behind the ears, accompained by nausea and vomiting, and great restlessness and excitement. He suddenly became totally blind during the afternoon, and had a period of apparent loss of consciousness, preceded by some muscular twitchings of the face. His pain in the head gradually worked forward, until it took up its position through the temples. From having previously been delirious and excited, he now became torpid, stupid, and apparently insensible, and had subsequently four epileptiform convulsions during the night. Neither morphine, nor chloral, nor the inhalation of chloroform, afforded more than a temporary and unimportant relief—twenty grains of calomel were also administered. In this desperate condition, in the early morning of the second day, nearly twenty-four hours after the commencement of the attack (an intercranial syphilitic lesion being considered the cause of the symptoms), the iodide of potassium was commenced in half-drachm doses every two hours, alternating with a little chloral, and was administered regularly. In twenty-four hours intelligence had already returned in a measure. The patient called for his wife, and, although still blind, his eyes were conscious of perceiving light. His improvement was steadily and rapidly progressive. His headache diminished and disappeared entirely, and his sight became perfect within a few weeks. He had no more convulsions. As his symptoms disappeared, the dose of the iodide was gradually diminished down to ninety grains a day, where it now stands. The patient was seen a few days since, in the full enjoyment of health. The eyes presented no abnormal appearance during the attack. It is to be regretted that the ophthalmoscope was not used. The pupils at first were normal, later both dilated.

Remarks.—These three cases, with Case IV., of epilepsy, or more properly epileptiform convulsions, make a rather small number from which to draw reliable deductions. In two of the cases, as the epileptic attack did not come on while the patient was under immediate observation, no inquiry was made in regard to headache; but both cases occurred after the age of thirty, and long after infection, and the paralysis of a single muscle of the eye which followed, together with the prompt effect of treatment, confirm the diagnosis in the one case; while the existence of other syphilitic manifestations and the rapid succession of the convulsions, succeeded by a long interval of freedom from attacks, make the diagnosis but little less doubtful in the other. In the last case, headache was a prominent symptom, and the success of treatment makes further

comment upon the nature of the case unnecessary. The accompanying blindness is a rare symptom. It occurred also in Case IX.

Lancereaux[1] states that it has not yet been proved that epilepsy has occurred without a material lesion. The aura is often absent in syphilitic epilepsy, though it has been observed.[2]

Aphasia. Mania.

Case XXXI.—(First seen March, 1861.) ——, a delicate young man, aged about thirty, contracted chancre in 1860. This was followed by successive crops of eruptions, and nocturnal headache. The mercurial bath put an end to the symptoms, and the patient remained well for about seven years. In the spring of 1869 he was suddenly attacked with numbness of the tongue and extremities, and partial aphasia, which latter continued, and became aggravated after any fatigue or excitement. He became irritable, and had difficulty in controlling his temper. He manifested evidences of mental weakness, became eccentric and suspicious, and had some slight delusions, with frequent temporary loss of speech, and difficulty of articulation at all times. In writing letters, he would leave out words, omit words in speaking, tell stories twice, laugh and cry too easily. In the fall of 1869, mydriasis of the right eye came on. All these symptoms appeared, while he was taking iodide of potassium internally, and mercury through the skin. The iodide of potassium was now suddenly raised to a dose of sixty-seven and one-half grains, three times daily, with the effect of increasing the patient's weight, and lighting up the brain-symptoms. This dose, however, disagreed with the stomach; a little morning nausea came on, attended by falling off in weight. One dose of the iodide was consequently omitted, and he was sent into the country (spring of 1870), when he immediately ceased falling off, and improved steadily and rapidly until he considered himself well as far as syphilis was concerned. He now writes long and perfect letters. His temper and condition of mind are normal, and when last heard from, a few weeks ago, he was in a very satisfactory condition, and still improving. His wife gave birth during the present year to a healthy child, which up to date has given evidence of no syphilitic taint.

Case XXXII.—(First seen October, 1862.) ——, aged forty-seven, contracted chancre, followed by eruptions, at thirty. Afterward she was troubled with periarticular pains, which were always relieved by iodide of potassium. In October, 1862, she became full of talkative illusions, had all her teeth pulled, etc. In September, 1867, after suffering for some time from severe pain in the head, she was seized with acute mania. Twenty

[1] *Op. cit.*, p. 450. Gamberini's case, obs. 202, Lagneau fils.

grains of the iodide of potassium, every four hours, seemed at first to arrest the violence of the mania a little, but she soon refused to take nourishment or medicine, and died in a month, worn out. She became perfectly rational for a few moments before she died. A *post-mortem* examination could not be obtained.

Case XXXIII.—(First seen April, 1870.) ——, aged fifty-two (date of chancre uncertain), had a protracted sciatica some years before the date of examination, which a trip to Europe did not benefit, but which got well finally under the iodide of potassium. In October, 1870, he fractured his arm. The bones failed to unite. Afterward, they became consolidated while taking thirty-grain doses of iodide of potassium three times daily. At this time he had a large nodulated liver, and a periostitis on the fractured radius. In April, 1870, he ran down in general health, and suffered from dread, paroxysms of restlessness, and delusions as to imminent poverty amounting to mania. One-drachm doses of iodide of potassium soon "lifted the cloud," as he expressed it, and restored his mind to a natural condition. At the end of April, the liver showed no signs of enlargement. In July last, the patient being out of town at the time, a relapse occurred in the shape of another attack of mania, more severe and well marked than the first. He became unmanageable, and his family was advised to have him restrained, and forced to submit to treatment. My letters to the country have remained unanswered, and I have been unable to learn the present condition of the patient.

Case XXXIV.— ——, aged about thirty, contracted chancre in early manhood, followed by roseola. It was treated with mercury, and no other symptoms occurred, until five years afterward, when he was affected with mydriasis in one eye and pain over the orbit of the same side. His temper also became excessively irritable. Small doses of corrosive sublimate improved his condition somewhat, but his mind became progressively weakened and affected with delusions. He took mercury, but could only be made to use small doses of the iodide of potassium, on account of the acne which that remedy produced. He finally developed ambitious and exalted ideas, which made it necessary for his friends to have him restrained. This was accordingly done, his insanity progressed, general paralysis came on, and he died. His brain was examined, but no positive lesion was made out.

This case is very imperfect. The patient was under the observation of many physicians, but no accurate note was taken of his case, nor was he ever steadily and regularly treated by any one. He died at Bloomingdale under the care of Dr. D. Tilden Brown, and that gentleman informs me that the insanity at the time (which was several years ago) was not considered to be of syphilitic origin. The doctor informed me,

however, that, if he had the case now to treat, he would use large doses of the iodide of potassium.

Remarks.—Here are three cases of derangement of the intellect, occurring in syphilitic patients, none of whom (the mydriasis of the first case excepted) had any attendant paralysis of motion or sensibility. In all the iodide of potassium brought about a cure, although in two relapse occurred. The aphasia of the first case needs no comment. Tamowsky's monograph, already cited, is exhaustive on the subject of syphilitic aphasia, but fails to point out any distinguishing mark between it and the aphasia arising from other causes, except the concomitance of the syphilitic diathesis. That there is, however, an aphasia caused by syphilis the fifty-two cases collected by Tarnowsky out of the literature of syphilis place beyond a doubt, and that it is often curable by specific treatment is equally evident. About the last case (Case XXXIV.), of which I am able to give only such a slender report, I would say that I have introduced it on account of the firmly-expressed opinion of Dr. Van Buren, who had charge of the case at one time, that the insanity was of syphilitic origin.

Upon the subject of mania, however, authorities do not seem to agree; and it is claimed by many that the causality of insanity by syphilis has not been made out. Lancereaux[1] says, "perhaps we must also admit a syphilitic mania." Follin denies the existence of "folie syphilitique" as a specific symptom; while he accords to syphilis a like power with misery, privations, excesses, and griefs, in contributing to the development of insanity. Rollet[2] agrees with him that, outside of these cases, "there are no other intellectual troubles depending upon syphilis except those associated more or less with lesions of sensibility and of movement, and which result from a compression, for example, or from some other organic alteration of the brain, as in the epileptiform attacks of syphilis, which simulate rather than constitute epilepsy." Gros and Lancereaux,[3] founding their decision upon some cases of Essmarck and Jessen, Ricord and Hildenbrant, agree to the facts of enfeeblement of intelligence, and mania, being caused by

[1] *Op. cit.*, p. 470. [2] *Op. cit.*, p. 935. [3] *Op. cit.*, p. 130.

syphilis, without the necessary concomitance of any paralytic or other nervous symptom, and their cure by specific treatment. Lagneau fils[1] admits the possibility of all forms of perversion of the intelligence, from mania down, being caused by syphilis, without any necessary accompanying physical symptom. Zambaco,[2] while admitting that many of the perversions of the intellect may, like some of the paralytic forms, be cases of nervous syphilis, *sine materiâ*, as they are called, yet doubts if any cases of pure insanity have been made out to be of syphilitic origin. Whether, then, Case XXXIV. was syphilitic insanity or not, cannot be affirmed. But in conversing with Dr. Brown about the patient, he informed me that the belief had been gaining ground for several years past, among the German and English specialists in mental diseases, that this form of insanity, attended with or followed by paralysis, might be of syphilitic origin, and that, if he had the patient now to treat, he would consider the case as syphilitic, and use iodide of potassium in large doses.

But be it as it may for actual insanity, there are enough cases of intellectual disturbance on record short of insanity, coming on in the course of syphilis, without any physical paralytic symptom, and relievable by treatment, to establish the claim of cause and effect between the two. One great question, however, has never been broached, and its consideration may lead to the detection of other and more subtle symptoms of cerebral syphilis than we are yet possessed of. The question may be stated as follows: Does the presence of the syphilitic diathesis ever so enfeeble the intellect as to render the subject less capable of mental exertion than he was before he acquired the disease, without at the same time giving rise to intellectual eccentricities or loss of memory sufficiently noticeable to disclose his mental condition to his associates?

It seems probable, *a priori*, that this question may be answered in the affirmative, but to state it positively would be going too far, and would require proof, which I am not at present prepared to give. It will be interesting, however, to study syphilitic patients, who have manifested no well-marked

[1] *Op. cit.*, p. 88. [2] *Op. cit.*, p. 508.

nervous symptom, with a view to determining whether their emotional expressions have become exaggerated, and whether they are as capable of prolonged mental effort as they were before the contraction of their syphilis.

One source of error in the study of nervous syphilis is the wonderful resemblance which exists between some of its manifestations and those seen in severe cases of nervous gout; such as cerebral congestion, with a feeling of dizziness or vertigo, culminating in aphasia; loss of memory; severe continued headache; irritability of temper; loss of confidence, and suspicious tendencies to the extent of mild illusions; local neuralgia, as of the sciatic; numbness along the course of certain nerves, as the radical or ulnar, etc. All these symptoms may be the effect of the gouty as well as of the syphilitic poison acting upon the brain and nervous centres, and a diagnosis can only be made out by a thorough study of the general condition and previous history of the case. The symptoms of the one yield to the alkaline and eliminative treatment; of the other, to anti-syphilitic remedies.

Prognosis.—The prognosis of the lighter and earlier nervous manifestations caused by syphilis is good. For the later symptoms, when not very severe, it is also good in regard to the symptom itself, and this especially if the patient is seen early; but still the prognosis must always be guarded as far as the probability of relapse is concerned, and it must be remembered that, if there is reason to suppose that nerve-tissue has been destroyed or injured, although the disease may be arrested, and no further injury done, yet new and healthy nerve-tissue cannot be reformed by treatment any more than a scar left by the ulceration of a gummy tumor can be obliterated, and more or less impairment of function will be permanent. This remark applies especially to syphilitic disease of the spinal cord giving rise to paraplegia.

Still, the opinion of Rollet is sound in regard to the prognosis in the severest cases, and in a given case, with given nervous symptoms and a given lesion, the prognosis is better if syphilis can be made out as the cause of that lesion, than if the cause lies in any other disease of the nervous centres.

Treatment.—Some of the nervous, like many of the other symptoms of syphilis, have been known exceptionally to disappear without treatment, and the patient to suffer no relapse. Case XVII. of the present article is an example in point, where no relapse of the disease in any form occurred, although the injury to the brain-tissue, sustained at the time of the occurrence of the hemiplegia, manifested itself ever afterward by impairment of motion in the side which had been paralyzed. It is the rule, however, for nervous symptoms to relapse, and to become progressively more severe, unless an appropriate treatment is interposed; and, in inveterate cases, sometimes, in spite of a treatment seemingly the best directed.

It is useless to halt and parley about the many medicaments which have been vaunted in the treatment of syphilis by different authors. We have two powerful weapons with which to vanquish the disease, and, when these fail us, we may well despair. Mercury and iodine are both efficacious against the nervous manifestations of syphilis.

It is fashionable to give mercury early in syphilis and iodide of potassium late, but like many another good rule this one has its exceptions. Many cases of nervous syphilis were treated successfully with mercury by the older physicians before Wallace introduced the iodide of potassium as a cure for syphilis, or Ricord established its peculiar efficacy, when used to combat the later forms; and since that date the records still show cases of successful treatment where mercury alone was used.

But the iodide of potassium has proved itself the remedy *par excellence*, and almost miraculous results are sometimes obtained by its administration in cases seemingly desperate. What can be more appalling than to be called suddenly to a case, and find the patient in a condition like that described in Case XXX. or Case X. of this paper, with no history of the antecedents of the patient to guide the treatment? What a feeling of relief at such a moment of doubt, if we can discover facts about the patient's previous history from his friends to make us believe syphilis the probable cause of the attack—such as the existence of mydriasis in one eye, perhaps long before, paralysis of some of the separate muscles of the eye, irritabil-

ity of temper, hesitation in speech, loss of memory, inordinate emotional displays, or fixed pain at one spot upon the head for a long time before the attack; and if, added to a few of these symptoms, we learn that the attack, if it was hemiplegia, came on without loss of consciousness, or if it came on gradually, and we detect on examination some swellings on the bones, or old scars with a syphilitic aspect, or make out an enlarged liver, and, last but not least, if you press heavily upon the patient's head at the spot where he has been accustomed to complain of his pain, and cause him to wince and burst into tears, or to look up stupidly into your face and commence to laugh in an idiotic way: with these symptoms, I say, or even a few of them present in a given case, I think the diagnosis of syphilis is justifiable, and that the administration of iodide of potassium should be commenced at once in a large dose by the mouth or anus, and steadily and rapidly carried up to toleration.

How gratifying, after such a course, as in Case XXX., already alluded to, to see a few days bring back light and intelligence into the patient's eye, speech to his tongue, and motion to his limbs! Truly it seems in cases like these that our art can save life.

The dose of the iodide of potassium has been advocated at a higher and higher figure. Whether the maximum has yet been reached, who shall say? I believe the only indication to stop increasing the dose is an arrest in the symptoms. In Case X., where the disease was old and inveterate, and the relapses during treatment enough to cause despair of final success, and while relapse after relapse would come on, and subside under an increase of the dose of the iodide, yet the headache never left the patient for more than a few days at a time, until the dose was run up to one ounce daily (in four two-drachm doses), and then it disappeared and kept away under that dose for six weeks, although from the beginning of his last series of attacks it had been his almost constant companion. The other symptoms were also held in check by this dose for the period of six weeks.

If any rule can be hazarded on a vital question of this sort, I should say, in a severe case, where the patient is found

stricken down by a paralysis of which a syphilitic origin seems probable, commence, not with five or ten grains, but with twenty or thirty grains of the iodide of potassium, every four or five hours; and the patient may be sometimes rescued from the jaws of death, and those serious changes of nerve-tissue so often left behind, making the patient more or less of a cripple for life, may be, I believe, often averted—always moderated. Iodism is not to be feared. Acne is usually the only symptom caused, and that is very bearable.

But mercury, which has so powerful an influence upon all the stages of syphilis, cannot be denied its share in the treatment of the nervous forms. It is, I believe, the general opinion among authorities, that mercury should be given for the nervous manifestations of syphilis, when they come on at an early stage of the general malady. Although this cannot be positively disputed, yet it is well known that the iodide of potassium often dispels these symptoms like a charm. Mercury, again, has been specially recommended where the disease is believed to be a pachymeningitis or inflammatory in any form, as the softening which occurs after a while around a gummy exudation; while on the other hand specifics have been considered of little value to combat the inflammations lighted up around a syphilitic deposit, and antiphlogistics have been recommended in these cases to allay the inflammatory symptoms at first, specific treatment to be taken up after their subsidence.

But who shall decide that softening exists, when no less an acute observer than Ricord tells us that a syphilitic patient died in his service, with all the symptoms of cerebral softening, while a carefully-made autopsy could detect no lesion whatever in the brain or its envelopes? Safety consists in pushing the most powerful remedy first, and this the iodide of potassium has shown itself to be. If the lesion is bony or gummy, it is almost sure to yield to this remedy, steadily and rapidly pushed, and in the vast majority of nervous symptoms caused by syphilis the lesion is bony or gummy.

Still, mercury can be often called in with advantage to assist the treatment. In a chronic case of nervous syphilis, when improvement has continued for a certain time under a given

dose, it often ceases, and then it is that the substitution of some mercurial vapor-baths or mercurial inunctions for the other medicament will cause the symptoms again to progress favorably. Or, perhaps better still, a little mercury may be added to the treatment, the iodide of potassium still being continued, constituting what is called the mixed treatment. No positive rule can be laid down for guiding the alternating or the mixed treatment. When improvement ceases under one, the other must be tried, and judgment and experience must decide upon the course to be pursued in a given case.

When mercury is employed, is it to be pushed to salivation? I think not, although some cases are recorded where improvement did not commence until signs of ptyalism began to manifest themselves (Benjamin Bell, obs. 56, Lagneau fils), and the cure was not obtained until salivation had been kept up for some time. Yet, in the vast majority of cases where mercury is used, I think the treatment by extinction is to be preferred; that is, not pushing the mercury beyond the point where the mouth is slightly touched, and then keeping ptyalism off by every means possible, but continuing the mercury.

The stomach must be carefully watched during the treatment, which should be prolonged for a number of months after the disappearance of the symptoms, for a period longer or shorter according to the severity of the attack, and the tendency which the disease may have shown to relapse. Tonics and cod-liver oil are often of great importance; while proper food, regularity of habits, and fresh air, are sometimes positive essentials to the success of specific treatment. Sometimes the state of cachexia is so marked that, unless the nervous symptoms are threatening and progressive, it is injudicious to commence with the specific treatment, until a tonic course, with some weeks in the country, have built up the patient to a certain point, as in Case XXIII., after which the treatment seems to take hold better. Case XXXI., again, is an instance of how much change of air can do with a continuation of the treatment. In this case improvement ceased, and the patient began to run down in the city, but on being sent to the country he immediately began to mend, his iodide being still con-

tinued, though at a less dose. Frictions and electricity are of service in old cases, especially where there is any muscular atrophy. Allusion has already been made to the necessity of special treatment for the bladder in cases of paraplegia.

My remarks upon treatment have been brief and general on account of the impossibility of laying down fixed rules. Every case is a study in itself, and must be treated upon its own ground. While a little mercury will cause salivation in one, another may take immense doses without any similar effect. This one will improve under frictions when internal treatment seems of no avail, and another will respond to the mercurial vapor-bath when no other means of introducing the metal appears to agree. Again, five-grain doses of iodide of potassium may, exceptionally, produce violent symptoms of iodism, as in Case XXII., while an ounce a day may only give rise to an acne, as in Case X. The iodide of potassium should always be given largely diluted with water, and never, if it can be avoided, upon an entirely empty stomach.

Conclusions.—By way of a *résumé* of the foregoing study of cases, I think it is justifiable to conclude—

1. That nervous symptoms depending upon syphilis may arise within the first few weeks after an infecting chancre, or at any period later during the life of the individual.

2. That it is presumable, from the study of published autopsies, that the earlier a nervous symptom (paralytic or otherwise) occurs, the less likely is there to be any material lesion which an autopsy can reveal; and that in a given case there exists no constancy of relation between the nature, the situation, and the severity of the lesion, and the nature, situation, and severity of the nervous symptom, to which that lesion may give rise.

3. That cerebral congestion is probably the pathology of many of the earlier nervous syphilitic symptoms.

4. That syphilitic hemiplegia occurs, as a rule, without loss of consciousness, even when the attack is sudden; but that the paralysis usually comes on gradually, the patient being under forty years of age, and having had fixed constant headache for some time before the attack.

5 That mydriasis, existing alone, or with other nervous

symptoms, without positive disease of the eye, is presumptive evidence of syphilis.

6. That paralyses of single muscles, or sets of muscles, are frequently syphilitic.

7. That syphilitic paraplegia generally comes on gradually, often without any local symptom to call the patient's attention to the injured portion of the cord, and that it is rarely complete. That the bladder almost always suffers more or less, and calls for special local treatment. That paraplegia may be developed as a symptom of inherited syphilis.

8. That syphilitic epilepsy usually occurs after thirty, in patients who have not had epilepsy in early life. That headache is liable to precede the attacks. That the convulsions occur often, many in quick succession, the intermission between the series of attacks being comparatively long, but that, during this period, headache or other nervous symptoms exist and become aggravated, contrary to what obtains in idiopathic epilepsy. That syphilitic epilepsy is liable to be associated with, or followed by, some form of paralysis.

9. That aphasia is often associated with the intellectual disturbances caused by syphilis.

10. That loss of memory is a common nervous symptom of syphilis, as are also all forms of mental disturbance—from mild hallucinations and illusions up to actual insanity, and all these without any necessary accompanying paralysis.

11. That inordinate emotional expressions are often associated with the mental weakness caused by syphilis.

12. That care must be taken to distinguish certain symptoms caused by gout, from the same symptoms owing their origin to syphilis.

13. That the prognosis is better as a rule for nervous symptoms caused by syphilis than for the same symptoms depending on a lesion equal in extent, caused by another malady of the nervous centres; but that, after the arrest of the disease, an indelible impression is often left upon the nerve-tissue, which manifests itself by impaired function, and which treatment cannot overcome.

14. That the iodide of potassium pushed rapidly to toleration, unless the symptoms subside before that point is reached,

is the main outline of treatment. That mercury, used at the same time, or alternated with the iodide of potassium, is often of great value in protracted or inveterate cases; and that tonics, change of air and surroundings, frequently influence the effect of treatment in a marked degree, and may become essentials to success.

ART. II.—*A Case of Primary Cancer of the Lymphatic Glands. With Remarks.* By SAMUEL WHITALL, M. D., Resident Physician of the Colored Home Hospital, New York.

History.—Betty F., aged fifty, negress, servant, widow, born in Alabama. Resident of the city three years. Admitted to Colored Home Hospital May 19, 1870. Upon admission, the following history was obtained: Parents both dead; cause unknown. No discoverable hereditary taint. Had one brother and four sisters, who left her when quite young. The brother troubled with slight cough, sisters healthy. She is the mother of seven children, one of whom died of whooping-cough, at the age of six, another of "spasms" at the age of seven, and one was drowned. The others she has not heard from for years. Her husband undoubtedly died of phthisis.

Previous to her present trouble, the patient enjoyed very good health, with the exception of an attack of "the fever" many years ago, and rheumatism in her left arm three years ago. Has had harsh cough in winter for the past three or four years; occasionally headache and epistaxis. Was at one time troubled slightly with leucorrhœa. Has now and then an attack of sore-throat. Thirty years ago, her left breast "swelled and broke," discharging "thick yellow matter, half blood." The nipple has always been slightly drawn in.

About a year ago she complained of slight weakness, but did not consider herself sick until last January. At this time she noticed, while washing herself, a "little pimple" over the left clavicle, and in a few days after a similar pimple in the corresponding region on the right side. She paid little attention to them, but took some medicine "to drive it out of her blood." Two or three weeks later, her attention was drawn to small lumps in the left axilla, and very shortly after to a hardened mass in her left breast. These tumors have continued to increase in size slowly and gradually. She has lost some flesh and strength. Appetite poor, bowels constipated for last six months, urine frequently very yellow, leaving at such times a heavy deposit on standing.[1]

[1] In a letter from Dr. A. B. Ball, he remarks in regard to the patient: "I first saw her professionally during the first week in May. She was

Upon admission, the patient appears somewhat emaciated and weak; otherwise her general condition presents nothing worthy of note. Arcus senilis very well marked.

Physical Examination.—There is a mass in the left supraclavicular region the size of a small hen's-egg, quite firm in consistence, and scarcely at all movable. In right supraclavicular region, another mass somewhat smaller, softer, and more movable, also slightly lobulated. In left axilla an irregular tumor about as large as a pigeon's-egg, connected by a narrow band of indurated tissue to another mass in the left mamma, which is about five inches long by four in width, and of not very firm consistence. Nipple slightly and uniformly retracted, integument surrounding it considerably thickened. No discharge. Furrows corresponding to the course of veins are seen upon the surface. Skin in other places normal. No morbid change noticed in the right breast or axilla.

Lungs.—Percussion fair under each clavicle. A shade higher in pitch in the right supraspinous fossa.

Auscultation revealed normal voice and respiratory sounds anteriorly and posteriorly, with the exception of upper posterior portion of right lung; here the respiratory murmur was exaggerated, but expiration not notably prolonged. Voice considerably exalted. A few moist râles over both lungs, most abundant at the base of right.

then complaining of a harassing cough, which she had had for about four months. Her general health was poor, though there were no marked symptoms, except general debility and bronchitis. During my interview with her, she called my attention to an enlarged gland at the root of the neck on the left side. She said she had first noticed this tumor, about six weeks or two months previously, and that since that time it had gradually increased in size. There had been little or no pain in it, and it was only for a few days previously that she had felt any uneasiness about it. The tumor was evidently a glandular enlargement of strong hardness. Further examination revealed a similar but smaller tumor, at the root of the neck on the right side, and also one in the left axilla. My suspicions were aroused in regard to the cancerous nature of these tumors, and, knowing that primary cancer of the glands is very rare, I made a careful examination for primary cancer elsewhere in the body. The left breast (which afterward became diseased) was at that time free from any suspicious induration, nor could I find, by careful physical examination, any other pulmonary lesion than chronic bronchitis. An examination of the other organs satisfied me that, if the patient had cancer, it was then confined to the glands already mentioned. . . . After ten days I again had an opportunity to examine her. At this second examination, I found that all the glandular tumors were rapidly enlarging, especially the one at the root of the neck on the left side. This gland had numerous 'claws' or outrunners of indurated tissue, extending in various directions. I also found the left breast swollen, and a hard mass toward its axillary aspect. Her health had evidently failed since I had last seen her. Her appetite was entirely gone, and her face wore the anxious expression of one who instinctively feels that she is suffering from a mortal disease. Drs. Willard Parker, H. B. Sands, and W. H. Draper, examined her at my request, and all agreed that the case was one of primary scirrhus of the glands."

Heart.—No murmurs audible; normal sounds unusually faint.

Abdomen.—A careful examination revealed no disease in any of the viscera.

Progress of Case.—*June* 3, 1870.—Left mamma was increased in size, more indurated, and very painful, particularly during and after manipulation. The other masses are larger and firmer than on previous examination. Auscultation and percussion remain the same.

June 11.—Considerable pain in breast. Vomits what she calls a "bitter bile," a light-green fluid containing portions of undigested food. Ung. belladonnæ has given partial relief to pain in the breast. Constipation relieved by pills containing podophyllin, colocynth, nux-vomica, and hyoscyamus.

June 27.—Patient complains of distressing nausea and vomiting. Not much confined to bed; increase of pain in breast. The cancerous masses do not increase much in size outwardly, but are extensively involving the deeper structures; auscultation and percussion revealed nothing new. Has been taking carbolic acid, one grain three times a day, which she retains without difficulty.

June 28.—Passed a very restless night; violent and continued vomiting from midnight until morning; much pain in breast. Hypodermic injection of fifteen minims of Magendie's solution afforded marked relief, without producing sleep. The vomited material is frothy and of a greenish color. A microscopic examination revealed nothing but partially-digested food.

Evening.—More comfortable.

June 30.—Has suffered considerably since last report. Has lancinating and "bearing-down pains in her stomach." Magendie's solution, injected hypodermically, gives greater relief than any thing else.

An examination of the abdomen, made this morning, reveals a somewhat indurated mass, slightly movable, occupying a position in the median line a little above the umbilicus. Its lower border glides slightly downward under the fingers upon deep inspiration; percussion over the tumor yields diminished tympanitic resonance. By auscultatory percussion it is found to have an area of about four square inches, and is not connected with the liver, which approaches very near to its upper border. The latter organ extends from the fifth intercostal space to one inch below the free border of the ribs.

Physical examination of the lungs develops no further change. The affected breast, which is hard and nearly immovable, measures vertically and bilaterally ten inches in circumference, at base seventeen inches. The integument of a decidedly reddish hue. The band connecting the breast with the axillary glands much larger, and of stony hardness. Increased pain in the affected breast.

July 1, 1870.—Passed a calm night; is more comfortable.

July 2.—In same condition. Occasional vomiting. Not so well toward evening. Increase of pain in stomach. Ordered ten minims Magendie's solution.

July 3.—No perceptible change. Magendie's solution injected night and morning. Is fast losing flesh.

July 4.—Remains most of the time in bed. Chloral, thirty grains, ordered at night, in one ounce of water.

July 5.—Complains that the chloral caused a burning sensation in her stomach, increased her vomiting, and failed to produce sleep. Distressing pain in her stomach. Abdominal tumor increasing in size. Magendie's solution to be resumed.

July 6.—Passed a more comfortable night. Has had little vomiting. No appetite.

July 10.—Very poorly for the last three days; vomits day and night. Cannot take much nourishment. The left arm has been œdematous for the last two weeks. She is sinking very rapidly.

July 13.—Increasing emaciation. The abdominal mass gradually enlarging. In the right lumbar region is felt an ovoid mass freely movable, which is taken for floating kidney. Distressing and constant emesis.

July 14.—Somewhat comfortable. The ejected material is now as clear as water.

July 17.—Comparatively free from pain. Vomiting continues unabated.

July 19.—Can retain nothing upon her stomach. Ice-water immediately regurgitated. The fluid is again of a greenish color. Rapid emaciation. No jaundice.

July 22.—Is exceedingly weak; extremities quite cold; incontinence of urine. Is unable to speak, but responds to questions by motions of the head.

July 23.—After an attack of profuse vomiting she gradually sank, and died of asthenia at 7.30 A.M. Her mind was clear to the last.

Autopsy (eight hours after death).—Rigor mortis unusually well marked; body greatly emaciated; slight œdema of left upper extremity. No jaundice.

Brain.—Less vascularity than usual; no morbid change noticed; arteries apparently healthy.

Lungs.—Bound to parietes by a few bands of chronic adhesions. Considerable hypostatic congestion of the posterior portion of the left lung, slight upon right side. Mucous membrane of larynx, trachea, and larger bronchi normal, that of the smaller tubes congested; they all contained more or less frothy mucus. Three or four cretaceous masses in each lung near the surface the size of a small pea, over which the pleura pulmonalis was puckered. Bronchial glands much enlarged and firm in texture, extending up along the trachea a considerable distance without reducing its calibre. They presented the same general appearance as the other degenerated glands.

Heart.—Unusually small, and its muscular structure quite pale; valves healthy; cavities contained small clots of blood partly yellow and dark,

those upon the right darker and less firm than those upon the left. A few yellowish patches in aorta just above sinuses of Valsalva.

Abdomen.—The liver was firmly bound to adjacent parts by chronic adhesions. The organ projected full an inch below free border of ribs, was very much flattened, of yellowish color, and flabby; capsule much thickened. Extending about four inches below the liver was found—not a floating kidney—but a greatly-distended gall-bladder, which contained a very dark-colored, tenacious bile.

Spleen.—Capsule thickened and contracted, causing a shortening and thickening of the organ. In one spot, projecting from the capsule into the substance, was a whitish mass the size of a large pea, and of firm consistence.

Kidneys.—Enlarged, congested, and mottled; cortex somewhat thickened; capsule moderately adherent.

Alimentary Canal.—Mucous membrane of stomach of a dark-green color, but not otherwise altered, except near the pylorus, where it was somewhat thickened, and presented points of vascularity. Upon section, the coats appeared to be thickened in this region. Small intestines intensely congested; glandular structure apparently healthy. Transverse colon pushed forward and downward by a mass from behind; contained a large quantity of fecal matter. Uterus and its appendages small but healthy; lymphatics of lower extremity apparently healthy. In the region of the pylorus was found an irregular, firm mass of yellow color, consisting of enlarged and indurated mesenteric glands and pancreas. This mass was so situated as to slightly constrict the pyloric orifice of the stomach and the duodenum. The ductus communis choledochus was entirely surrounded and constricted by diseased glands, and greatly distended. The cystic and hepatic ducts also distended. None of these ducts were completely occluded. Upon section of the morbid parts, both glands and pancreas presented generally a firm, fibrous appearance, but here and there were patches of less consistence; very little juice. The glands were less diseased as the intestinal fold of the mesentery was approached. The cervical and left axillary glands presented a similar appearance, while the left breast throughout was exceedingly hard, creaking like cartilage under the knife; the same induration invaded extensively the surrounding tissues of neck and trunk.

Microscopical Appearances.—Most of the lymphatic glands, the left breast, and the surrounding indurated tissue, contained an abundance of fibrous tissue, in which were embedded free nuclei and nucleated cells of various shapes and sizes. In some of the glands, and in a portion of the pancreas, the cells predominated over the fibrous stroma. The central portion of the various growths was in an advanced state of fatty degeneration; in some places scarcely any thing but fat was discovered; in others the cancer-cells were more or less filled with oil-globules. Portions of the pectoral muscles were reduced to mere fibres infiltrated with cancer-

cells, but contained little fat. No suspicious elements were found in the stomach or in the nodule of the spleen.

The liver-cells were large, many of them hyaline and without a nucleus, others nearly normal. A good deal of free oil, but not an abnormal amount, in the cells; no excess of fibrous tissue. Some of the tubes of the kidney were infarcted with granular and fatty epithelium; many of them healthy. No abnormality noticed in the tufts. There was a considerable excess of fibrous tissue.

Weight of Organs.—Brain, 37½ oz.; heart, 7 oz.; liver, 31 oz.; right kidney, 5½ oz.; right lung, 12 oz.; left lung, 12 oz.; spleen, 3 oz.; left kidney, 5 oz.

Remarks.—During the two months that this patient was under my observation, I watched the progress of her disease with particular interest, not only from the fact that primary cancer of the lymphatics is rare, but because her case appeared to me to afford evidence of a cancerous diathesis.

Before referring to this unsettled question in the history of cancer, I will glance for a moment at other points of interest in the case.

The amount of fatty degeneration in the older parts of the cancerous masses was unusually great—so great that, upon examining the first specimen, I thought I had a portion of adipose tissue under the microscope; repeated examinations, however, demonstrated different degrees of degeneration in many of the cells. One could not help believing that Nature had endeavored thus to resist the encroachments of the malignant disease. The same process had undoubtedly at some previous time rendered innocuous a formation in the lungs of, probably tubercle, possibly cancer. Nothing remained but a few small encapsulated masses of cretaceous material.

The autopsy revealed a general tendency to fatty degeneration; the heart and larger arteries were evidently fatty, though by an oversight a microscopical examination was neglected; so also were the kidneys, while the cornea contained a very distinct arcus senilis. This condition confirms the opinion expressed by Mr. Canton, that the arcus senilis is the best indication of the proneness of other tissues to fatty degeneration.—(Soelberg Wells on the Eye.)

The entire absence of any fibroid growths connected with the uterus is worthy of note; such tumors being quite common

in middle-aged colored women. Colored people, indeed, seem to be particularly prone to fibroid degenerations; scirrhous cancer occurs in them more frequently than the other varieties.

The liver was exceedingly small, not over half its usual size, and, although the capsule was considerably thickened, the surface was not irregular, nor was there an excess of fibrous tissue in the substance of the organ. Its appearance was very similar to that of acute yellow atrophy, but the history forbade such an interpretation.

The patient began to complain of general weakness about one year before her death; but not until six months before the fatal issue did any local manifestation of cancer appear. The term *local manifestation* is purposely used, as I believe that such manifestation depends upon a preëxisting diathesis.

The patient stated that all the tumors made their appearance within a very short time of each other, and I am inclined to believe that their development was more nearly synchronous than she was aware. The masses were mainly scirrhous; nor was there in any of them such an abundance of "parenchymatous juices" as to explain their rapid appearance in new situations. Furthermore, the development of the different tumors was in a direction opposed to the current in the lymphatics and veins—those favorite channels for "metastatic diffusion."

The chief arguments urged against the cancerous diathesis are—1. "Its [cancer] invariable origin as a single tumor. 2. The manifest dependence of the later tumors upon the first. 3. Because of the remarkable manner in which it is inherited as a local, not as a constitutional peculiarity—a disease of a corresponding organ; while at the same time any inheritance of the disease is uncommon, and that by infants extremely rare. 4. Because of its preference of healthiest persons." (C. R. Moore, Aitken.) 5. The great improvement which follows the extirpation of malignant growths. 6. "Every resource afforded by microscopical or chemical analysis has hitherto been fruitlessly employed in investigating the part played by the blood in these processes; and that on the other hand we are in most of them able to demonstrate important changes in larger or smaller groups of the ultimate constituents of organs,

and that, on the whole, the probability that the dyscrasia should in these instances also be regarded as secondary, and as derived from definite points in organs, becomes stronger every day." [1]

In the present case, although it is possible there may have been originally "a single tumor," the succeeding ones had no "manifest dependence" upon the first. Their sudden development can be more readily explained upon the hypothesis of a constitutional taint.

The question of hereditary influence throws open such a vast field for speculation, that we refrain from its discussion, though we can conceive how it might be applied against the arguments of Mr. Moore. There is some plausibility in the argument, that improvement follows the removal of a malignant growth. But, when we take into consideration the mental effect of an operation upon the poor victim who relies upon the knife as a possible means of escape from death, and that the body has thereby been relieved of a parasite which had been robbing it of its nourishment, it is not surprising that temporary improvement should follow. The constitutional influence of cancer soon, however, causes a fresh outcropping, and, the patient's hope failing with the operation, he falls an easy prey to the advancing malady. The improvement which follows an operation upon tuberculous bone may be permanent, yet, how often does the disease reappear in other parts, and result in a fatal issue!

Virchow tells us that there is a period in the history of morbid processes when it is impossible to say what the fully-developed formation will be—tubercle, pus, or cancer. If they be so identical in their incipiency, what is it that determines their subsequent difference—that causes in one instance pus, in another tubercle, in a third cancer? Certainly not a peculiarity of local structures, for these processes invade almost every tissue. Here is a gap which this new doctrine fails to fill.

The formation of pus may be due to local causes, and the constitutional disturbance bear a direct relation to the severity

[1] Virchow, Cellular Pathology. American edition, p. 252.

of the local trouble. This rule is not so universal in either tubercle or cancer. Frequently there is much constitutional derangement, with a limited local affection, and *vice versa.*

If we are to consider of local origin all affections of which the microscope and chemistry fail to detect any evidences in the blood, then have we few constitutional diseases. Neither the microscope nor chemistry has fully enlightened us in regard to "the part played by the blood" in known constitutional maladies—for example, small-pox. Virchow, in speaking of the metastatic diffusion of cancer, remarks: "We need only imagine a process similar to that which we see upon a large scale in small-pox. The pus of small-pox when directly inoculated does indeed induce the disease, *but the contagion is also volatile, and a person may have pustules over his skin, after merely breathing air of a certain character.*" He thus virtually acknowledges that the peculiar eruption of small-pox is due to a contamination of the system by contagious matter. The advocates of a cancerous diathesis need no better argument than this.

Very much still remains a mystery in these interesting processes, and the vast importance of the subject demands the attention of the ablest minds. The exact nature of the subtle forces at work in the production of disease may never, probably will never, be understood, but the inquirer after truth should not rest short of an impossibility.

With the utmost deference for those whose experience, compared with our own, is as the ocean to the drop, we remain unconvinced by their arguments, with our convictions tending strongly to the theory which they endeavor to overthrow.

Many arguments might be adduced in support of the diathetic nature of cancer, but our present purpose is simply to endeavor to show upon what insufficient grounds a well-established opinion has been attacked. We believe that (with very few exceptions) the ultimate cause of all disease, acute or chronic, is to be sought for in a *materies morbi*, whose primary action is contamination of system, and that local manifestations are but evidences of its presence.

Art. III.—*A Case of Tetanus, successfully treated with Chloral Hydrate.* By R. Wirth, M. D., Columbus, Ohio.

George Rackley, sculptor, thirty-two years old, moderately robust, and always before in good health, came under my care, under the following circumstances, on July 4th. On June 16th he fell into an excavation for a cellar, and received a lacerated scalp-wound, over the right parietal bone, near its junction with the occipital. He did not lose consciousness, and returned to his home unaided. Indeed, he considered his injury so trifling, that he neglected to see a physician until about four hours after the accident, when, on account of severe pain, medical aid was invoked. The surgeon found the injured scalp full of sand, mortar, etc., which he removed as well as he could, the patient being very irritable, and saw fit to unite the wound by three or four points of interrupted suture. The patient kept his bed for three days, after which he returned to his work, his wound healing rapidly, and on the 4th of July it was cicatrized over its whole extent.

On Friday, the 1st of July, a very hot day, he went to the country, to put up a monument. He was overtaken by a severe thunder-storm, and thoroughly drenched. Being in a free perspiration when it commenced to rain, and remaining in his wet clothes until he returned home (about seven hours), he was much chilled. During the night or early next morning he experienced some stiffness about the jaws, and occasional slight contractions of the muscles of the chest and abdomen. Yet this was not severe enough to keep him from work on Saturday. However, on Saturday night, the stiffness about the face and the rigidity of the respiratory muscles had considerably increased. Nevertheless, he was able to see a physician next day (Sunday), who, thinking it was a rheumatic affection, in consequence of the wetting, advised him to take a good sweat.

Experiencing no benefit from this procedure, he managed on Monday (July 4th) to leave his bed with great difficulty and come to my office. The moment he entered he was compelled to let himself sink down, and could not utter a word. He was evidently suffering severely, though it was impossible to define from his appearance the nature of this suffering. In a few minutes the severity of the paroxysm, whatever it was, seemed to abate, and he was now able to give me with difficulty, and speaking rather indistinctly, most of the facts above stated. Recognizing the terrible nature of the complaint, I had him conveyed to his home, ordering perfect rest, and the following medicine to be taken: ℞ pulv. Doveri ʒ ij, morph. sulph. gr. ij. M. Divide in chart. No. 8. D. S. One powder to be given every three hours until relieved or sleeping.

His condition at this time was as follows: During a paroxysm his teeth were clinched, and could not be separated with a reasonable amount of force. The muscles of the neck, chest, and abdomen, were rigid, and felt

hard as a board. He complained of severe pain in the region of the diaphragm and the abdominal muscles. The pulse was considerably accelerated, rising from 72 to 90 and 96. There was no pain in the head, and no derangement of the digestive organs. In fact, he experienced keenly the sensation of hunger, having been unable to take solid food since Saturday night. The paroxysms subsided at first in from five to ten minutes, leaving the body in a more or less rigid state, but admitting of a separation of the teeth to the extent of about one-third of an inch, enabling him to swallow fluid. (In addition to the medicine, strong beef-broth and wine were ordered.)

July 5th.—The patient had slept little in spite of the large opiates. He had frequent paroxysms during the night, was very restless, though drowsy, and complained that he felt worse in every respect. Ordered the powders to be given every two hours.

July 6th.—The condition had not materially changed, except that considerable retraction of the head had taken place, which was more marked than yesterday, the occiput being buried in the pillow, the chin elevated. He was entirely unable to change his position by his own efforts.

The patient's bowels not having been moved for several days, four comp. eath. pills were taken with great difficulty by being first pushed far back toward the root of the tongue. No effect following, the bowels were freely moved by an injection, from which he expressed a sense of relief. Paroxysms were easily induced by any attempt to move him by a sudden touch, loud noise, etc. He impressed me with the idea that he was losing ground. He took, however, wine and beef-broth in large quantities with relish, and seemed at least to have some relief from the opiate. It was therefore continued for another day, morphine gr. ½ pro dosi, every two hours, being substituted for the mixture of Dover's powder and morphine. The patient was seen in consultation by Prof. Loving, of Starling Medical College, who sanctioned the treatment, and recommended its continuance.

July 7th.—There was even greater restlessness than the day before, the least touch bringing on a frightful paroxysm, during which every muscle of the body seemed perfectly rigid, the body resting exclusively on the heels and the occiput. When the spasm somewhat relaxed, he was utterly exhausted, and grew evidently rapidly weaker. The body was bathed in a very profuse perspiration.

Seeing that the treatment so far followed (which had served me in a former case to an excellent purpose, the patient recovering) did not even give temporary relief, it occurred to me to try the chloral hydrate, not with an expectation of cure, for I thought the patient must die, but with the hope that its hypnotic effect might give the sufferer at least temporary immunity from his misery. I prescribed chloral hydrate ℥ij, syrup. aurant. aquæ āā. ℥j. M. D. S. Tablespoonful every four hours. I watched the effect of this medicine with considerable interest and anxiety. The first dose did not produce sleep, but it appeared to me as if there were less restlessness and frequency in the paroxysms. The pulse was at first un-

affected, then rose rapidly for a short period, and then fell as rapidly to 60 and 64. The second dose produced a tranquil sleep of two hours' duration, with the same variation in the pulse. On waking, the patient declared his inability to move, and a sense of "numbness over his whole body," which, however, disappeared in about ten minutes, and he thought he suffered less than before his sleep. However, before it was time to take another dose, the paroxysms appeared pretty much as before. In due time another dose was given, which produced the same effect, about two hours' sleep and immunity from spasms for about an hour more. The medicine had left no unpleasant sensation in his head or stomach, and he felt for the first time "as if waking up from a natural sleep." I had no reason, therefore, to change the treatment, and it was continued for a week in this way: every fourth hour thirty grains chloral hydrate with a glass of Rhine wine, which he preferred to any other stimulant, and as much beef or other animal broth as he could take, after waking up from sleep. The bowels were moved by injections.

At the end of this week his condition was as follows: The rigidity of the muscles of the face had almost completely subsided, so that soft articles could be masticated, which enabled me to add to the diet eggs, tender meat, fruit, etc.; there was also evidence of yielding in the rigidity of the respiratory muscles; and there were no well-defined spasms any more, as at first, but from time to time he complained of severe pain in the back, along the spinal column from the cervical vertebra downward, also of pain and rigidity in the legs, especially in the left. It appeared, also, as if the effect of the medicine wore off sooner, his sleep after each dose lasting only from three-quarters to one hour. I therefore increased the dose, at first to thirty-five, and soon after to forty grains, and, instead of every four hours, a dose was given every two hours. This seemed to control spasm as well as pain completely. In the third week the patient slept at least sixteen out of the twenty-four hours, waking, however, frequently to take food or medicine. He was, however, entirely helpless, being able to move only his arms. His mind was always clear after waking up, and only occasionally he complained of slight headache. In the night he became frequently more restless, and was apprehensive of a return of the spasms, the approach of which he said he was able to foretell by a peculiar sensation "in the veins" (probably the nerves). He would then insist on taking the medicine every one and a half or two hours.

Up to this time the body had rapidly emaciated, the muscles becoming remarkably thin and flabby. Yet his appetite was always good, and he gratified it frequently and without stint.

July 25th.—The condition of the patient is to-day as follows: He feels much exhausted, but, owing to the greater relaxation of the muscles, he can with much effort turn on his side without aid. His pulse is feeble and very slow; the lips look cyanotic, and a peculiar pallor overspreads his face; his flesh feels sore, "as if pounded;" he has some pain along the spine, especially when he moves himself.

I now ordered the chloral hydrate to be given less often, and substituted quinine and compound tincture of cinchona. At the end of two more days the chloral was entirely discontinued (July 27th); I had, however, reason to regret this, for in the following night I was summoned in great haste to his bedside, the messenger stating that he was dying. I found him bathed in sweat more profusely than ever, unable to speak and to swallow; the body rigid. To give medicine by the mouth was out of the question. I let him inhale chloroform (mixed with ether) very cautiously, and had the unexpected satisfaction to relieve the rigidity, without producing sleep. He could now swallow, and took some brandy, which evidently did him good, the pulse becoming fuller, and the deathly pallor from his countenance disappearing. At his urgent request, he resumed the hydrate of chloral, and continued it for three days longer without interruption.

This was his last paroxysm. August 1st, he was slowly gaining in strength; the last trace of rigidity had disappeared; but, fearing a relapse, I hesitated to discontinue the medicine suddenly again. I concluded to withdraw it gradually; accordingly he took three doses on the 2d, 3d, and 4th, two on the 5th, 6th, and 7th, and one only at bedtime on the three following days, after which it was entirely withheld, without any unpleasant symptom following. During this time he gained daily in strength. On the 7th he was able to get out of bed alone, and move himself slowly by pushing a chair before him. On the 14th, he was able to walk about the room with a cane; and to-day, August 17th, he takes short walks in the open air. Besides, since he has commenced to exercise, he is rapidly gaining in flesh.

Remarks.—Recoveries from tetanus are sufficiently scarce to justify the publication of a successful case, but, what especially induces me to do so in this case is, the remedy employed, to which the patient, in my opinion, unquestionably owes his life. Opium, up to this time looked upon as the sheet-anchor in this disease, had been fairly tried, and under its administration the disease made rapid progress. The chloral hydrate was given, in the hope to give relief, not to accomplish a cure. Yet it seemed, almost from the first dose, to modify the disease, and soon it was evident that it was able to hold it perfectly under control. This inference is justified from the fact that the spasms returned after its sudden withdrawal, and their cessation after its readministration. I have since seen in a journal that chloral hydrate is claimed to be an antidote to strychnia; if this is true, it would explain its action in this case—tetanus produced by strychnia differing

in its symptoms in no way from idiopathic tetanus. Yet it does not appear to me to act exactly in the nature of an antidote. The real nature of tetanus is, to-day, in spite of our advances in the pathology of the nervous system, as unknown as in the days of Larrey and McGregor. Whatever it may be, the occasional recoveries prove that the force of the irritating agent may gradually spend itself, and leave the spinal column unchanged and intact. Death from tetanus is the result of the rigid and tonic contraction of the respiratory muscles, and consequently is death from asphyxia (or in chronic cases, perhaps, from slow starvation on account of the interference with deglutition). Any agent that has the power to antagonize these contractions, thereby keeping up the possibility of respiration and deglutition, must therefore be, with suitable dietetic measures, a proper remedy in tetanus. That in this respect chloral hydrate is far superior and safer than opium, I am fully convinced. Had I pushed the administration of opium much further than I did, it likely would have been a nice point to decide whether the patient had died from the effect of opium or tetanus, or of both combined: the large and long-continued administration of the chloral hydrate produced not a single alarming symptom or even unpleasant effect. In this connection it may not be improper to state that in all, from the 8th of July to the 5th of August, nine ounces and two drachms of the medicine were administered in doses of thirty, thirty-five, and forty grains, some nights as often as every one and a half hour, but ordinarily every three or four hours. In conclusion, I would say that, in a given case, where such doses seemed not to control the spasms, I would not now hesitate to give larger amounts; yet prudence would require one to commence with not more than from thirty to forty grains.

ART. IV.—*On the Stimulant Effect of Digitalis in Heart-Disease.* By BLAIR D. TAYLOR, M. D., Senior Physician, Third Medical Division, Bellevue Hospital.

THIS case is published, not for the purpose of demonstrating the *tonic* effect of digitalis on an enfeebled heart, but to

illustrate its value as a prompt and efficient remedy when given *freely*, in cases of sudden cyanosis and syncope, the result of extensive heart-disease.

The tonic action of this remedy, when given for a length of time, in heart-disease, is a well-established fact; but no attention has been called to its effect in restoring power and regularity, almost instantaneously, to a heart too feeble to drive a column of blood into the radial artery. Of course, in a case like this, where both mitral and aortic valves were extensively diseased, nothing but death is ultimately looked for; but, at the same time, the patient's life may be prolonged for months, and his existence rendered comparatively comfortable, by using digitalis as a combined stimulant and tonic to the heart's action. Its stimulant effect we reserve for a sudden emergency, while in the interim it is employed solely as a tonic.

The patient's name was Mary Harrison, thirty-six years of age, a native of Ireland, and by occupation a domestic. She was admitted into the hospital on the 10th of March, 1870.

She gives the history of hereditary predisposition to phthisis. Her life has been one of considerable hardship and exposure, but her general health was good up to May, 1869. At this time she began to cough, and suffered likewise, after getting wet, from a severe attack of acute articular rheumatism; the disease affecting, in succession, all the larger joints of the extremities.

She recovered in a few weeks from this attack, but the cough continued and grew worse. From July 1st she began steadily to lose appetite, flesh and strength, and to suffer from hectic and night-sweats. In August, had a slight attack of hæmoptysis, which recurred several times previous to her admission, but the quantity of blood expectorated each time was insignificant.

In September of the same year she began to suffer a good deal from shortness of breath on exertion, and to have a sense of uneasiness and oppression about the chest, with vertigo and flashes of heat. Her cough still continued, the sputa being generally whitish. In October she came into the hospital for treatment. Remained until the 24th of December, when she was discharged much improved. Soon afterward, however,

she began to suffer more severely from dyspnœa, with indigestion, and occasional vomiting; complained also of some pain over the region of the liver. Cough became worse, and loss of flesh continued, but the night-sweats and hectic ceased. The greatest suffering was caused by the dyspnœa.

Her appearance on admission was anæmic. The mucous membranes were pale, but the face slightly flushed. Skin was dry and warm, and body considerably emaciated. Pulse 104, of moderate force, jerking but regular. Appetite poor, bowels constipated; urine normal. Breathing somewhat hurried and oppressed, not marked when at rest. She has a slight but frequent cough, dry in character, with scanty white sputa.

Complains of dizziness and swimming in the head, ringing in the ears, and flashes before the eyes. Says her head feels light. Has never had any violent attack of dyspnœa *without* previous exertion. Physical examination of the heart shows the area of precordial dulness extending half an inch beyond the left nipple. Apex-beat situated one and a half inch below the same nipple and on a line with it. Impulse strong and heaving, but labored. Auscultation reveals the existence of an obstructive and a regurgitant murmur at each of the valves on the left side of the heart. The mitral regurgitant is soft and short, but distinct, while the remaining three are loud and blowing. The hand has communicated to it a peculiar thrill when placed over the apex-beat.

Physical examination of the lungs reveals slight dulness and rude respiration over both apices in front. Behind, the breathing is harsh, mixed with a few moist and dry râles. Further investigation reveals no symptoms of disease elsewhere. She was ordered viij ♏ of tinct. ferri chloridi with ij grs. of quin. sulph. ter die, nutritious diet, including cod-liver oil, an anodyne cough-mixture, and 20 ♏ of tinct. digitalis at bedtime.

She improved slowly under this treatment, both in general condition and as regards the pulse, which became stronger and less jerking, until the 24th of March, at 6 P. M., when being suddenly called to her, found she was suffering from intense dyspnœa, cough, and hæmoptysis, having lost about four ounces of blood. Face and extremities cool, capillary circula-

tion poor, surface covered with a clammy perspiration. Heart's action moderately strong and regular, pulse 105. Coarse and fine moist râles were heard over the length of both lungs, with a diminution of the normal resonance on percussion.

Dry cups were applied between the scapulæ and under the clavicles, their application being immediately attended with some relief. They were repeated at 12 M. and 6 P. M., when the dyspnœa became reduced to the same standard as before the attack. From this time until the 17th of April she remained free from any violent symptoms. On that day she experienced an attack precisely similar in all respects to the first, and was relieved in the course of twenty-four hours by the same treatment. The pulse in neither of these attacks was affected as regards its strength or regularity, but only increased in frequency.

On the 29th of April was called to see the patient in the night. Found her gasping for breath, face purple, extremities cold, skin cool and clammy. Pulse barely perceptible at the wrist, very irregular and intermittent. Heart-sounds inextricably confused, with no order or regularity. The lungs were full of fine râles, but there was no hæmoptysis. Two ounces of whiskey were administered with difficulty. After waiting ten minutes, by the watch, found that not the slightest improvement took place in the symptoms. She was then given thirty minims of tinct. digitalis. I waited with the stethoscope over the heart, and after the lapse of five minutes the rhythm began to return, and the various sounds could be distinctly separated; in a few moments more the pulse was beating 103, with good force, there being, however, intermissions about three times a minute. The dyspnœa became relieved in proportion as the heart gained strength. Cups were now applied over the lungs, and in forty-five minutes from the commencement of the attack a second dose of twenty minims tinct. digitalis was administered. Within half an hour from this time the intermission in the pulse ceased, and she was as well as before the paroxysm, although she had no hæmoptysis; the sputa were rust-colored, like those of pneumonia. Now ordered 10 ♏ tinct. digitalis every two hours—the iron and quinine and cough-mixture being continued as before. The

force of the heart's action continued to remain good, with the exception of occasional irregularities, up to May 2d, when she had a second attack, precisely similar to the last. This was relieved in one hour by two doses, 30 ♏ each, of tinct. digitalis given at twenty minutes' interval. No cups or whiskey as employed. Stethoscope was kept to the chest as before, and no improvement was perceptible until after the digitalis was administered. The next note, made May 5th, says: "Patient very much improved. Heart's action forcible and regular, pulse normal, no dyspnœa, 10 ♏ tinct. digitalis every two hours."

She continued in this improved condition until the 2d of June, when, after a few premonitory irregularities of the pulse the day before, she became suddenly pulseless, livid, cold, and gasping for breath. This was at 9 A. M. Was immediately given 30 ♏ tinct. digitalis, which was soon followed, as before, by return of pulse, and marked improvement in the rhythm and strength of the heart's contractions. The dose was repeated in twenty minutes, but the patient failed to respond as readily as formerly. She was propped up in bed, ordered to be kept quiet, and in a short time was breathing easily. Cups were now applied over the lungs, which were much congested. At 11.30 was again called to see her. Found her in the same condition as in the morning, but with the addition of tracheal râles. On account of the difficulty in making her swallow, 15 ♏ tinct. digitalis were administered hypodermically. This was repeated in a quarter of an hour, and was followed by return of pulse at the wrist, and a steady increase in the regularity and strength of the apex-beat. Cyanosis almost disappeared, but the tracheal râles continued, and the breathing was still labored, though improved. Six gallons of oxygen gas were inhaled, but with no apparent effect except to slightly quicken the pulse. Magneto-electric battery was now employed, and the interrupted current applied for three hours, being directed to the phrenic nerve and diaphragm, occasionally from before, backward, around the attachment of that muscle. She got no worse, but improvement could not be carried beyond the point already reached. Treatment was now abandoned, and she died in about an hour, having taken

during the time, from 11.30 A. M. to 2.30 P. M., 70 ♏ tinct. digitalis hypodermically, ℥j of whiskey, and ℥iij of milk.

No autopsy could be obtained, the friends strenuously objecting.

It will be noticed that, in the first two attacks of dyspnœa accompanied by hæmoptysis, the heart's action was strong and regular. I conclude, therefore, that the hæmorrhage was rather dependent upon the tuberculous condition of the lung than upon the heart-affection, although it is not to be denied that it may have been partly due to the latter. Here, then, there was no indication for a heart-stimulant, since the pulse was little affected.

It might be said that the cups and whiskey used during the third attack deserve as much credit for the favorable result as the digitalis; but in the fourth attack nothing was employed but the last medicine, and yet the same result was accomplished in a shorter time than before. It may still be objected that "*post hoc*" is not always "*propter hoc*," and the patient would have recovered if she had been let alone. This is true, but still we have to encounter the same source of error in estimating the action of any medicine, and I think it fair to infer that digitalis in this case was the remedial agent, especially as I have tried it in three other cases of heart-disease, subject to the same attacks of cyanosis and syncope, and with equally good results.

From these observations, therefore, I come to the conclusion that tincture of digitalis exerts a powerful and immediate *stimulant* effect upon the enfeebled heart when given in doses of ℥ss to ℥j, and becomes a valuable agent where sudden death is threatened in heart-disease.

At the meeting of the New York Medical Journal Association, held October 7th, the following order of the Board of Direction was announced:

The members of the Association will be furnished by the Librarian with members' cards of admission to the Reunions and the Reading-room, which will be necessary for admission on and after November 1st.

Proceedings of Societies.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Sixty-fifth Anniversary Meeting, October 3, 1870.

Dr. John R. Van Kleek in the chair.

In the absence of the President and Vice-president, Dr. Van Kleek was chosen President *pro tempore.*

The minutes of the Stated Meeting, September 5th, and of the Special Meeting, September 26th, at which Dr. Austin Flint, Jr., presented the paper on the *Influence of Muscular Exercise on the Urine*, published in our last number, were read and approved.

The minutes of the Comitia Minora for the year were read.

The Treasurer, Dr. Bibbins, presented his report, showing a balance on hand of $434.06.

The following letter from the President, in response to the resolution passed at the meeting of 5th September, was read by the Recording Secretary:

Garrisons-on-Hudson, *September* 16, 1870.

Dr. Purdy, Recording Secretary of the New York County Medical Society.

My dear Doctor: I have the honor to acknowledge receipt of the resolution of the Society, conveying their sympathy with me in my recent illness, and their kind and friendly wishes. I am very grateful to the Society for their action in the matter, and am happy to assure them that my improvement justifies the greatest encouragement for the future, and the hope of speedy restoration to health.

With the kindest regards for yourself,

I am yours, very truly,

George T. Elliot.

ELECTION OF OFFICERS.

The Society proceeded to ballot for officers, and the following were elected for the ensuing year:

President, Dr. Abram Jacobi; *Vice-President*, Dr. Austin Flint, Sen.; *Recording Secretary*, Dr. Alfred E. M. Purdy; *Corresponding Secretary*, Dr. Bradford S. Thompson; *Treasurer*, Dr. William B. Bibbins.

There being only a partial choice of Censors and Delegates to the State Society, further balloting for them was postponed to the next meeting.

NEW BY-LAW.

The following by-law, proposed at the last stated meeting, was adopted:

CHAP. I., ART. .—Members whose dues are unpaid shall not be candidates for any official position in the Society, nor shall they be entitled to vote.

The Society adjourned.

Adjourned Anniversary Meeting, October 10, 1870.

DR. T. GAILLARD THOMAS, Vice-President, in the chair.

ELECTION OF OFFICERS CONCLUDED.

THE balloting for Censors for the year, and for Delegates to the State Society to serve for four years, was resumed and concluded. The following is the complete list of those elected:

Censors: Drs. Ellsworth Eliot, George T. Elliot, T. C. Finnell, J. C. Peters, Stephen Rogers.

Delegates: Drs. Thomas S. Bahan, Nathan Bozeman, Salvatore Caro, William M. Chamberlain, Jean F. Chauveau, James J. Connolly, George T. Elliot, Thomas A. Emmet, Abram Jacobi, E. Lee Jones, Herman Knapp, Ernst Kraekowizer, Robert Newman, Robert J. O'Sullivan, John C. Peters, Alfred E. M. Purdy, Stephen Rogers, James Ross, Andrew H. Smith, Bradford S. Thompson, William T. White.

The Society adjourned.

SIR DOMINIC CORRIGAN, M. D., has been elected a member of Parliament, to represent the city of Dublin. The English medical press generally, while congratulating the doctor on his triumphant success, and on the probable political gain to his borough, greatly deplore the loss of his professional services to his city.

Bibliographical and Literary Notes.

We have received, from the Surgeon-General of the United States Army, copies of Dr. Woodward's Reports on the Use of the Magnesium, Electric, and Calcium Lights in Photomicrography. These reports are accompanied by some most exquisite photographs taken with these different artificial lights. Although the use of these lights for this purpose had been previously suggested, and even used occasionally in photography, Dr. Woodward is, we believe, the first to fairly utilize the method, and to apply it to printing of plates from microscopic negatives. For the purposes of comparison, photographs are here given of a section of Möller's type-plate of the Diatomaceæ, taken by sunlight, and by each of the above-mentioned artificial lights. In the set before us the plate is not magnified on the same scale, but varies from thirty-five to sixty-six diameters—sufficiently near, however, to make a good comparison—and a glance is sufficient to show the immense superiority of the artificial over the natural light. Of the artificial lights the calcium appears to produce the best prints, and the magnesium the poorest. In addition to the prints of the type-plate, single diatoms are photographed with immense magnifying powers. Thus, we have the well-known *navicula lyra* magnified one thousand diameters by Powell & Lealand's one-sixteenth objective immersion, taken with the calcium light; the *grammatophora marina* twenty-five hundred diameters —same lens with the electric light—the *pleurostaurum acutum* magnified three hundred and forty diameters with a Wales's one-eighth objective. There are also a number of other equally interesting prints, but these may be instanced as most perfect specimens of photomicrographic work, it being almost impossible to conceive of any thing more beautiful and distinct than the finer markings on these prints. Not only does this work reflect credit on Dr. Woodward for his scientific accuracy and devotion, but, what is of vastly greater importance, it renders available to science and the world the immense stores of microscopic preparations in the Army Museum—a collection that will soon become, if indeed it be not already, superior to any in the

world. The government owes it to itself to encourage and sustain this noble work, and to give the results of it to the profession and the world. The money expended in the undertaking will be handsomely returned in the advances made in science, and the credit that must come to American investigators.

This is the first number of a new Herbarium[1] prepared by Dr. T. J. Allen of this city. It consists of carefully-prepared botanical specimens mounted upon large sheets of stout paper. As illustrations they will be of very considerable value to a lecturer upon materia medica. They may prove, too, as suggested by the publisher, of service to pharmaceutists in determining upon the authenticity of drugs exposed for sale. This number contains Eupatorium Purpureum (Joe Pye Weed); Asclepias Incarnata (Swamp Silk-weed); Polygala Senega (Seneka); Baptisia Tinctoria (Wild Indigo); Aletris Farinosa (Stargrass); Ptelea Trifoliata (Shrubby Trefoil); Phytolacca Decandra (Poke-weed); Lobelia Inflata (Indian Tobacco); Ustelago Maydis (Corn-smut); Cicuta Maculata (American Water Hemlock).

This paper[2] is a report of the well-known experiments of Dr. Hutchison on the applications of acupressure to the arteries of the lower animals, together with the results of the cases in which he made use of the needle as a hæmostatic. The subject has been so thoroughly discussed as to demand no further consideration here; and the value of Dr. Hutchison's experiments is already established.

Dr. H. suggests an additional method ("the eighth" or "Brooklyn") which has been alluded to by Dr. G. A. Peters in his paper on this subject, published in the number of this Journal for June, 1869, p. 241.

Any work which really informs laymen concerning the structure and functions of the human body, and gives them

[1] The Medical Herbarium. A Collection of Dried Samples of Medicinal Plants. By T. J. Allen, M. D., New York.

[2] Acupressure. An Essay, to which was awarded the Merit H Cash prize, by the Medical Society of the State of New York, February, 1869. By Joseph C. Hutchison, M. D. Brooklyn, N. Y. 1869, pp. 22, with 21 Figures.

correct general notions of hygiene, we believe does an actual service to mankind. Dr. Joseph C. Hutchison, in a little manual,[1] intended for schools and the general reader, has admirably succeeded in presenting the leading facts of human physiology and hygiene concisely, clearly, and correctly. The literary execution of the work is singularly happy. We can cordially recommend it not only to the general reader, but as an alphabet-book to the medical student beginning his studies on these subjects.

The third edition of that sterling work, "Bumstead's Venereal Diseases," is announced by Henry C. Lea, of Philadelphia.

The Medical Times.—This new bimonthly, published by the Messrs. Lippincott, of Philadelphia, appeared on October 1st, in most comely shape, and promises to be a valuable accession to the medical periodical literature of the United States. Excellent lectures, valuable original papers, hospital reports, editorials, book notices, summaries of progress in the different departments of medicine, and news items, are contained in each of the two numbers published. We heartily welcome our new contemporary, and wish it all the success it can desire.

Mr. Holmes's well-known work on "The Surgical Treatment of Children's Diseases" has been translated into French by Dr. O. Larcher, who has made some valuable additions from the writings of Guersant, Giraldès, Marjolin, and others.

Dr. John Sibbald has become an associate editor of the "Journal of Mental Science" with Dr. Henry Maudsley. Dr. Sibbald's excellent abstracts of French and German psychological literature have been a feature of this periodical.

Messrs. Macmillan & Co. will shortly publish, simultaneously in London and New York, Dr. Maudsley's "Body and Mind: an Inquiry into their Connection and Mutual Influence, specially in reference to Mental Disorders. Being the Gulstonian Lectures for 1870, with additions."

[1] A Treatise on Physiology and Hygiene, for Educational Institutions and General Readers. Fully illustrated. By Joseph C. Hutchison, M. D. New York: Clark & Maynard, 1870. 12mo, pp. 270.

Messrs. Wm. Wood & Co. announce for early publication, "The Palsies and Kindred Disorders of the Nervous System." By Meredith Clymer, M. D.

The capital papers on Nervous Disorders which have appeared in the *Medical Record* and in this Journal will, we presume, be the basis of this volume.

Messrs. J. B. Lippincott & Co. announce "A Hand-Book of Medical Microscopy." By Joseph G. Richardson, M. D.

The *Dominion Medical Journal*, of Toronto, Canada, ceases to exist as such. It however reappears under the name of the *Canada Lancet*, and is now published in octavo form. The editors promise more promptness and regularity in the issues than have hitherto obtained.

Books and Pamphlets Received.—Quinine as a Therapeutic Agent. By Dr. S. S. Herrick, of Louisiana. Prize Essay, extracted from the Transactions of the American Medical Association, 1869, pp. 56.

This paper is rather a *résumé* of what has been written upon the subject, than the results of personal investigation, though the author here and there gives observations of his own. Thus, he cites certain cases treated at the Charity Hospital, in New Orleans, to show that quinine, in ordinary medicinal doses, does not diminish the temperature, the thermometer varying neither markedly nor uniformly.

Of its therapeutic use we notice nothing new. Of its use as a prophylactic, Dr. Herrick's opinion, based on his own experience, is that better results are obtained by administering a single full dose, during the period of *malaise* that generally precedes a day or two an actual outbreak, than by habitually taking small doses.

The directions on the mode of administering are probably the most valuable part of the essay.

Mal Vertébral de Pott—Scoliose—Nouveau Traitement Orthopédique. Par Justin Quintaa, Docteur de la Faculté de Paris, etc. Paris: Adrien Delahaye, 1869, pp. 47, with 4 Figures.

This pamphlet presents nothing new to the American reader. It is, however, of interest as an evidence of the recognition abroad of the "American," i. e., mechanical plan of treatment. The views advanced by Dr. Quintaa are essentially the same as those of Dr. Charles F. Taylor, of this city, whose pupil the author claims to be.

Medical Progress. An Oration on the Forty-seventh Anniversary of the Medical Society of the County of Kings, N. Y. By A. N. Bell, M. D. Pamphlet. pp. 33. (From the Author.)

Reports on Cases of Relapsing Fever received at the Temporary Fever Hospital, Hampstead, Metropolitan Asylum District, England. By T. C. Shaw, M. D. (From the Author.)

Reports on the Progress of Medicine.

MATERIA MEDICA AND THERAPEUTICS.

PREPARED BY LEROY M. YALE, M. D.

1.—*The History and Uses of Belladonna.* [Medical Record, April 15, 1870.]

Dr. Wm. T. Plant, of Syracuse, N. Y., here gives a most instructive and interesting paper, of which we present only the conclusions:

1. Belladonna and opium are mutually antagonistic and antidotal. In poisoning by either, the administration of the other should be held as a part of the established practice; and the antidote should be proportioned in quantity to the amount of the poison ingested. Especially is the hypodermic use of atrophine or morphine applicable to desperate cases.

2. Children will bear, and often require, proportionally larger doses of belladonna than adults.

3. In neuralgias, epilepsy, and tetanus, it is occasionally most happy in its effects.

4. In whooping-cough it has more testimony in its favor than any other remedy, and frequently shortens its course by many days.

5. Its prophylactic power over scarlatina we regard as not proven, though it is a valuable remedy in the treatment of that disease.

6. In incontinence of urine from a weakened or paralyzed sphincter, in paraplegia, and the whole train of symptoms attending irritation or inflammation of the cord, it is a medicine of the highest value.

7. To the relief of habitual constipation, it is better adapted than any of the usual remedies, because it directly unloads the distended capillaries, and stimulates the relaxed muscular coat to contraction.

8. In its influence over the mammary secretion it stands almost alone and unrivalled.

9. In spasmodic contraction of all sphincters, and in spasmodic diseases generally, it is a most useful agent.

10. Many morbid states of the eye are successfully treated by belladonna; among these, iritis and photophobia may be particularized.

11. Lastly, this plant has properties peculiarly its own, which give it a special value, and therefore it is worthy of being better known, and more used.

2.—*Belladonna and Stramonium in Constipation.* [American Practitioner, January, 1870.]

Two or three articles upon this point have appeared recently. Dr. S. G. Armor, in an article on "Morbid States of the Colon," calls attention to the value of belladonna in

promoting evacuation of the bowels, as pointed out long ago by Trousseau. He says:

The exact mode of action of belladonna in the relief of atonic states of the colon may not be understood at present. With its general action as a therapeutic agent we are somewhat familiar. But, in addition to its influence in allaying pain, spasm, and nervous irritation, recent experimental inquiry would appear to establish its influence as a direct and powerful stimulant to the sympathetic nervous system. In the published Gulstonian Lectures, of 1868, by J. Harley, the reader will find extensive experimental researches in this direction.

The influence of the remedy in atonic constipation has been usually attributed to its property of increasing the peristaltic action of the intestines. But Dr. Harley attracts attention to its peculiar influence, not only as an anti-irritant, antispasmodic, and organic stimulant, but as everywhere relaxing the circular muscular fibres of the hollow viscera. In this respect it would appear to be unique in its action. While it relaxes the circular fibres of all the hollow viscera, and allays irritation and spasm, it at the same time tones and tightens the longitudinal fibres of the muscles of organic life. May we not have in this the true explanation of its mode of operation in obstinate atonic constipation? Its action is evidently unlike all cathartic substances. It does not purge; nor does it produce loose stools, but only renders defecation easy and natural. And, unlike cathartics, it is also slow in its action: it may require days before perceptible effects are produced.

According to my observation (and on this point I think I may speak with a good degree of certainty), its effects are peculiarly marked in highly-nervous and hysterical constitutions; indeed, in all cases in which there is marked depression of the sympathetic nervous system. In such cases the one-fortieth or one-fiftieth of a grain of atropine, or one-fourth of a grain of extract of belladonna, administered two or three times daily, will usually in a short time produce natural and easy defecation.

In a conversation, some time since, with my friend Dr. J. H. Baxter, of the United States Army, he informed me that he had used with equal benefit the extract of stramonium in cases of constipation.

I have been in the habit, for some time, of using the belladonna in the form of suppository. More recently, following the suggestion of Dr. Baxter, I have tried the extract of stramonium, as I had been accustomed to use belladonna in the same way, and am thus far greatly pleased with the results. While it appears to be quite equal to the belladonna in promoting easy and natural evacuations, there is certainly less objection to its use for a length of time. Indeed, it possesses, in my judgment, valuable alterative properties which commend its use in many cases of constipation independently of its action on the bowels. Half or three-fourths of a grain of extract of stramonium may be combined with sufficient quantity of cocoa-butter, made into suppository, and used by the patient each night on going to bed. It is admirably adapted in this form to the obstinate constipation of nervous females, who suffer at the same time from pelvic irritations from various causes. It quiets irritation of the uterus and bladder, calms and soothes the nervous system, allays irritative actions generally, and permits the patient to sleep.

To give permanency, however, to its effects, its use may be accompanied or followed by small doses of nux-vomica, or a dinner-pill composed of aloes and nux-vomica. We thereby secure, perhaps, still more universal and permanent tonic action of the paralyzed muscles of organic life, and correct at the same time the morbid condition of the intestinal glands.

D. F. B. Nunnelly (*Practitioner*, April, 1870) gives corroborating testimony to the value of the extract of belladonna in constipation, especially when associated with dyspepsia. He gave doses of one-sixth to two-thirds of a grain on rising every morning. A grain of the extract and three grains of the extract of gentian were divided into six pills, and one to four prescribed for a dose.

Still further, Dr. Philipson (*Medical Times and Gazette*, January 29, 1870) reports a case of intestinal obstruction, treated by atropia after the failure of various other purgatives. He gave every three hours sulphate of magnesia a drachm, diluted sulphuric acid ten minims, liquor of sulphate of atropia five minims (Br.), tincture of orange-peel a drachm, in an ounce of water. Relief was gained after the third dose, and after five days the remedy was discontinued, as the bowels had resumed their normal condition.

Per contra, Dr. J. K. Spender ("The Therapeutics of Chronic Constipation"), as quoted in the September number of this JOURNAL, seems to put less value upon belladonna than the gentlemen above quoted.

3.—*Hashish in Hydrophobia.* [Medical Press and Circular, December 15, 1869.]

Among the effects resulting from the administration of a large dose of hashish, I have been struck by the singular impressionability to slight currents of air, and to the glittering of bright bodies; and especially have I noticed the sensation of a species of suffocation, a sensation which seemed to me to be analogous to that which would be produced by a layer of cotton-wool adhering to the pharynx. This singular alteration of sensibility inspired me with the idea of making a trial of hashish in the treatment of hydrophobia—an attempt to treat an incurable and mysterious malady by a no less mysterious remedy.

A man, aged thirty-eight years, was admitted into the Grand Hospital of Milan on May 12, 1860, who had been bitten by a mad dog a month previously, and who was already suffering with all the symptoms of hydrophobia. I determined to treat him solely by hashish. I employed the brown-black extract which I had used in the experiments on myself. He was made to swallow half a gramme (7.7 grains) of it every four hours for five times, so that he took altogether 2½ grammes (38.5 grains) of this extract of Indian hemp. It was cut into small pieces and placed on the tongue; the swallowing of the drug was assisted sometimes by a little sugar, sometimes by a little milk, and sometimes by a little tincture of aniseed. The action of the hashish taken by the mouth was aided by enemata of an aqueous infusion of coffee, 80 grammes (3.8 ounces) of powdered coffee to a litre (1.76 pint) of water, which was repeated. In a period of little less than twenty-four hours this hydrophobic patient had taken 2½ grammes of extract of Indian hemp, and a litre of infusion of coffee by the rectum. This treatment did not dispel the characteristic phenomenon of horror at the swallowing of water or of any fluid; neither was there freedom of alvine dejections or of emission of urine. The patient remained very constipated and the urine had to be removed by the catheter. The patient succumbed fifty-six hours after his admission into

the hospital; but the evident effect of the hashish taken was an amiable good-humor, a species of gayety, and of reliance on medical aid; and the cessation of the delirium, the terror, and the convulsive madness which seize on all hydrophobic persons to such an extent that it is necessary to use physical constraint. Bright light, also, the reflection of shining bodies, currents of air or of the breath, which are insupportable by ordinary hydrophobics, in him produced no disagreeable impression. This patient was left at liberty, that is, without any bonds, lying free on his bed; and this tranquil state lasted forty-eight hours, after the commencement of the treatment by hashish, and was only interrupted by some convulsion or grimace, which slowly became more frequent, and by the menace of suffocation from the foam at the mouth as the mortal symptoms increased, until his death.

The hashish, without curing the hydrophobia, removed the greatest part of its horrible symptomatology; a result accomplished neither by opium, nor by morphine, nor by daturine. Hashish, then, is the best palliative or sedative in hydrophobia. It changes a raving, unmanageable, suspicious, aggressive maniac, who bites and who curses, into a poor invalid, content and tranquil, who blesses you.

4.—*The Use of Cannabis Indica by Smoking.* [Medical Times and Gazette, July 2, 1870.]

The cigarettes of Cannabis Indica, made by Grimault, of Paris, have been found most efficient in the treatment of affections of the organs of respiration and circulation, no less than in affections of the central and peripheral nervous system. The unpleasant effects which so often follow the internal and subcutaneous use of opium and of Cannabis Indica are not produced by the cigarette. Their use is recommended—1. In spinal neuroses, chorea, and epilepsy. 2. In neurosis of the sensory nerves, neuralgia of the teeth, branches of the fifth pair, the sciatic nerves. 3. Neuroses of the motor nerves, spasm of the throat air-passages. 4. Affections of the sympathetic nerves, hysteria, and other diseases not attended with plethora, and congestion of the head, heart, or lungs. They are especially useful in asthma, pertussis, spasm of the stomach and intestinal canal, nervous palpitation of the heart, and exert a quieting influence over the whole nervous system.—*Allgemeine Medizinische Zeitung.*

5.—*Antidote for Hashish.* By Prof. Polli, of Milan. [Medical Press and Circular, December 22, 1869.]

As hashish has been employed as an exhilarating agent, and even as a remedy against melancholia, it is useful to know the substances which can increase or destroy its action.

Experience has proved that infusions of coffee, of tea, and of cocoa, always increase the action of hashish; so that, if it is wished to accelerate or to augment its effect, it should be taken or administered in an aqueous infusion of one or other of these vegetable substances.

Lemon-juice and vinegar, and, consequently, citric, malic, acetic, and tartaric acids, in aqueous solution, more or less diluted, arrest the effects of hashish in a person who has taken it, and thus are competent to serve as real antidotes.

It will then be useful in making a trial of hashish, and especially in the treatment of certain nervous maladies by hashish, in cases where one does not as yet know the susceptibility of the subject, to know that one has in the lemonades of these acids, more or less concentrated, powerful,

and at the same time innocent, moderators of the nervine action of hashish.

I confess that it is not from my own personal experience that I have confidence in the preservative action of the vegetable acids against the injurious effects of hashish; but solely from the experience of the Egyptians, who have assured me that it always succeeds with them, and from the testimony of Dr. Castelnuovo, who lived for a long time at Tunis, where he convinced himself of the antidotic value of lemon-juice and strong lemonades against hashish.

6.—*The Medical Activity of the American Hemp-Plant.*

Dr. Horatio C. Wood, of Philadelphia (prize essay), gives the result of his experiments upon himself and others with an extract made from the leaves of male hemp-plants raised in Kentucky. The effects of an overdose were identical with those generally obtained from the Indian hemp. Therapeutically applied, he found the extract much more active (two to four times) than an extract made from imported Indian hemp-plants. The Indian variety yields six to seven per cent. of extract. Dr. Wood thinks Kentucky hemp will yield about five per cent. The advantages of its use will be the obtaining a cheaper and more uniformly efficient drug.

7.—*Experiments with Conia.* By Drs. D. D. Brown and A. D. Davidson. [Medical Times and Gazette, July 9, 1870.]

The settlement of the question upon what portion of the nervous system conia acts primarily, is of the first importance to a right understanding and appreciation of its value as a therapeutical agent. Up till quite recently, views regarding its action were entertained which accurate observation has now proved to be erroneous. The prevalent view was that the force of the poison acted primarily if not solely upon the spinal cord, and through its medium upon the motor nervous system. Thus Pereira (Mat. Med., p. 1726) says: "The primary seat of the action of conia is probably the spinal cord. In this conia and strychnia agree. . . . . Conia exhausts the nervous energy of the cord, and causes muscular paralysis; strychnia irritates it, and produces permanent spasm of the respiratory muscles. It is evident, therefore, that, like strychnia and nux-vomica, its operation is on the seat of the reflex functions, which, according to Mr. Grainger, is the gray matter of the spinal cord."

The first that threw any new light on the subject was Dr. John Harley, who, in his "Old Vegetable Neurotics," gives experiments to show that the spinal cord is that portion of the nervous system which is last influenced by conia; inasmuch as reflex movements could be excited subsequent to complete paralysis of the voluntary muscles, and it was only with a dose sufficiently great to prove fatal that the reflex function was much interfered with (*op. cit.*, pp. 9 and 50). He therefore concludes that it is through the medium of the cranial motor centres that paralysis of the voluntary nervous system is produced.

The accuracy of these conclusions has, however, been of late impugned by Kölliker and Guttman, a short summary of whose experiments and conclusions is to be found in Dr. S. Ringer's recent "Handbook of Therapeutics." These experiments refer its action neither to the cerebral centres nor to the spinal cord, but to the motor nerves themselves, and to their peripheral extremities primarily. The principal experiment which they considered warranted their adoption of this conclusion was that of tying the femoral vessels of one limb of a frog, thereby preventing

the poison being conveyed in the current of the blood to the periphery of the nerve, leaving at the same time the nervous communication with the centres intact. They then found that the operated limb could perform powerful muscular movements after its neighbor was completely paralyzed, and that irritation of the paralyzed parts produced energetic muscular contractions in the ligatured limb. As this has such an important bearing upon the therapeutical action of the drug, we resolved to satisfy ourselves of its accuracy by repeating the experiments which led to the above-mentioned conclusions.

Conia was prepared (from the freshly-gathered leaves of the indigenous plant along with the seeds when just beginning to ripen in the month of August) by distillation, in presence of caustic potash, by Dr. Davidson. The general phenomena of conia-poisoning were first studied in frogs, and these may be briefly related from their complete resemblance to those which are to be immediately described. Very soon after the application of the poison (diluted) to the frog's back, the hind-limbs began to have their mobility impaired, causing them to drag. The leap became feebler and shorter, until at length all motion was abolished, and the limbs became completely powerless and flaccid. Gradually the paralysis crept from below, invading the abdominal muscles and those of the superior extremities, until there was complete relaxation. For a considerable time, however, reflex movements could be excited by pinching the skin of the limbs, the tongue, and the anal region, but gradually it became less and less, first in the hind-legs, and then in the fore, so that when producible in the latter they could not be produced in the former. As the poisoning proceeded, the heart's action grew slow and weak; respiration then became much slower; the eyelids alone could at last be excited to contract by irritation, and death from impaired respiration came on, the heart stopping last of all. The pupil was not found altered in the least degree.

The next experiments were made upon the higher animals.

1. In a young cat, the femoral vessels on one side were secured by ligature, under chloroform. The animal was then allowed to recover perfectly from the effects, when it was found that the limb operated upon was quite as freely moved as the one which had not been interfered with, showing that the nervous cords had not been included with the vessels. Soon after the poison had been administered, the hind-limbs began to move feebly, the ligatured one being equally affected with the sound one, and the two advancing *pari passu* in the gradual paralysis. Gradually the paralysis invaded the fore-legs, the animal all the while showing that sensation was perfect. Reflex movements could be excited by pinching the skin of various parts of the body, but gradually they became abolished, disappearing last of all in the eyelids and lips. Intelligence was undisturbed; the pupil was, if any thing, somewhat dilated; the secretions were unaffected either in quantity or quality. Respiration and the pulsations of the heart grew gradually slower and feebler, until death from apnœa gradually came on.

2. A full-grown rabbit was treated in exactly the same way, and gave identical results, the hind-limb, which had been operated on, becoming gradually paralyzed in precisely the same ratio as the other. The eyelids drooped, so that the eyes were almost closed, though they could be excited to contract to within a short period before death supervened.

It has been affirmed that in rabbits poisoned by conia violent convulsions came on at an early stage. In our experiments clonic convulsions were seen to occur, but only to a slight extent and late in the course of the paralysis. This experiment, repeated a second time in case of error, therefore, furnished results exactly the reverse of those narrated by Kölliker and Guttman. We must, therefore, adhere to Dr. Harley's views, and conclude, with him, that conia's chief action is that of a paralyzer of the

cranial motor centres in the first place, and secondly of the spinal centres, and not of the periphery of the motor nerves.

8.—*Note on a Sample of so-called Opium from Illinois.* By Mr. William Procter, Jr. [American Journal of Pharmacy.]

This "opium" was deposited by Dr. D. G. Plummer, in the exhibition of drugs, etc., at Chicago, in September, 1869. It was in a form of a block, two inches square and four or five inches long, of a dark-greenish brown color, narcotic odor, and soft, uniform consistence, having much the appearance of a good narcotic extract. A section of this, weighing about an ounce, was presented to the writer, with the request that it should be examined. On inquiry as to the manner of obtaining this substance, it was understood to be made by the process of Wilson, of Vermont-opium notoriety, by expressing the juice from the whole plant, leaves, stalks, and capsules, and evaporating the juice to the proper consistence without any extraction of the special juice of the capsules by incision. It was hence inferred to be very meagre in alkaloids.

Before the assay the sample had lost much moisture, was tough, nearly dry, and with a dark-brown resinoid fracture. Of this one hundred grains were rubbed down with a little water in a mortar to a smooth paste, more added, and percolated in a funnel till the dregs were exhausted. The liquid was treated with lime, muriatic acid, and ammonia, by Mohr's process, and set aside for twenty-four hours. The precipitate collected in a filter, washed and dried, weighed 0.5 grain, much colored. This was treated with boiling alcohol, and the alcoholic solution evaporated, a minute yellowish-white crystalline residue was obtained, which reacted like morphia with nitric acid and sesquichloride of iron. As this product did not represent more than one-fifth of one per cent., assuming it all to have been morphia, it is sufficient evidence of the worthlessness of this so-called "opium," which is in reality merely extract of poppies.

9.—*On the Hypodermic Use of Morphia in Diseases of the Heart and Great Vessels.* [Practitioner, December, 1869.]

In an article on this subject, Dr. T. Clifford Allbott says:

I believe I am right in supposing that the injection is not known in cases of this kind; if I am wrong, I must crave the reader's pardon. In my own consultations, however, I not only find it unknown to, but naturally dreaded by, my professional brethren. I never see it mentioned in the medical journals, and I have spoken of it to many leading physicians in London and elsewhere, who have confessed their own ignorance of the remedy, and have urged me to make it known. My friend and colleague, Mr. Teale, indeed, is quite familiar with this use of morphia, and I have the great advantage of his warm testimony in its favor—a testimony wholly unbiassed by me, for he had hit upon the remedy for heart-disease almost or quite as soon as I began it, and he has never gone back from it.[1] I have found also that, in every case in which another medical man has used the injection at my instance, so far from being alarmed by it, or dissatisfied, he has thenceforth regarded it as his best friend.

I use the hydrochlorate of morphia in doses varying from one-tenth to one-third of a grain; I seldom use half a grain, except in such a case as

[1] Mr. Teale tells me that he accidentally discovered the remedy when injecting, for a painful ulcer, a patient who also had heart-disease.

intense pain from angina or intrathoracic tumor. I always begin with one-eighth or one-sixth; and in ordinary cases I find a quarter of a grain the proper dose—in a case, say, of mitral regurgitation with pulmonary congestion in an otherwise healthy adult. The dose is best given in an evening, and should always be followed by perfect quiet in the room. This last is an important element in all cases of injection of morphia. The urine should be examined, and the drug withheld or given with caution if albumen be found. I think, however, there need be no great fear of it during albuminuria only secondary to the heart-disease, unless there be reason to suppose that excessive renal congestion be present, and head symptoms at hand.

Once or twice I have injected morphia in small doses to mitigate suffering in patients with heart-disease associated with granular kidney, and in whom no head-symptoms had appeared. I have done it, however, in fear and trembling, and I think the risk is better avoided.

As regards the class of cases in which the morphia is useful, it gives the most striking relief in angina with diseased coronary arteries, etc., in neuralgic distress from intrathoracic tumor, and in mitral regurgitation. It is very valuable also in small doses in so-called "irritable heart," whether this be due to weakness of the organ or instability of its nerves. It is less useful in disease of the aortic valves, and I think it is less valuable in mitral obstruction than in mitral regurgitation. In aortic disease, however, where the heart is big and pumping, it gives much ease.

10.—*The Use of Arsenic in Phthisis.* [Lancet, March 26, 1870.]

On a recent visit to the Charité, Dr. Nonat kindly communicated to us his experience of the therapeutical effects of arsenic in phthisis. The very favorable results, which Dr. Moutard-Martin,[1] of Beaujon Hospital, had derived from arsenic in the treatment of tuberculosis had led M. Nonat to try the substance in a large number of cases. He has administered the remedy under the form of arsenious acid, and in doses of one milligramme, in pills, to begin with. This dose was gradually increased every eight days by one milligramme, till he would reach the dose of four milligrammes a day. In these conditions the medicament has afforded him good results, in cases where tuberculosis had attained only the first or second stage, and presented no intestinal complication; for, when vomiting and diarrhœa have set in, arsenic must be at once discarded. When phthisis is incipient, and when it is well circumscribed, M. Nonat has seen arsenic increase the appetite and strength of the patients. They gain flesh, look much better, and feel stronger and more cheerful. In such cases the medicament does not increase the pulmonary congestion, and, indeed, is attended by no inconvenience. The only counter-indication lies in the alimentary canal. In many subjects, however, placed in the above conditions, arsenic, if it did no harm, failed to produce any benefit.

M. Nonat's rule for the employment of arsenic is, therefore, to administer it only in cases of well-circumscribed phthisis. When tuberculization is generalized, or far advanced, arsenic, far from producing any good, increases the irritation of the bowels, and brings on gastro-intestinal disorder: the local action of the substance becomes noxious.

Summing up the practical results of his experience of arsenic, M. Nonat says that good effects, in hospital, have been the exception in patients in whom the disease has attained an advanced stage; but in civil or town practice, where the physician is consulted at an earlier period, the results

[1] The results of M. Moutard-Martin's experience on the use of arsenic in phthisis were published in this JOURNAL, April, 1868.—ED.

have been good in a larger number of cases. In a word, M. Nonat believes that arsenic is a remedy which must not be neglected in the incipient stage of phthisis, or when the disease is well circumscribed; but he adds that its virtue has been too highly extolled.

11.—*Arseniate of Antimony in Pulmonary Emphysema.* [Praetitioner, Mareh, 1870.]

Dr. Koch recommends the employment of this remedy in emphysema, not only on empirical grounds, but because he considers it may reasonably be regarded as a nervine and muscular tonic. Hence, since in emphysema the pulmonary vessels are dilated and inelastic, rendering them incapable of contracting in the act of inspiration, the administration of the arseniate effects improvement through its invigorating influence on the contractile fibres, enabling the respiratory acts to be more easily accomplished. Again, the arseniate is particularly efficacious in those cases in which there are freqnent attacks of asthma; for these are induced either by centripetal or centrifugal irritation of the spinal cord and medulla oblongata. The *point de depart* of the attacks is either peripheric or central. It is peripheric when the branches of the pneumogastric are acted on at their extremities by any cause, as vitiated air, a temperature too cold or too hot, which may lead to congestion of the neurilemma, or otherwise interfere with the nervous current. In such cases the arseniate of antimony, employed in the form of fumigations, produces excellent results. Both metals have an elective action on the lung, and are eminently sedative and capable of relieving congestion. When, however, the attacks of asthma are due to emotion, or to some other centrifugal action, there is little chance of benefit from this mode of treatment. The arseniate is employed in the form of cigarettes, containing a definite proportion of the drug, and the smoke taken into the mouth is slowly and gently inhaled into the lungs.—*La Press Médicale Belge*, No. 5, 1870.

12.—*Arsenite of Strychnia.*

We have reeeived from Prof. McCready, of this city, the following note on the preparation of arsenite of strychnia. This note was written by Mr. Charles Rice, the Chemist of Bellevue Hospital, who has made the preparation for use in that hospital, and, as the salt promises to be a valuable addition to our materia mediea, and is already quite largely used by a number of practitioners in this eity, we take pleasure in making publie its mode of preparation.

Preparation.— 49.5 grains of arsenious acid were dissolved in ten ounces of water with the aid of heat. One hundred and sixty-seven grains of strychnia were dissolved in dilute hydrochloric acid, precipitated by ammonia, and after washing added to the solution of arsenious aeid. A long application of a moderate heat failed to dissolve all the strychnia; it was filtered, the residue washed, and found to weigh eighty-five grains (about one-half of the quantity taken). The filtered solution was evaporated, and the dry salt obtained in the form of an amorphous granular mass. At no stage of concentration was there any disposition to crystallize. A drop slowly evaporated on a slide presented under the microscope an agglutinated mass of innumerable small globules and irregular pieces.

Properties.—The salt is soluble in sixty-four parts of water at 60° Fahr., and in two hundred parts of alcohol of eighty per cent. It is also soluble in glycerine. Sparingly soluble in ether.

Composition.—From the circumstance of there being a residue left of almost exactly one-half of the original quantity employed (the acid and alkaloid respectively were taken in equivalent proportions), I conclude it to be an acid salt of the composition Sr, $2AsO_3$—the usual formula of arsenites is 2Xo, AsO_3, or basic—the above formula, however, requires verification.

I will endeavor to obtain the salt in crystals, by slow deposition from an alcoholic solution; a crystalline form will insure uniformity of composition.

13.—*The Use of Arsenic in Irritative Dyspepsia.* [Practitioner, July, 1870.]

Dr. J. C. Thorowgood thus concludes an article on this subject:

So far as my present experience goes, I should say that the more purely local the gastric symptoms, the better is the chance of arsenic doing good. When there is much general exhaustion of system, with disordered urine or manifest hepatic congestion, arsenic is not of much promise as a remedy.

The small irritable tongue, with projecting papillæ and yellow or gray fur, indicates arsenic; vomiting and burning pain after food also point to the use of this drug. The dose must be a very small one, say one drop of Fowler's arsenical solution, and, if this does good, on no account should the dose be increased in hope of forwarding the cure. Whether the medicine be given before or after meals does not seem to me an essential matter, but my preference is rather in favor of its use before the food. Finally, I would mention that I have generally made it a rule to give to the patient half an ounce of the infus. calumbæ alone three times a day for a week, and then I add the drop of arsenical solution; when a patient has been taking a variety of medicines, it is well to do this, and then there is no mistake as to the effect of the arsenic.

14.—*Soluble Saccharated Oxide of Iron as an Antidote to Arsenic.* [Practitioner, February, 1870.]

Dr. Köhler, of Halle, remarks that the long-known antidote, *hydrated oxide* of iron, has many practical inconveniences. The preparation now recommended only differs from the latter in containing a larger proportion of water (as hydrate). Köhler used it with remarkable success in the case of a young man who had swallowed thirty or forty grains, or more, of arsenic. He comes to the following general conclusions about this new therapeutic agent: 1. That it precipitates arsenious acid from solution in the form of insoluble arseniate. 2. That on chemical grounds it should be justly substituted for the ordinary hydrated oxide as an antidote. 3. The experiments on animals fully bear out its practical efficacy. 4. That, while in other forms of metallic poisoning (especially with common sublimate) mechanical antidotes like albumen, etc., are useful, the latter treatment is only a hinderance to the efficient application of the oxide of iron in arsenical poisoning. 5. That the iron-treatment should *not* be accompanied by the use of neutral purgative salts, otherwise the antidotal combinations may be interfered with. 6. Since Schroff has proved that the arseniate of iron itself is always absorbed in minute quantities, emetics should be administered as soon as the antidotal combination of the iron with the arsenic may be supposed to have taken place. 7. As to the quantity of saccharated oxide of iron required to neutralize a given quantity of arsenic, it appears that about ten or twelve parts of the oxide should be administered for every one part of arsenic believed to have been swallowed.—*Berlin. Klin. Wochensch.* 1869, 35, 36.

15.—*On the Effect of Corrosive Sublimate in improving the Constitution.* By Dr. H. Almès. [L'Union Médieale, July 31, 1869, and British and Foreign Medico-Chirurgical Review.]

Dr. Almès confirms the opinion given by other French physicians as to the beneficial effects of corrosive sublimate in improving the constitution; by which it is meant, that this drug not only eures the specifie malady for which it is administered, but that it likewise restores the general health. Dr. Almès was struek, in the year 1856, with the extraordinary powers of arsenic in improving the condition of the body, and he made experiments with other toxical agents, sueh as tartarized antimony, perehloride of mercury, biehromate of potash, nux-vomiea, ete., with a view of determining if they possessed similar properties, and the result was, that he found all these poisons, in small doses, acting as restoratives on the nutrition, the appetite, and the strength, while the bulk of the body was inereased. He found, moreover, that they seemed to strengthen the vital resistance against the invasion of morbid influenees, thus protecting the patient from many diseases. In referenee to corrosive sublimate, Dr. Almès states that he has employed it as a tonie in many eases, and especially in some ehildren of two to five years old, who could not be suspeeted of having syphilis. He has continued its use for half-years and whole years, and he has almost eonstantly observed in the patients an improvement in their general health, characterized by the return of appetite, increase in bulk and fat, the eoloration of the eomplexion, the development of museular vigor, and all the external signs of health. The dose of the corrosive sublimate given with this objeet is very small, being from one to two milligrammes a day (a milligramme is $\frac{1}{1000}$th of a gramme, about fifteen grains). It is given dissolved in distilled water.

16.—*Hypodermic Medication in Syphilis.* By Dr. F. Briheteau. [Bulletin Général de Thérapeutique, April 15, 1869, and British and Foreign Medieo-Chirurgieal Review.]

The first attempts made to treat syphilis by subcutaneous injections were made by Searenzio, of Pavia, who employed calomel suspended in water, glyeerine, or some solution of gum. The memoir published by Searenzio on this subjeet describes eight eases of syphilis successfully treated, with one exception; but in all the eases the patients had abscesses in the spot where the injection was made. Dr. Ambrosoli, of Milan, following the treatment proposed by Searenzio, obtained fourteen eures out of sixteen patients. Berkley Hill, in England, employed injections of eorrosive sublimate in twelve persons attaeked with constitutional syphilis, and in four of them a very small amount of the drug produeed mereurialism. The quantity of the salt employed eaeh time was about a milligramme ($\frac{1}{1000}$th of a gramme, about fifteen grains), and where this quantity was exeeeded the patients suffered from eolie and diarrhœa, and the place of the injection remained painful for some time. Dr. Casati knew of a case where eight eentigrammes of calomel injected under the skin of the arm produced a phlegmonous abscess, and a gangrenous stomatitis was superadded, which for some days put the patient in danger of his life. In Germany, George Lewin, of Berlin, made a number of experiments on this subjeet, and published a voluminous treatise founded on seven hundred observations. His solution consisted of eorrosive sublimate in distilled water. Lewin's experience was strongly in favor of the hypodermie use of mereury in syphilis,

and he considered the plan to be rapid in its results, as well as safe and effectual. In France this treatment has been but little employed, and the only physician who is known to have tried it is M. Aimé Martin, who published two cases, which, however, are very conclusive. He recommends a solution of four centigrammes of red iodide of mercury in a gramme (about fifteen grains) of distilled water. In order to render the red iodide soluble, it is mixed with iodide of potassium. This preparation is not irritating, and it presents besides the advantage of containing at once, in nearly equal proportions, the mercury and the iodide of potassium, the two great remedies for syphilis. The two cases recorded are very remarkable examples of the beneficial effects of the treatment. M. Aimé Martin, without abandoning the internal treatment by mercury or mercurial frictions, thinks that the hypodermic method is calculated to render some service in the treatment of a disease so obstinate as syphilis. M. Liègeois, surgeon of the Hôpital du Midi, is continuing some observations, which he has instituted during the last two years, on the hypodermic use of mercury in syphilis, and M. Bricheteau considers that his results are still more satisfactory than those of Lewin, and that his method is free from inconvenience. But M. Bricheteau considers that all the preparations of mercury hitherto recommended are objectionable, owing to their irritating nature; and, after consultation with a pharmaceutical chemist of experience, he has fixed upon the double iodide of mercury and sodium as the least injurious to the tissues. His formula consists of one and a half gramme of the double iodide dissolved in 100 grammes of distilled water. Each gramme of this solution, or 20 drops, contains 1 centigramme, or 10 milligrammes. It is recommended to begin with 10 drops, or 5 milligrammes; then to increase the dose by 10 drops, and an injection to be made every second day.

See also M. Grünfeld's report, as quoted in *Practitioner*, August, 1869; and Dr. Walker's report, *British Medical Journal*, December 4, 1869.

17.—*The Subcutaneous Injection of Corrosive Fluids.* [Practitioner, April, 1870.]

Prof. Richet, in Paris, has lately occupied himself with experiments, in which he has endeavored to remove tumors by what he has termed interstitial cauterization. He introduces the caustic substance, not in the solid form, but in the fluid, by the aid of a Pravaz's injection syringe. He was incited to these experiments by the success which attended those of Berard, who employed caustics thus subcutaneously injected for the cure of erectile vascular tumors, and he hoped to extend this method of treatment to a variety of other tumors. Berard experienced some bad results, but he used the bichloride of mercury. M. Richet determined to use the chloride of zinc, which, while acting locally as a powerful caustic, has no remarkable toxic action on the system generally. Bonnet had already used it in the solid form, especially for the destruction of fatty tumors and sebaceous cysts; and, as these have little vitality and show little reaction, Richet began his experiments with them. For this purpose he injected four or five drops of chloride of zinc, that had deliquesced from exposure to the air, and he obtained the following results: When the cysts were true lipoma (pure fatty tumors), after the lapse of a few days they could be most easily squeezed out of a very small opening made in the skin at the point of injection, and this even when they were of considerable size; when, however, the apparent sebaceous tumors (of the head) happened to be composed, as they sometimes are, of concentric layers of connective tissue, or

of the remains of effusion of blood, this mode of treatment proved of no service, and it was necessary to resort to the knife. M. Richet also found this method serviceable in cases of adenitis suppurativa, or scrofulous suppurating glands, which rapidly disappeared with abundant suppuration. —*Wiener Med. Wochenschrift*, No. 90.

Suppositories of ung. hydrargyri and cacao-butter are also recommended by M. Lebert.

18.—*A New Antiperiodic.* [British Medical Journal, May 21, 1870.]

Dr. Lorinser, of Vienna, gives, in the *Wiener Medizinische Wochenschrift* for May 14th, the results of a number of observations made regarding the effect of a new remedy for intermittent fever. The remedy is the tincture of the leaves of the *Eucalyptus globulus*, a plant of the natural order *Myrtaceæ*. In 1869, Dr. Lorinser made some experiments, the results of which he published; but he was brought to a stand-still by the want of a supply of the medicine. The plant has since been cultivated by Herr Lamatsch, an apotheeary; and a suffieient quantity of tincture has been made from the leaves to supply a number of medical men in the distriets of the Theiss and Danube, and in the Banat. The reeords of fifty-three eases of intermittent fever in which the eucalyptus was administered have been communieated to Dr. Lorinser; and he gives very brief outlines of each, with the following summary of the results obtained: Of the fifty-three patients, forty-three were eompletely cured; in five, there was relapse in consequenee of a failure of the supply of the tincture of eucalyptus, and quinine had to be employed; two of the cases were not true agne; in one ease, neither the eucalyptus nor quinine eured; in one, the medieine (as well as other remedies) was vomited; and in one the patient would not allow the treatment to be eontinued. In eleven of the eases, quinine had been used without effect; and nine of these were cured by the eucalyptus. There was return of the fever in ten cases, at intervals varying from one to four weeks; in five of these, quinine had to be used in eonsequence of there being no tincture of eucalyptus, and in the other five the eucalyptus was successfully employed. The tincture is said to be easily made, and to have a pleasant aromatic taste; it aets favorably on the digestive organs. Dr. Lorinser believes that in it we have a valuable remedy for intermittent fever. It may be so; but, considering the comparative failure of the substanees which have hitherto been recommended as substitutes for cinchona and quinine, still more extended and careful observation will be necessary before recognizing the claims of the eucalyptus globulus to rank as an antiperiodic on which dependenee ean be plaeed. The districts which Dr. Lorinser has chosen for testing the effeet of the remedy are, we believe, well fitted for the purpose—intermittent fever being very prevalent in them.

19.—*Iodine as a Specific in Intermittent Fever.*

Prof. De Willebrand (translation by Dr. Hornor, *Richmond and Louisville Journal*, November, 1869) gave in intermittent fever five drops of the following mixture, in a small glass of water, every two hours during the day: "One gramme of iodine and two grammes of iodide of potassium dissolved in ten grammes of water. The iodide of iron was used for the paludal eachexia and for the anæmia following intermittents, as a natural consequenee. This latter was given in doses of ten centigrammes four times a day." Nineteen eases are detailed, against which nothing ean be

said except that the success is suspiciously good, generally the cure occurring after two paroxysms, and only two lasting till the fourth.

20.—*Sulphate of Buxin as an Antiperiodic.* [The Practitioner extracts the following from the *Wien Wochenblatt*, October 13, 1869]:

The employment of sulphate of buxin has recently been recommended by Gasparc Pavia, a chemist, as a febrifuge, and has been tried by Dr. Casati. He experimented on forty-five patients, twenty male and twenty-five female, the ages varying from five to sixty years. The type of the fever was tertian in twenty-five cases, quotidian in ten, quartan in five, tertian duplex in one, and four were anomalous. The result was satisfactory in thirty-six cases, but in eight unsatisfactory. In each of the latter only two doses of the salt were administered, the patient desiring that quinine might be employed. Of this, one dose removed the symptoms, showing that the buxin had modified the disease, and had it been longer persisted in would probably have effected a cure. The amount taken was equivalent to about fifteen grains, which the patient took in six or eight powders, during the period of apyrexia. In one patient seven grains effected a cure, while in ten adults it was found requisite to repeat the dose in order to remove the attack. A relapse only occurred in two instances. Twenty of the thirty-six cures were immediate; in the remaining sixteen, one or two slight fits were subsequently observed. The salt did not in any instance produce any injurious effects, except perhaps in one, in which the second dose produced some faintness. All intermittent cases treated were free from complications. Buxin acts like quinine and with the same energy in moderate cases, but in severe cases quinine is preferable. Buxin is in general to be preferred to quinine on account of its superior cheapness, and is especially to be recommended in those cases in which there is some idiosyncrasy on the part of the patient, rendering quinine an objectionable remedy.

(See *British Medical Journal*, June 11, 1870, for use of bromide of potassium in intermittent fever.)

21.—*The Doses and Preparations of Carbolic Acid.* [Michigan University Medical Journal, March, 1870.]

As a rule, it is better to dissolve the crystallized carbolic acid (Calvert's) in the proportions of one part by weight of the acid to six of glycerine (*carbolate of glycerine*). In this state it can be equally diluted to any degree of strength.

In general, a *dose* of carbolic acid is one grain in an ounce of water.

As a *gargle*, one or two grains to an ounce of water.

As an *injection*, one grain to four ounces of water.

As a *lotion*, fifteen grains to an ounce of water.

As an *ointment*, sixteen grains to an ounce of benzoated lard.

As a *liniment*, one part to twenty of olive-oil.

As a *plaster*, one part of carbolic acid to three parts of shellac.

The crystallized carbolic acid to be used as a caustic.

The carbolate of glycerine, as above, use in one or two drop doses, internally.

Antiseptic-oil for abscesses, one part of acid to four of boiled linseed-oil.

Antiseptic putty, six spoonfuls of the antiseptic-oil mixed with whiting.

Aqueous solution of carbolic acid is one part of acid to forty of water (one ounce of acid to a quart of hot water well agitated and filtered).

Sick-rooms, to disinfect: place a portion of the dissolved crystals in a porcelain dish, and float it in a larger vessel of hot water.

Disinfecting purposes generally: one pound of *crystals* to six gallons of water. *Fluid*, one part to eighty of water. *Powder*, one ounce of crystals with four pounds of slaked lime.

For drains: one pound of the fluid carbolic acid to five gallons of warm water.

Toothache is often cured with one drop of carbolate of glycerine; and diarrhœa arrested in half an hour with two drops in a wineglass of water.

In all cases of parasitic life it is advisable to commence with very dilute carbolate of glycerine.

Inasmuch as carbolic acid will destroy the power of *vaccine virus*, it becomes an interesting inquiry as to the possibility of using carbolic acid internally as a preventive, so as to fortify the human system against the incoming of zymotic diseases.

I have some striking facts in support of this probability, but my observation has been too limited to do more than incline to the belief; and here I leave it in the hands of the Conference, expressing my readiness to give further details if the members desire it.—*Report of Br. Pharm. Conference, in London Pharmaceutical Journal.*

22.—*Solubility of Some Chemicals in Glycerine.* [Boston Medical and Surgical Journal, August 25, 1870.]

The author found that 100 parts glycerine dissolve the annexed quantities of the following chemicals:

Acid. arseniosum	20	Morph. acetas	20
" arsenicum	20	" murias	20
" benzoicum	10	Phosphorus	0.20
" boracicum	10	Plumbi acetas	20
" oxalicum	15	Potassæ arsenias	50
" tannicum	50	" chloras	3.50
Alumen	40	Potassii bromid	25
Ammon. carb	20	" cyanid	32
" murias	10	" iodid	40
Antimonii et potas. tart	5.50	Quinia	0.50
Atropia	3	Quiniæ tannas	0.25
Atrop. sulph	33	Sodæ arsenias	50
Barii chlorid	10	" bicarbon	8
Brucia	2.25	" boras	60
Calcii sulphid	5	" carbonas	98
Cinchonia	0.50	" chloras	20
Cinchon. sulph	6.70	Sulphur	0.10
Cupri acetas	10	Strychnia	0.25
" sulph	30	Strychn. nitras	4
Ferri et potass. tart	8	" sulphas	22.50
" lactas	16	Urea	50
" sulphas	25	Veratria	1
Hydrarg. chlor. corr	7.50	Zinci chlorid	50
" cyanid	27	" iodid	40
Iodinium	1.90	" sulphas	35
Morphia	0.45		

—*Neues Jahrb. f. Pharm.*, 1869, from *Pharm. Zeitsch. f. Russl.*

23.—*The Therapeutical Uses of Iodoform.* Dr. Styles Kennedy, of Newark, Delaware, makes the following claims for this remedy:

Iodoform therapeutically is alterative, nervine, sorbefacient, antiperiodic, and anæsthetic. As an alterative it acts with more rapidity than other medicines of that class, in doses of one, two, or three grains, repeated thrice daily. As a nervine, it is prompt and efficient; while it gives nervous strength, it calms speedily and beautifully the most severe pains. Its sorbefacient properties are manifested with some degree of slowness. Five to seven grains, given in broken doses in rapid succession, produce a powerful anti-periodic effect.

Its anæsthetic properties are of local significance.

It is rapidly absorbed into the blood.

Accumulative effects have not been observed.

Iodoform is destitute of any local irritant action, and has that advantage over all other iodic remedies.

It may be administered, with reasonable expectation of success, in the following diseases:

Neuralgia of every description, chronic rheumatism, consumption, scrofula, ophthalmia, chronic ulcerations and skin-diseases, syphilis, and certain affections of the neck of the bladder and prostate gland, and whenever a powerful alterative agent is needed. This quality of iodoform is greatly enhanced, in the majority of cases, by the addition of pure iron, fe. pr. hydrog.

24.—*Sulphate of Quinine in Idiopathic Erysipelas of the Face.* [Boston Medical and Surgical Journal, July 14, 1870.]

Dr. James C. White here furnishes a translation of an interesting paper by M. le Dr. Perroud, of Lyons, communicated to the *Annales de Dermatologie et Syphiligraphie*, 2me Année, No. 4. His conclusions are that—

1. Sulphate of quinine,, administered in moderate and fractional doses, promptly and completely arrests the course of non-traumatic erysipelas of the face, and extinguishes it most frequently on the second or third day of its employment.

2. The effects of this drug are less evident in erratic cases of the disease, and in those which are influenced by other constitutional affections, like rheumatism.

3. The recent investigations of microscopists upon the diffusion of leucocytes suggest that it is by opposing this diffusion that sulphate of quinine acts upon erysipelas.

4. It will be interesting to study clinically, as a means of controlling this hypothesis, the action of other substances which experimentation has shown to be unfavorable to the diffusion of the white corpuscles of the blood. We reserve, however, for the present the publication of the researches we have undertaken in reference to this point with perchloride of iron.

25.—Mr. D. McGregor (*Edinburgh Medical Journal*, October, 1869) gives his "Actual Experience in Hospital Practice of Recently-vaunted Remedies," including Acupressure;

Acetic-Acid Injections for Cancer; Bromide of Potassium in Epilepsy; Blistering in Acute Rheumatism; Carbolic Acid; Ether Spray, or Local Anæsthesia; Holt's "Dilator" for Stricture; Large Doses of Iodide of Potassium in Syphilis, and the "Sulphur-Cure."

The *acetic-acid injections* he found to be injurious rather than beneficial, and *ether spray* and *sulphur-cure* valueless. *Acupressure*, on the contrary, he warmly advocates, but advances nothing new regarding its applications.

Regarding the use of the *bromide of potassium*, in epilepsy, his conclusions tally very well with those of other experimenters, both as to its power over the disease and the want of permanence in the effect produced. He says:

I have never yet been able to *cure* a single case of epilepsy by this drug; yet I have found it a most valuable agent in its mitigation and relief. Nay, I have in several instances kept the disease quite under control while its administration was continued. But, however long this might have been done, on its withdrawal, or soon after, the dread disease reappeared, not with such violence as at first, but increasing in severity as the time from the discontinuance of the bromide increased. The dose in which I usually prescribe it is a scruple three times a day to begin with. This I increase, if need be, by increasing the number of times a day in which it is given, till, in some very bad cases, a scruple is administered every two hours. Except in two cases, I do not remember having seen bad effects from it. In these a papular rash appeared on the face, with heat and itchiness, more particularly on the nose; and in one case diarrhœa was caused by it.

The inability to accomplish perfect cures he attributed to the late period at which he generally receives the patients under his care; his field of observation being an almshouse hospital, into which the sufferers would not be likely to come till their affection had rendered them incapable of caring for themselves.

[The same or a similar result has, however, been reached by other observers whose practice has not thus been restricted.]

Of greater interest is his notice of *blistering in acute rheumatism:*

In a former number of this Journal, while writing on another subject, I took occasion to state that, in all cases of acute articular rheumatism coming under my care, I applied fly-blisters to all the joints chiefly affected, with the best results. I would only say of it now, that a more extended experience of this practice confirms the opinion I then expressed, that no remedy I have yet seen used produces so speedy and effectual a relief, nor is followed by less annoyance, than this mode of treatment. Among the class of patients I have had to deal with, articular rheumatism is very common, and whether accompanied by fever or not, and however swollen or painful the joints, my regular practice is to apply at once a blister to every one of the joints seriously affected. Within twenty-four hours the relief is complete. On the removal of the blisters, linseed-meal poultices are applied over the situations so treated, for a few days, as the case may be, after which nothing more is necessary; the patient is well, so far as rheumatism is

concerned; but I have noticed a greater tendency than usual to catching fresh colds after this treatment, and I therefore keep the patients longer in bed than is necessary on any other ground, to avoid this risk. Generally a few days suffice for this, depending on the state of the weather. I have had no difficulty with the urine after blistering, and I am almost certain there is less risk of the heart becoming affected by this treatment than by any other I am aware of. I cannot presume to say how or why the blistering acts so successfully in rheumatism, unless it be owing to the tendency the poison has to attack the fibrous structures of the joints, and that blistering not only determines it still further toward them, but makes way for its escape from the system in the serous discharge which follows.

It may be argued against this practice, that it is too severe and painful in itself, and would not be submitted to by higher-class patients. But if the treatment be as successful among these (which I have not ascertained) as among the poor, I am persuaded that the almost immediate relief obtained, and the rapid recovery made, are advantages not to be compared with any objections that can be urged against it.

Carbolic acid meets with a less extravagant approval than has generally been accorded to it in many places of late. In the use of Lister's method of opening abscesses he met with some instances of rare success and some total failures. He details cases of each kind in which the abscess connected with carious bone, but his success or failure seems to us to differ in no material point from cases we often see treated without the use of carbolic acid. With its use, however, as a dressing for stumps and serious wounds he is quite satisfied, believing that the fortunate results he obtained were chiefly due to its application.

His use of Holt's "*dilator*" was limited to four cases; but so great was his success in these, that he thinks it should be much more commonly employed than it is.

When speaking of the use of *iodide of potassium in syphilis*, he means in large doses. Its use in this way would seem to be not so common abroad as in this country. He details a few cases in which the symptoms were very aggravated, and progressed in spite of the usual remedies, including *small* doses of the iodide, and in which he brought about a rapid cure by the use of scruple-doses three times a day.

[Of very satisfactory results of the use of the iodide, in doses ranging from twenty to forty grains, three times a day, after the failure of small doses, we have again and again had personal experience, not only in syphilis, but in other troubles where its use is indicated, such as the elimination of lead from the system.]

26.—*Hydrate of Bromal.* [Medical Press and Circular, August 24, 1870.]

There is a valuable article by Dr. E. Steinauer, of Berlin, in the last volume of "Virchow's Archiv," on the action of the hydrate of bromal on

animals and on man. The experiments were made in the Berlin Pathological Institute, and were under the immediate observation of Liebreich himself. The hydrate of bromal, according to the observations detailed, when administered to animals, undergoes a similar change to that undergone by chloral, being converted by the alkalies of the blood into bromoform. But this change goes on slowly, for at the end of an hour and a half there was found in the blood in addition to bromoform still some undecomposed bromal. The substance is further oxidized and evacuated in the urine as bromide. The symptoms produced by bromal on animals (frogs, rabbits, guinea-pigs) were first a stage of restlessness, followed by imperfect sleep and anæsthesia, and finally dyspnœa and death with or without convulsions. After large doses, both in frogs and rabbits, the heart was found after death relaxed and distended—whereas, after smaller doses, it was contracted. In the former case there is probably direct paralysis of the heart by the bromoform, such as occurs after large doses of chloroform. The preliminary stage of restlessness, which has no equivalent after administration of chloral, is ascribed to the action of the bromal aldehyde itself, the decomposition occurring, as stated above, more slowly than is the case with chloral. The author observed a stage of restlessness, after a hypnotic dose of chloral, in a patient suffering under gout, and he ascribed this to the acid state of the blood preventing the usual decomposition into chloroform. With this view he administered alkalies to the patient, and after a few days the same dose of chloral produced the usual hypnotic effect. Proceeding from this, he applied the same principle in his experiments with bromal. Having injected carbonate of soda subcutaneously in rabbits, he then injected the hydrate of bromal, and found that the stage of restlessness was entirely absent. The author has administered bromal to man in only a few cases. He has found good effects from it in epilepsy, and in soothing the pains of tabes dorsalis. The method of administration which he has ultimately employed is, first, in the morning and at midday a powder containing about fourteen grains sodæ bicarb.; then in the evening two to four pills, containing each from half a grain to one and a half grain of bromal.

Miscellaneous and Scientific Notes.

In connection with the case of tetanus treated with the hydrate of chloral, and reported by Dr. R. Wirth, in another part of this number of the Journal, it may be well to note that already this agent has been used in a number of cases of tetanus, and this testimony thus far is altogether favorable to its employment. Dr. Alexander Ballantyne, of Edinburgh, reports one case in the *Lancet* of June 25, 1870. This case was of traumatic origin, and was under treatment from May 12th until the 3d of June, during which time no internal medication save chloral was used, except on the first day, when thirty grains of Dover's powder were given in two doses. Dr. Ballantyne's remarks on this case are worth quoting:

This (though the ninth) is the only case of traumatic tetanus I have seen recover. To what extent the chloral had to do with the recovery it is not easy to determine exactly. That it played a most important part as a palliative in the treatment no one will deny. I have chosen to call the case one of *acute* tetanus, because, although nearly a fortnight had elapsed between the reception of the wound and the occurrence of trismus, although the temperature on the fourth day was only 103°, and although the muscles of the larynx and of deglutition were unaffected before the first dose of chloral was given, the extent, frequency, and severity of the spasms, the intensity and length of the diaphragmatic spasm, and the persistent rigidity of the thoracic and abdominal muscles, were as great as in the fatal cases I had seen. The high temperature noted in tetanus—110° Fahr., and over 44° C. (Wunderlich)—is generally observed toward the end of the disease when fatal; and this remark applies frequently also to the spasm of the muscles of the pharynx and larynx, which sometimes remain unaffected for days even in fatal cases, and only subsequently become the seat of spasm. Whether in this instance the use of chloral prevented the spasm spreading to these muscles of course we cannot say, but it is not improbable. In giving the chloral, it was observed that the patient was less rapidly affected by it as the doses were repeated, and that the first dose of one drachm had the most marked effect, reminding one very much of the rapid effect of chloroform in cases of severe and protracted labor, where the patient is much exhausted. The congestion of the conjunctiva was very great during the exhibition of the remedy, and continued for some days after the doses were much lessened.

In all, the patient had six ounces and a quarter of chloral during the three weeks, on an average of two to two and a half drachms per diem. After the 20th the chloral was sometimes intermitted for several hours; but, when more than six hours elapsed, the symptoms invariably became more intense, and the patient required a larger dose more frequently repeated during the next eight or twelve hours. Not unfrequently an extra half-drachm of chloral was given in addition to those noted in the report for some specially severe time of suffering.

In the *Gazette des Hôpitaux*, Nos. 38 and 43, 1870, M. Verneuil reports two cases, both of traumatic origin. They were both observed in the wards of Lariboisière. In the first case the daily dose of chloral varied from ninety-six to one hundred and ninety-two grains—morphia being also administered hypodermically. Cure was complete in nearly a month. In the second case bromide of potash and opium were used in large doses for three days, and after this chloral in doses varying from forty-five to one hundred and eighty grains daily was alone employed. On three occasions after a diminution of the dose, the tetanic symptoms became measurably aggravated, necessitating a return to the large doses. Upward of six ounces of chloral were taken by this patient, and no improvement was manifest until after the twenty-eighth day of the disease.

Liebreich has also reported a successful case.

The *Lancet* of August 27th contains a report of two cases of traumatic tetanus, occurring at the Royal Berkshire Hospital of Reading. Chloral was used with evident benefit in overcoming the rigidity of the spasms and in securing sleep, but, as in the cases referred to below from the *American Practitioner*, calabar bean was employed, and the record therefore does not throw much light on the determination of the therapeutic value of the chloral. One of these cases we may add died on the seventh day of the attack, from a venous hæmorrhage at the seat of the original wound; the second recovered in about sixty days.

There are also (reported in *Lancet* of September 24, 1870) three additional cases, with two recoveries and one death. The first, of traumatic origin, was observed in Guy's Hospital, in the service of Mr. Birkett. On the admission of the patient to hospital, treatment was begun with chloral in thirty-grain doses every four hours. This was continued two days—when, there being no amendment in symptoms, opium was substituted for the chloral. Under this treatment, continued for four days, the patient grew steadily worse and the chloral was again resumed, beginning with a sixty-grain dose, followed by a fifteen-grain dose every two hours. From this time improvement began, and the patient made a good and rather speedy recovery.

The second case occurred at the Great Northern Hospital, under the care of Mr. Spencer Watson. This also was of traumatic origin, and was under treatment thirty-eight days. Chloral was at first administered in thirty-grain doses, and subsequently in forty-grain doses every four hours through the day, and drachm-doses every six hours during the night. There was also in this case extreme constipation—the patient was a woman—and large doses of croton-oil were given with decided relief. After all the tetanic symptoms had subsided, the patient was kept for a considerable time on the use of bromide of potash.

The third case was of idiopathic origin, and occurred at the Dreadnought Seamen's Hospital. The history of the case was imperfect; but the attack appeared to have commenced about five days before admission to hospital:

A drachm of the chloral hydrate was given every three hours, from 5 P. M. on the 25th to 3 A. M. on the following day, so that half an ounce was taken. This, with small and oft-repeated quantities of milk and beef-tea, was swallowed with difficulty, though no relaxation of the jaws took place. About 7 A. M. on the day last quoted very decided and severe spasms, affecting the hands and feet, came on, and elicited loud cries. They recurred at frequent intervals; and, as the pupils were now contracted, the chloral was discontinued for a time, and the patient was brought partially under the influence of chloroform whenever there were indications of a return of the spasms. This resulted in a considerable relaxation of the muscles of the jaws, and a good quantity of fluid food was taken. During the afternoon of the same day the chloral was repeated, and chloroform was frequently given. The patient passed very little urine, had no stool, but took fluid food at intervals of about fifteen minutes, and had a very fair amount of quiet and genuine sleep. At 6.30 chloroform was again administered on account of an unusually severe spasm, with screams. He took food well a few minutes subsequently, but died very suddenly, twenty minutes after in a severe convulsive fit. No *post-mortem* examination was made.

Again, in the *American Practitioner* for August and September, current year, there are three cases reported, with only one recovery. These cases, however, are of no value for determining the therapeutical value of chloral, for in each of the cases the calabar bean and other medicaments—such as morphia, aconite, chloroform, etc.—were used simultaneously with the former agent. Dr. Yandell, the editor, in commenting upon these cases, refers at length to an unpublished report of four hundred and fifteen cases which have been tabulated by Dr. R. O. Cowling, and sums up in the following words the conclusions which, in his opinion, are warranted by a study of the tables referred to:

1. That traumatic tetanus occurs in males in the proportion of four to one, and tends to recovery oftenest in females.
2. That tetanus is most fatal in persons under ten years of age; that it is least fatal between ten and twenty years.
3. That traumatic tetanus usually supervenes between four and nine days after the injury; and these cases represent the largest mortality.
4. Recoveries from traumatic tetanus have been usually in cases in which the disease occurs subsequent to nine days after the injury.
5. When the symptoms last fourteen days, recovery is the rule, and death the exception, *apparently independent of the treatment.*
6. Of all the forms of tetanus, that appearing in the puerperal state is the most fatal.
7. That chloroform, up to this time, has yielded the largest percentage of cures in acute tetanus.
8. The true test of a remedy for tetanus is its influence on the history of the disease. (*a*) Does it cure cases in which the disease has set in pre-

vious to the ninth day? (*b*) Does it fail in cases whose duration exceeds fourteen days?

9. That no agent, tried by these tests, has yet established its claims as a true remedy for tetanus.

Still further, Mr. Lawson Tait (*Lancet*, October 1, 1870) records a case of acute tetanus occurring six days after amputation of the thigh. On the appearance of the tetanic symptoms, thirty grains of the chloral hydrate were administered, but with no effect. In an hour the dose was repeated, when sleep followed. The treatment was continued, but the patient died from exhaustion in thirty-two hours. The last doses of the medicine were given by enema.

Dr. W. L. Nichol reports (*Nashville Medical and Surgical Journal*, August, 1870) the case of a mulatto boy, fourteen years of age, who became tetanic several days after receiving a punctured wound of the foot. After four days' treatment with opium and bromide of potash, without avail, the chloral hydrate was employed in fifteen-grain doses, and continued for fourteen days, although there were no convulsions for the last eight days of the administration of the remedy. The recovery was speedy.

The Shadows of Genius.—A paper with this title was read at the recent meeting of the British Medical Association, by Mr. W. C. Dendy:

In it the brain was considered in a state of unhealth, not disease, when the shadows of excitement or depression had closed around it, and the mighty intellect became "like sweet bells jangled out of tune and harsh." Influenced by these eccentric derangements, the children of genius seemed to form one special genus of their own, which was distinguished by the sobriquet of *Genus irritabile*, and it was of this, the night-side of intellectual nature, that he wrote. The author passed on to refer to the forcing of children, through pride in their precocity; and some of them, martyrs to this early forcing, drooped prematurely, or, exalted to frenzy pitch, themselves extinguished the lamp of life. Byron, he said, indicated in his writings that he considered himself one of these unhappy children. But, on the other hand, the author believed composition might prove a safety-valve; of this Byron again was an illustration when he wrote the "Bride of Abydos." As

instances of sensitiveness he cited Alexander Pope, John Keats, William Cowper, Kirke White, Beattie, and others; and among those whose minds were clouded with melancholy he instanced Ariosto, Dante, Voltaire, Cowley, Johnson, etc. The author then considered the effects of overwork and food in the stomach on the brain, and concluded with a caution against over-exercise of the brain and excitement, as having a tendency to cause insanity in an irritable subject. In the discussion, Dr. P. M. Duncan said he totally differed from the author, if he supposed that there was any predisposition of genius to insanity. Statistics of insanity, he said, proved that its greatest increase had been among paupers, while there had been a decrease among the better-educated classes. This view, however, was opposed by Dr. Barnard Davies, who said the apparent increase was really due to the work-house lunatics now being sent to asylums.

Uric-Acid Infarction in determining whether a Child was born dead or alive.—Dr. H. Raphael, of this city, read a paper before the Medico-Legal Society of New York, in February last, in which he called especial attention to the so-called uric-acid infarction of the kidney, as an important aid in deciding the question whether a child had been born alive or dead. He said:

It is a comparatively recent discovery, and according to Virchow, Martin, Hessling, and others, is observed almost invariably in children dying between the first and tenth days of life. Engel says it is an extremely exceptional occurrence in still-born children, and a very rare one in those who have respired but one day. It consists of sharply-defined golden-yellow streaks of crystallized uric acid, and is found in the greatest abundance in the papillæ of the kidney. Under the microscope, says Vogel, it is seen to be composed of small cylindrical columns, which, on pressure, readily crumble down into a reddish-brown amorphous lithate, containing some epithelium-cells from the straight urinary tubules and minute rhomboid crystals of uric acid. Whenever these golden-yellow crystals are found in the papillæ, some of them will also be found precipitated as a carmine-red powder in the pelvis of the kidney, and in the most dependent part of the bladder. Virchow explains this phenomenon in the following manner: Immediately after birth a more rapid oxidation of the tissues takes place, in consequence of the establishment of the processes of respiration, and as a result thereof, among other products, uric acid is formed. This substance, combined with the alkaline bases, is excreted by

the kidney, but as yet does not find in the child the requisite quantity of water to dissolve it. The large quantities of the excreted urates accumulate in the straight tubules, and appear yellow, for they are combined with the coloring matter of the urine. The urine which is subsequently excreted in larger quantities, and consequently more diluted, partly dissolves this uric acid, partly washes it onward into the bladder, and thence outwardly. Indeed, a red powder is now and then also found in the diapers of most new-born children, which, on close examination, is seen to be uric-acid infarction.

"Regarded from a medico-legal point of view," says Vogel, "lithic-acid infarction is not devoid of importance, for it is as positive a proof of life as the dilatation of the lungs by air, and has the additional advantage over the latter sign in not becoming so quickly changed with commencing putrescence." I do not think the importance of this sign is forcibly enough expressed by these words. A phenomenon that occurs between the first and tenth days of life, very rarely after that period, and scarcely ever in still-born, may almost justify one in regarding its presence or absence as proof positive of life and death. For myself, I have only to add that, in six cases of still-births carefully examined this winter, I failed to discover the least trace of it either in the kidneys or bladder.

The Urine in Relapsing Fever.—Dr. C. Meymott Tidy sends to the *Lancet*, as a contribution to the history of relapsing fever, the results of six partial analyses of the urine from patients in the London Hospital. The cases were all as nearly as possible typical:

No.	Temp.	Sp. gr.	Total solid per 1,000 gr.	Chlorides per 1,000 gr.	Uric acid per 1,000 gr.	Urea per 1,000 gr.
1	99°	1024	45.8	—	—	9.8
2	106	1024.2	42.7	6.48 (?)	1.08	18.8
3	101	1021.2	33.1	3.12	1.11	10.6
4	108	1016.8	30.3	1.14	0.48	13.2
5	99	1023	32.2	2.68	0.83	9.64
6	107.5	1008.6	12.1	1.00	0.68	12.8

In the cases where the temperature is very high (Nos. 2, 4, and 6), the amount of urea is very large, and the chlorides correspondingly small, with one exception, where the chlorides seem to be present in a most unusual quantity. It is right to say that in this case a duplicate experiment should have been made, in order to have been perfectly certain of the result, but unfortunately sufficient of the urine was not left for the purpose. A note of interrogation is, therefore, placed after it.

In those cases where the examination showed a lower temperature (Nos. 1, 3, and 5), the urea is diminished in quantity, and the chlorides are increased.

The amount of uric acid is very variable, possibly differing according to the peculiarities of each case.

Vaccinal Syphilis.—In a report on this subject to the Ohio State Medical Society, and published simultaneously in several of our Western medical journals, Dr. W. B. Davis takes very positive ground against even the possibility of such a mode of transmission of syphilis. He has collected statistics and opinions from all sources, and shows the fallacy of the claims made by the advocates of transmission. The curt declaration of Dr. Anstie (*Practitioner*, November, 1869) exactly sums up Dr. Davis's views: "*Vaccinal syphilis is a bugbear and a phantom.*"

A MEDICAL college for women has been organized in Chicago, Ill., with a faculty of no less than fifteen professors. We pity the girls if they are expected to undergo the infliction of a full course of lectures from each of the fifteen. Our Chicago brethren must have singular ideas about the meaning of titles, for one of the incumbents is announced as "*Professor Emeritus*"—and this in an institution that as yet has no existence.

Tobacco for the Wounded.—If there be one fact that has been more frequently stated than another, it is that the soldiers engaged in this war—well or wounded—seek the solace of tobacco. The inhabitants of every nation manifest similar instincts, and one of the strongest is this desire to seek out some substance, the use of which may stimulate or soothe the nervous system. There is no deprivation which the habitual although not excessive smoker feels so much as the loss of tobacco; and soldiers of all nations, especially of the French and German nations, smoke it. It was a standing injunction of the first Napoleon that his troops should have tobacco, and they found it of the greatest advantage in the retreat from Moscow. We have been accustomed to look upon the German as fond of hard intellectual toil for its own sake; and men of abstraction and imagination, if we may judge from the prevalence of the practice of smoking among them, unquestionably appear to find an aid in tobacco. But the manhood of Germany has risen like a giant refreshed to undergo any physical exertion and hardship that may be required; and this war has taxed the physical energies of the strongest. The soldier, wearied with long marches and uncertain rest, obtaining his food how and when he can, with his nervous system always in a state of tension from the dangers and excitement he en-

counters, finds that his cigars or pipe enables him to sustain hunger or fatigue with comparative equanimity. Explain it as we may, this is physiologically true; and medical officers, who would not be sorry to see the issue of a "spirit ration" discontinued, are compelled to allow that the moderate use of tobacco by soldiers in the field has several advantages. For the wounded it is probable that tobacco has slight anodyne and narcotic properties that enable the sufferer to sustain pain better during the day, and to obtain sleep during the night.—*Lancet.*

Deaths from Chloroform.—On Wednesday evening Dr. Lankester investigated a case at the Royal Free Hospital in which a patient there died while under the influence of chloroform. The deceased, who was a stableman, aged thirty-four years, a short time since met with an injury to one of his fingers. He went to the University College Hospital, where the limb was dressed, but on Wednesday last complained of his jaw, and went to the Royal Free Hospital in consequence. The surgeons there, perceiving that the man was suffering from tetanus, deemed it advisable to amputate the finger, and upon being taken to the operating theatre he was placed under the influence of chloroform by Mr. Thomas, one of the house-surgeons. After inhaling the drug for three or four minutes, he expired. It was stated by Mr. Thomas that the duty of chloroformist was undertaken in turns, and that on previous occasions he had administered chloroform to patients. Dr. Lankester observed that a young medical man must have a beginning, and that in the present case every thing had been done that was consistent in medical practice.—*Lancet*, September 24, 1870.

Another case is reported from Liverpool. The patient, a man of forty-two, was admitted into the Royal Infirmary, suffering from disease of the right foot. An operation was deemed necessary, and chloroform was being administered, when he sank rapidly and died in a few minutes. The *post mortem* revealed diseased heart and kidneys.—*Medical Times and Gazette*, August 20, 1870.

We do not accept the following case as an unquestioned death from chloroform, but at all events it gives corroborative evidence of the danger of using this anæsthetic:

On Saturday evening, Mrs. Percy Hill, a widow, aged twenty-five years, was found insensible in her apartments, No.

489 Seventh Avenue, and died soon after. She had long been subject to fits, and was in the habit of taking chloroform every night to induce sleep. It is conjectured that on this occasion she inhaled too much of the soporific.—*New York Times*, October 4, 1870.

A telegraphic dispatch to this same paper, under date of October 11th, states that one Catarina Nordhoff died from the effects of chloroform while sitting in a dentist's chair.

A New Antiseptic.—The hydrated chloride of aluminium, to which Mr. John Gamgee has recently drawn the attention of medical men and of the general public, appears to be a valuable antiseptic. It is quite as potent as chloride of zinc or carbolic acid, and is at the same time non-poisonous, and devoid of unpleasant smell of every kind. These qualities will no doubt insure its being extensively used, and at no distant date we may expect it to displace the antiseptics which are at present in vogue.

It is somewhat strange that this substance should have been so long overlooked as a possible antiseptic, and Mr. Gamgee certainly deserves credit for suggesting the utilization of it for this purpose. The reason why it has been passed over is probably to be sought in its not being a waste product in any common chemical manufacture. The anhydrous chloride of aluminium, which is manufactured in order to serve for the preparation of metallic aluminium, is far too costly on account of the troublesome nature of the process by which it is prepared —to wit, by passing chlorine at high temperatures over a mixture of aluminium and charcoal. By placing the anhydrous chloride of aluminium in water, it is of course converted into hydrated chloride.

The most economical process for the preparation of the hydrated chloride of aluminium appears to be by double decomposition between sulphate of alumina and chloride of calcium (both of which are cheap commercial products). When solutions of these two salts are mixed together, sulphate of lime is formed and appears as a precipitate, while the hydrated chloride of aluminium remains dissolved.

On allowing the aqueous solution to evaporate at a very gentle heat and afterward cooling, crystals of hydrated chloride are produced. If an attempt be made to drive off the water from the hydrated chloride by the application of heat, decomposition will take place. Hydrochloric acid is evolved under these conditions, and oxychloride of aluminium is

formed, and, by pushing the process, alumina is obtained as the ultimate fixed product.—*Lancet*, August 27, 1870.

BROOKLYN, *October* 14, 1870.

E. S. DUNSTER, M. D.

DEAR SIR: I thank you for the note of "Pharmaceutist," calling attention to a verbal error in my article on "Mutual Relations of Physicians and Apothecaries." The title given to Dover's powder is so obviously wrong that the wonder is that it could have been overlooked by any one. It was not, however, a typographical but a clerical mistake, made in copying manuscript. The following sentence, "The Pharmacopœia is in no sense an authoritative work, though an excellent guide to which we should largely adhere," is also open to criticism, and, having excited some remark when the paper was read before the Society, I wrote a note, which not only defined my position, but also defined the duties of physicians and apothecaries in relation to the Pharmacopœia. This note was omitted by the printer. As the point referred to is of interest in itself, would it not be well to publish it in this connection? The note is as follows:

"Dr. E. R. Squibb took exception to this remark and contended that the Pharmacopœia was, or was intended to be, authoritative. He called attention to the distinction between Pharmacopœia and Dispensatory. The Pharmacopœia, he said, was the work of delegates from the regularly organized bodies of physicians and apothecaries throughout the country, and might therefore be said to be in a high degree authoritative. The remark of the President was, however, a just reflection upon the forthcoming edition, because, and *only* because of the general neglect of physicians to participate in the labor of its preparation.

"Dr. B. explained that although he had used an expression which was liable to this criticism, he had not intended to say more than that the Pharmacopœia had no authority in restricting the physician in the choice of remedial agents. He had no hesitation in acknowledging its authority—

1. In deciding what is officinal.
2. How officinal preparations shall be made.
3. What names they shall be known by. And,
4. That its authority is binding on apothecaries in the preparation of all officinal articles, and on physicians whenever they prescribe these articles by name."

Yours, very truly,

J. H. HOBART BURGE.

Diagnosis between Real and Apparent Death.—Dr. Laborde, in a paper recently read by him before the Academy of Medicine in Paris, has endeavored to show that the effect produced on a bright steel needle inserted into the body indicates whether death has or has not occurred. When life is present, he says, the needle, generally very soon, becomes more or less tarnished by oxidation; when, on the other hand, death has taken place, the needle, even at the end of half an hour or an hour, will retain its brightness. M. Laborde believes that, in the first instance, the occurrence of oxidation, with its attendant electric phenomena, indicates that death is only apparent; while, in the second, the complete absence of oxidation is a sign of real death. The communication has been referred to a committee consisting of MM. Gavarret, Béclard, and Vulpian.—*British Medical Journal*, August 13, 1870.

Death of Dr. Augustus Waller, F. R. S.—This eminent physiologist died suddenly, at Geneva, on the 18th of September, in an attack of angina pectoris, to which complaint he had been for some time subject. Dr. Waller began his professional life in Kensington, London, as a general practitioner, but he soon gave up business and devoted himself to original investigations in physiology, more particularly in the functions of the nervous system. In 1852 he received, in connection with Budge, of Bonn, the Monthyon Prize of the French Academy of Sciences, and again, in 1856, and this time alone, for original experiments showing the important relations between the nutrition of nerve-tubes and their connection with nerve-centres. In 1860 he was awarded by the Royal Society one of its medals, for those and other researches in experimental physiology. He held for a short time the chair of Physiology in Queen's College, Birmingham. He had for a number of years resided on the Continent, and had recently gone to Geneva. His latest contributions on the sensory nerves connected with the reflex phenomena of deglutition, in colaboration with his friend, Dr. J. L. Prevost, of Geneva, were published in the *Archives de Physiologie* at the time of his death.

The doctrine of the production of pus from the white cells of the blood was first promulgated by Dr. Waller, twenty-two years before Cohnheim made known his theory of the origin of pus-globules. In the twenty-ninth volume of the *Philosophical Magazine*, 1846, he writes: "I consider it therefore

as proved, first, the passage of corpuseles *de toute pièce* through the capillaries; secondly, the restorative power of the blood, which immediately closes the aperture thus formed." His experiments were made on the web of the foot, tongue, and mesentery of the frog.

Death of Dr. William Allen Miller, F. R. S.—This eminent scientific chemist, who succeeded the celebrated Prof. Daniell in the chair of Chemistry of King's College, London, died on the 30th of September, at Liverpool. He was Treasurer of the Royal Society, and Assayer to the Royal Mint.

Figure-of-8 Wave Theory of Wing-Movements.—In the *Proceedings of the Royal Institution of Great Britain* for March, 1867, Dr. J. Bell Pettigrew, F. R. S., the distinguished curator of the Museum of the College of Surgeons of Edinburgh, announced the startling discovery that all wings, whether those of the insect, bat, or bird, were twisted upon themselves structurally, and that they twisted and untwisted during their action—that, in short, they formed *mobile helices* or screws. In June of the same year (1867), Dr. Pettigrew, following up his admirable researches, read an elaborate memoir "On the Mechanism of Flight," before the Linnean Society of London, in which he conclusively proves, by a large number of dissections and experiments, in which he greatly excels, that not only is the wing a screw structurally and physiologically, but further, that it is a reciprocating screw. He shows, in fact, that the wing, during its oscillations, describes a figure-of-8 track, similar to that described by an oar in sculling. This holds true of the vibrating wing of the insect, bat, or bird, when the bodies of these animals are artificially fixed. When, however, the creatures are liberated, and flying at a high horizontal speed, the figure of 8, as he points out, is curiously enough converted into a wave-track, from the wings being carried forward by the body, and from its consequently never being permitted to complete more than a single curve of the 8. This is an entirely new view of the structure and functions of the wing, and one fraught with the deepest possible interest to the aëronautical world. It promises to solve every thing. Dr. Pettigrew's remarkable discovery has received an unlooked-for confirmation within the last few months at the hands of Prof. Marey, of the College of France, Paris. This gentleman, who has acquired great celebrity for his improvements and dexterity in the use of the sphygmograph, has succeeded in causing the wing of the insect and

bird to register their own movements, and has established, by an actnal *experimentum crucis*, the absolnte correctness of Dr. Pettigrew's views. Prof. Marey's mode of registering displays much ingennity, and is briefly as follows: A cylinder, revolving at a given speed, is enveloped by a sheet of thin paper smeared with lampblack; and to this the tip of the rapidly-vibrating wing of the insect is applied in such a manner as to canse it to brnsh ont its track on the blackened paper, which it readily does. A similar result is obtained in the bird by fixing a registering apparatus to the wing, and causing the bird to fly in a chamber. In this case the registering apparatus is connected with the cylinder by means of delicate wires, and the registering is effected by means of electricity. In both cases the figure of 8 and wave-movement, originally described by Dr. Pettigrew, are faithfully reproduced. It is difficult to foresee what next. The way of a wing in the air has hitherto been regarded as a physiological puzzle of great magnitnde; and well it might be, since some insects (the common fly, for example) vibrate their wings at the almost inconceivable speed of three hundred strokes per second; that is, eighteen thousand times in a minute.[1]—*Scientific Opinion.*

Army Personal.—The only change in the medical staff of the United States Army, since the date of our last report, is the resignation of Assistant-Snrgeon E. J. Marsh, to date August 17, 1870.

In the September Journal we recorded the deaths from small-poxin Paris up to the week ending July 16th. Since that time the disease has materially diminished, the record for the snccessive weeks, up to and including Augnst 26th, being 215; 227; 151; 176; 187; 96. The total number of deaths from all causes, during the corresponding weeks, was 1,160; 1,195; 1,126; 1,122; 1,165; 1,120.

The Unity of Body and Mind.—Dr. Maudsley delivered the Gulstonian Lectnres before the Royal College of Physicians and Surgeons for the present year, his subject being the "Relations between the Body and the Mind, and between Mental and other Disorders of the Nervous System." His third lecture closed with the following beautiful thought:

[1] This memoir, which is illustrated by nearly one hundred original figures, is published in vol. xxvi. of the "Transactions" of the Society.

To set forth this unity (of body and mind) has been a chief aim in these lectures, because I entertain a most sincere conviction that a just conception of it must lie at the foundation of a real advance in our knowledge both of the physiology and pathology of mind. I have no wish whatever to exalt unduly the body; I have, if possible, still less desire to degrade the mind; but I do protest, with all the energy I dare use, against the unjust and most unscientific practice of declaring the body vile and despicable, of looking down upon the highest and most wonderful contrivance of creative skill as something of which man dare venture to feel ashamed. I cannot now summarize the facts and arguments which I have brought forward; I must trust to the indulgence of your memory of them when I declare that, to my mind, it appears a clear scientific duty to repudiate the quotation from an old writer, which the late Sir William Hamilton used to hang on the wall of his lecture-room:

> "On earth there is nothing great but man,
> In man there is nothing great but mind."

The aphorism, which, like most aphorisms, contains an equal measure of truth and of untruth, is suitable enough to the pure metaphysician, but is most unsuitable to the scientific inquirer, who is bound to reject it, not because of that which is not true in it only, but much more because of the baneful spirit with which it is inspired. On earth there are assuredly other things great besides man, though none greater; and in man there are other things great besides mind, though none greater. And whosoever, inspired with the spirit of the aphorism, thinks to know any thing truly of man without studying most earnestly the things on earth that lead up to man, or to know any thing truly of mind without studying most earnestly the things in the body that lead up to and issue in mind, will enter on a barren labor, which, if not a sorrow to himself, will assuredly be sorrow and vexation of spirit to others. To reckon the highest operations of mind to be functions of a mental organization is to exalt, not to degrade, our conception of creative power and skill. For if it be lawful and right to burst into admiration of the wonderful contrivance in Nature by which noble and beautiful products are formed out of base materials, it is surely much stronger evidence of contrivance to have developed the higher mental functions by evolution from the lower, and to have used forms of matter as the organic instruments of all. I know not why the Power which created matter and its properties should be thought not to have endowed it with the functions of reason, feeling, and will, seeing that, whether we discover it to be so endowed or not, the mys-

tery is equally incomprehensible to us, equally simple and easy to the Power which created matter and its properties. To a right-thinking and right-feeling mind, the beauty, the grandeur, the mystery of Nature are augmented, not lessened, by each new glimpse into the secret recesses of her operations. The sun going forth forth from its chamber in the east to run its course is not less glorious in majesty because we have discovered the law of gravitation, and are able by spectral analysis to detect the metals which enter into its composition—because it is no longer Helios driving his golden chariot through the pathless spaces of the heavens. The mountains are not less imposing in their grandeur, because the Oreads have deserted them; nor the groves less attractive, the streams more desolate, because science has banished the Dryads and the Naiads. No, science has not destroyed poetry, nor expelled the divine from Nature: but has furnished the materials and given the presages of a higher poetry and a mightier philosophy than the world has yet seen. The grave of each superstition which it slays is the womb of a better birth. And if it come to pass in its onward march—as it may well be it will come to pass—that other superstitions shall be dethroned as the sun-god has been dethroned, we may rest assured that this also will be a step in human progress, and in the beneficent evolution of the Power which ruleth alike the courses of the stars and the ways of men.

Mr. Spencer Wells, in reporting the cases of ovariotomy operated on in hospital for the last two years, calls attention to the gradual change that has taken place in relative mortality among his patients in private and in hospital practice. In his early experience, the advantage was on the side of the hospital cases. Then the results became equalized, and, later, the exhibit was entirely in favor of the private cases. Thus, during the time mentioned he had 47 hospital cases. Of them 28 recovered and 19 died—a mortality of 40 per cent. But during the same period, in private practice, he operated on 57 patients, with 43 recoveries and 14 deaths—a mortality of 24 per cent.; quite a favorable contrast to the death-rate in hospital.

Blood-Pictures.—Dr. Day, of Geelong, Australia, the improver of the guaiacum-tests for blood and other animal fluids, confirms the discovery of Neumann, that the picture or network formed by human blood can be distinguished under the

microscope from that which is formed by the blood of other animals. He says he has repeated the experiment, which is "wonderfully simple," almost every day for the last two months, with invariable success. A small drop, not a mere speck, of the blood is to be placed on a microscope-slide, and carefully watched, at a temperature of 10° or 12° Reaumer (=54.2° to 59° Fahr.), until the picture or net-work formed by its coagulation is developed. Human blood speedily breaks up into a "small-pattern" net-work; the blood of other animals (calves, pigs, etc.) takes a longer time, and makes a large pattern; but the blood of every animal seems to form a characteristic "picture." Dr. Day has examined the blood of calves, pigs, sheep, rabbits, ducks, hens, several kinds of fishes, etc., as well as that of man, and has found the results to be trustworthy and constant.

New Method of determining the Presence of Albumen in Urine.—Meynott Tidy recommends, for the determining the presence of a small quantity of albumen, the use of phenic acid. Equal volumes of acetic and phenic acids are mixed. Observe if the addition of a drop of this mixture to water produces a precipitate. If not, the mixture can be employed to discover albumen; if, on the contrary, the test succeeds, add to the liquid acetic acid till it no longer renders water turbid. This reagent will demonstrate the existence of albumen in fifteen thousand times its volume of water, while nitric acid ceases to show albumen when it is diluted eight thousand times.

Large Doses of Bromide of Potassium in Headache.—Dr. William Commons, of Bradford, Ohio, in a note to the *American Practitioner*, says:

I have been subject to severe sick-headache all my life, having inherited it from my mother. No treatment has ever given me relief except bromide of potassium in large doses. I began its use in 1862. At first, took it in small and repeated doses, and always found the benefit from its use was in proportion to amount taken. I soon took it in larger doses; and now my plan is to take, in the commencement of an attack, two drachms of the bromide, dissolved in two tablespoonfuls of water; and if not immediately relieved take one drachm more in ten minutes, and repeat in fifteen minutes if necessary. I have used the medicine in this way many times, and not in a single instance has it failed to give prompt and complete

relief. The largest dose taken was half an ounce avoirdupois, dissolved in two ounces of water, and swallowed in twenty minutes, eight hours after eating, with complete relief from a more than usually bad spell.

Effect of the Sewing-machine on Health.—It will be recollected how, about a year ago, one of our medical contemporaries, in sequence to its delusion about the gregarines, gravely announced that the use of sewing-machines was destructive of health, and more than hinted that those who used them became shortly the subjects of ovarian excitements of an undesirable character. This alarm, being a novelty, was echoed by the daily press, and the sewing-machine was in danger of being tabooed, when a reliable authority declared that the alarming predictions were purely chimerical. The matter has been conclusively disposed of in a communication laid before the Paris Academy on the 21st of June, by M. Decaisne. His conclusions, from an observation of 661 workwomen, are shortly as follow:

1. The effects on the locomotor system do not differ from those of excessive muscular exercise of certain limbs to the exclusion of the others. The effects of the fatigue do not exist in women who work only two or three hours a day, and disappear in a short time in the case of those who work longer hours.

2. The digestive disorders common to sixteen out of every twenty artisans of Paris are not more common in machine-sewers than in other trades.

3. Affections of respiration are not more usual in them than in those who use the needle.

4. The influence on the nervous system, supposed to be caused by the noise, is slight; for the work-people soon become accustomed to it, and it has no effect on their health.

5. Without positively declaring that the sewing-machine does not cause genital excitement, I am quite certain that the cases published and the generalizations on them have no value whatever. The result has been found to be very seldom the effect of the machine, and I have almost uniformly found, in previous habits, or special physical condition, good reason for the forms of excitement to which I allude.

6. Careful investigation has proved that machinists are not more subject to menorrhagia, miscarriages, peritonitis, or leucorrhœa, than other workwomen.

In conclusion, I find that the sewing-machine, worked by the foot, when used within reasonable limits, involves no more danger to health than the use of the needle. This is sufficiently

testified by the fact that, among twenty-eight women, from eighteen to forty years of age, working three to four hours daily, it was impossible to detect any effect attributable to the sewing-machine.—*Medical Press and Circular.*

The Mode of Termination of Motor Nerves in Organic Muscle.—M. Hénocque has been making a series of investigations on this subject, the results of which he communicates to M. Brown-Séquard's *Archives de Physiologie* for May, and has arrived at the following conclusions: 1. The distribution of the nerves in smooth muscle is not only identical in man and other vertebrate animals in which it has been observed, but is essentially similar in all the organs containing smooth muscle. 2. Before terminating in the smooth muscles, the nerves form three distinct plexuses or net-works—(*a*) a chief or fundamental plexus, containing numerous ganglia, and situated *outside* the smooth muscle; (*b*) an intermediate plexus; and (*c*) an intramuscular plexus; situated *within* the fasciculi of smooth fibres. 3. The terminal fibrils are everywhere identical; they divide and subdivide dichotomously, or anastomose, and terminate by a slight swelling or knob, or in a punctiform manner. The terminal swelling appears to occupy different parts of the smooth muscular fibre, but most frequently to be in the neighborhood of the nucleus, or at the surface of the fibres, or, lastly, between them. The methods of investigation adopted by M. Hénocque have been very numerous, including the maceration of the preparations, obtained in as fresh a condition as possible, in aqueous humor, artificial serum, pyroligneous acid, chromic acid, chloride of gold and potassium, especially the latter, in a strength of 1-200th.—*Lancet.*

Profuse Sweats of Phthisis.—M. Guyot has drawn attention to the treatment of this symptom by phosphate of lime. Upward of two months ago a patient came under his care at the Hôpital St. Antoine in the last stage of consumption. The poor fellow next day on M. Guyot's visit begged to be allowed to take a medicine which he said always assisted his excessive perspirations, and showed the prescription. This was phosphate of lime and sugar, equal parts. The patient had been in the habit of taking a "pinch" of this several times a day. M. Guyot good-naturedly ordered the phosphate, as nothing could be done for the patient. The effect seemed so marked that a patient in the same ward getting convalescent from acute rheumatism, complicated with cerebral and cardiac disease, and who was much distressed by heavy perspirations, begged leave to take a little of the same medicine. Seeing

no harm could come of it, M. Guyot assented, and the success was as great as in the other case. A tuberculous woman was under the care of the same physician at this time, in whom the preparations of lead, quina, arsenic, tannin, and every vaunted drug, had failed to check profuse sweats. Struck with its success in the two other cases, M. Guyot ordered her the phosphate, which at once arrested them for several days, but they returned again afterward, though less profusely. M. Guyot has since used the remedy in a great number of cases of phthisis with much perspiration, and has brought it under the notice of the Medico-Chirurgical Society here. In the minority of cases, he told the members, it seemed to have no effect. In the majority it has diminished or quite removed the excessive perspiration. In some cases he had them under complete control—could, so to say, allow the patient to have a heavy perspiration or prevent it, by withholding or giving the drug. As the phosphates have been held by some to be useful in phthisis, though no one has previously noted their effects on the perspiration, it may be that this may prove a guide in the selection of cases likely to be benefited by them. At any rate, those of much experience in this disease will not regret the opportunity of trying a new prescription for the relief of a very obstinate symptom. I think, therefore, your readers will be thankful for this brief account of M. Guyot's experience at the Hôpital St. Antoine. I will only add that the doses given there have varied from half a drachm to a drachm and a half in the day, and that no inconvenience has ever been observed to occur.—*Paris Cor. Medical Press and Circular.*

A Woman with Four Breasts.—A primiparous woman was admitted under M. Lorain, and was delivered next day of a dead premature child. She was found to have four breasts, two in the normal position and with the normal puerperal appearances, and two which, from their position, might be called axillary, and attaining the size of a small orange. She menstruated at twelve, and at the periods she experienced pain in the small breasts. The colostrum also which these contained was small in quantity, and the granular bodies were less and transparent, while the milk-globules were fewer. The areolæ were also very small. In spite of an attack of fever, the lacteal secretion was regularly established in all the breasts, but the milk examined microscopically was found of a much poorer quality in the supplementary breasts.—*Revue Photographique des Hôpitaux.*

Mobility of the Liver.—An interesting, and perhaps unique, case of extreme mobility of the liver has been recorded by Prof. Cantani. The patient was a lady, aged fifty-four, and eleven years previously, immediately after her last confinement, the liver had descended from its usual place into the hypogastrium, occupying a position extending from the umbilicus nearly to the symphysis pubis. The liver was of normal size, and could be freely moved in every direction, and by placing the patient in a recumbent position, with the sacrum elevated upon a cushion, it could easily, with a little manipulation, be returned to its place, descending again when she reassumed the erect position. During the whole period of eleven years it had occasioned no injury to health and but little inconvenience; but, as it had been diagnosed in the beginning as a uterine tumor, the lady had become a prey to hysteria and melancholy, believing herself to be a victim to an incurable disease, and these symptoms had been considered as a proof of the diagnosis. On being reassured as to the nature of the supposed tumor, she rapidly regained her former health.—*Naples correspondent Medical Times and Gazette.*

The History of Anæsthesia.—Much has been said and written on this topic, and no small amount of angry controversy has for many years been expended upon it. A very decided and unfortunate impulse was given to the dispute by the unnecessary, as we have always considered it, attack on the late Prof. Simpson, by Dr. Bigelow, of Boston, and the journals, both here and abroad, have rushed into the quarrel, taking one or other side according as their information and predilections guided them. Although oceans of ink have been spilled in putting on record all these opposing opinions, we have nowhere seen the whole subject so neatly and in our estimation justly and candidly summed up as by Dr. Bennett, the President of the Medico-Chirurgical Society of Edinburgh, in officially announcing to that body the death of Sir James Y. Simpson. Dr. Bennett was Secretary of the Society at the time of Simpson's investigations, which were first communicated to the Society. He was also at that time editor of the *Medical Journal*, and published therein a monthly record of the progress of etherization, and of the introduction of chloroform as a substitute for ether. He was also chairman of the committee appointed by the same Society to investigate the prop-

erties of chloroform, and in this official capacity he drew up the Chloroform Report, which was published in the *Edinburgh Journal*, January, 1848. His opportunities, therefore, for sifting the truth out of all this varied controversy have been unexceptionable. and we think he is entitled to speak with some degree of authority thereon. His views of the share of credit which properly belongs to the three American claimants accord precisely with those we have always maintained, and which we venture again to lay before our readers:

1. That numerous efforts in past times had been made and suggested for rendering persons insensible during pain, however produced. Physiologists had successfully used them when experimenting on the lower animals, and in medicine they were extensively employed. But all such efforts had been abandoned during surgical operations in man previous to 1844, as being either not practical or not safe.

2. In that year (1844), Dr. Horace Wells, a dentist of Hartford, Connecticut, U. S., employed nitrous-oxide gas for extracting teeth without pain, having, as he tells us in a pamphlet he subsequently published, been led to do so by observing that persons under the influence of that gas, or when greatly excited, as in battle, or from intoxication, were insensible to injuries inflicted upon them. It had, however, been recommended for this very purpose by Sir Humphry Davy fifty years previously.

3. Dr. Wells communicated his ideas to the medical men of Boston, U. S., including Drs. Morton and Jackson, the former also a dentist, and a previous pupil and partner of his own. He endeavored to show the good effects of nitrous-oxide gas in the theatre of the Massachusetts General Hospital, but, having withdrawn the bag containing it too soon, the experiment failed—a circumstance which discouraged for two years public efforts in this direction.

4. The vapor of sulphuric ether was first employed by Dr. Morton, in Boston, U. S., on the 30th of September, 1846, in the successful extraction of a tooth without pain; and shortly afterward it was also successfully used in surgical operations, and became generally employed in America and Europe during the following November and December. It would appear, however, that this was done, if not altogether by the suggestion, at least with the advice and encouragement, of Dr. Jackson, who subsequently disputed with Morton the honor of the discovery.

5. On the 19th of January, 1847, ether was first employed in a difficult case of midwifery by Sir James Simpson, in the presence of Dr. Ziegler, Dr. Keith, and Mr. Figg. An important obstetrical operation was performed, and it was ascertained that this, the progress of the labor, and its successful conclusion, were accomplished without pain, the consciousness of the patient having been suspended for a considerable time.

6. We are informed by Prof. Miller, that on the 4th of November, 1847, chloroform was first tried by Sir James Simpson on himself, and on his assistants Drs. Keith and Duncan; and, in the first paper Sir James published on the subject, he tells us that the drug was recommended to him for that purpose by Mr. Waldie, of the Apothecaries' Company in Liverpool. On the 10th of that month it was publicly made known at the evening meeting of this society. Many of the members inhaled it, and its agreeable odor, rapid and powerful effects as an anæsthetic, and general superiority

to sulphuric ether, were at once admitted by those who tried it. The enthusiasm it created, and the remarkable aspect of a very crowded meeting, half of whom were temporarily excited and intoxicated by the drug, will not be readily forgotten by those who were present.

7. Up to this time the expressions etherization and narcotism had been correctly applied to the process and result of producing insensibility by means of these drugs, but Sir James Simpson now introduced the terms anæsthesia and anæsthetics, with a view of not alarming the public. It should be understood, however, that the effect is produced by suspending consciousness, and therefore sensation and volition, by acting on the brain and medulla oblongata in exactly the same manner as is done by opium, alcohol, and other narcotics.

8. This is the more important to be attended to, as occasional deaths were soon reported as being caused by chloroform. These, it is true, are few, when compared with the many cases in which the drug was employed in dentistry, surgery, and midwifery, but have been in the aggregate sufficiently numerous to induce great caution, and a constant sense of anxiety among the profession at large. No fatal results, it is alleged, have been caused by the use of nitrous-oxide gas or sulphuric ether.

9. Other means of producing a true anæsthesia have been since sought after. Dr. James Arnot, of London, introduced powdered ice and frigorific mixtures, which, by freezing the part, admitted of operations being performed without pain. More recently, Dr. B. Richardson, of London, effected the same object, by pumping the spray of a pure ether on the part. It is to be observed, however, that the intense feeling of cold thus occasioned is disagreeable, often extremely painful, and that these methods, therefore, have never supplanted chloroform in dentistry and surgery.

10. During the last two years, nitrous-oxide gas has again been introduced with great success in dentistry; its preparation and mode of administration having been much improved, principally through the efforts of Mr. Clover, of London. But it has not superseded chloroform in surgery, as it has not yet been considered safe to prolong sufficiently the effects it produces.

Lastly. Other narcotic agents have been employed, especially by Dr. Richardson, of London, to remove pain, such as the bichloride of methylene, the tetrachloride of carbon, the chloride and nitrate of amyle, with varying results. Only last year, the hydrate of chloral was introduced as an hypnotic and anæsthetic, by Dr. Liebreich, of Berlin, and it is now being generally tried and investigated by the medical profession. None of these agents up to this time have superseded chloroform.

From this record, it appears to me, that as regards the three great anæsthetics which have been largely used, the first, nitrous-oxide gas, was suggested by Sir Humphry Davy, and introduced into dental practice by Dr. Horace Wells; the second, ether, was recommended by Dr. Jackson, and first introduced into dentistry and surgery by Dr. Morton, and into midwifery by Sir James Simpson; and the third, chloroform, was suggested by Mr. Waldie, and applied to medical practice generally by Sir James Simpson.

Quinine Manufacture.—In the *Madras Quarterly Journal of Medical Science*, for May, 1870, are a number of official documents bearing upon the manufacture of quinine at the government plantations at Rungbee. The superintendent of the plantation gives the number of cinchona-trees planted as 1,200,000. He proposes to extract from the bark of the prun-

ings and trimmings the alkaloid in its amorphous state, and to issue the same to the inspector-general of hospitals until such time as practice in the manufacture shall enable the separation and crystallization of quinine. Such great plantations, kept up at government expense, cannot fail in time not only to insure a sufficient supply of this essential drug, but also to materially reduce its price.

The Liver the Seat of Formation of Urea.—The latest researches upon the place of origin of urea, and especially the beautiful experiments of M. Gréhant, have demonstrated that the kidneys are by no means secretory, but purely excretory, organs for urea. Dr. Cyon, in the last number of the *Centralblatt*, publishes a few facts in the form of a provisional communication, to show that it is probably produced at the liver. The plan of experimentation adopted (in common with M. Istomin) was as follows: The whole of the blood was abstracted from the carotid of a dog, and a portion, after being defibrinated, was transmitted by means of mercurial pressure through the liver. Coincidently three cannulæ were introduced—one into the inferior vena cava, the second into the hepatic artery, and the third into the vena porta. The results of careful analysis showed that the blood which had passed through the liver contained a much larger proportion of urea than ordinary arterial blood. In one experiment 100 c. c. of the arterial blood when defibrinated contained 0.08 grammes of urea; but, after having been passed four times through the liver, the same quantity contained 0.176 gramme.

The Immediate Use of the Immovable Apparatus in Fractures of the Lower Extremities.—Prof. D. W. Yandell, M. D., contributes an article on this subject to the *American Practitioner*, in which he makes a strong claim for the immediate application of the permanent dressing in cases of fracture of the thigh or leg. He says:

Previous to 1865 I used starch to stiffen the bandages. Since Mr. Tufnell, of Dublin, published (*Dublin Quarterly Journal*, February, 1865) his very valuable paper "On the Fixed Apparatus in Fractures,"[1] I have adopted the paste he recommends, and think it possesses advantages over any one of the substances used for this purpose.

I find in practice, however, that, instead of following the receipt for the paste as given by Mr. Tufnell, it is more con-

[1] Republished in Braithwaite's Retrospect, part 61.

venient to take, for instance, in fractures of the leg, say the whites of one dozen eggs: beat these to a stiff froth; then stir in flour briskly and well to a moderately-thick batter. If properly made, this paste dries very quickly, usually becoming sufficiently hard within two to six hours to allow of the bandages being divided with ease.

Perhaps the following description of the manner in which the fixed apparatus is used may not be thought out of place. Where extension is deemed desirable until the bandage becomes firm, or longer, the dressing is begun by applying adhesive strips to the limb after the manner first recommended by Prof. Gross. This, with foot-weight attached, is shown in Fig. 1. In fractures of the shaft of the femur, as soon as the strips are put on, envelop the entire limb evenly and well in a layer of cotton-wadding. Then take a piece of moderately-thick pasteboard, four inches wide, and long enough to reach from the nates to the heel; make in this, throughout its entire

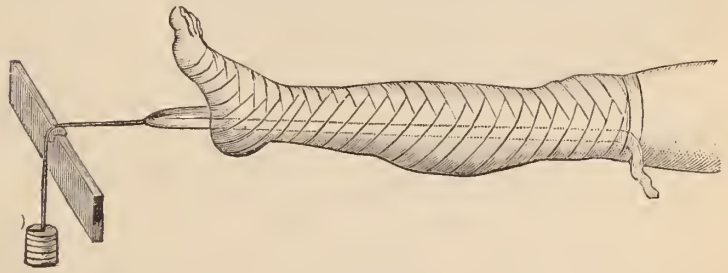


Fig. 1.

length and through half its thickness, with a knife, incisions one inch apart; cover this, the outer surface, with a layer of paste. Apply to the posterior part of the limb. Should the pasteboard prove too wide about the lower part of the leg and ankle, tear off a sufficiency of its edges. Place on each side of the limb, from the hip as far down toward the ankle as may be necessary, a narrow strip of pasteboard, and a single short strip on the front part of the thigh. Use now more wadding about the condyles and malleoli if necessary. Hold the splints in position by pasting or tying over them, at intervals, slips of bandage. Envelop the whole with a layer of the bandage of Scultetus, well covered with the paste. Carry from the upper part of this a strong spica. Apply a second layer of the strip bandage. Strengthen the spica by a few additional turns; add a third layer of the strips; use the paste liberally; attach the foot-weight; and, if counter-extension be desired, effect it by elastic tubing in the perinæum, or by lowering the trunk; and the dressing is complete. If it be well done, immobility of

the hip and entire pelvis is almost certainly secured. Fig. 2 illustrates this dressing. In fractures of the leg I also use three

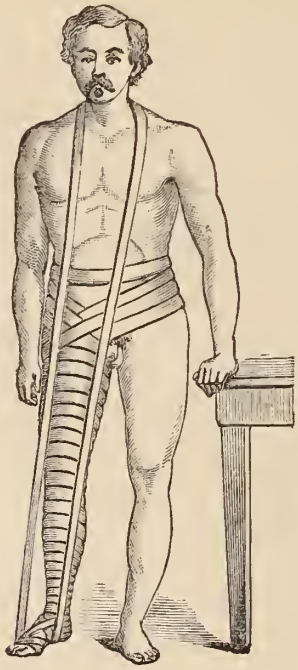


Fig. 2.

splints of pasteboard. One, four inches broad, applied on the back of the leg, and reaching from three inches above the knee to a short distance below the heel. The two others are applied on the sides of the leg, and are made sufficiently long to meet on the sole of the foot. In children I usually dispense with splints, the eggs and flour making the dressing sufficiently firm.

Dr. Yandell then supports his position by narrating very briefly twenty cases of fracture, ten of the thigh and ten of one or both bones of the leg. The result is uniformly stated as favorable, there being no perceptible or but very trifling shortening of the limb. In one instance, however, he was obliged to divide the dressing from the knee to the toe on account of extreme pain produced by swelling and compression. In this case the apparatus was not applied until forty-eight hours after the receipt of the injury, which was very severe. In this

list no case is included where the apparatus was applied at late periods after the accident, the object being merely to direct attention to the *immediate* use of the dressing, contrary to the advice of many eminent surgical authorities. Dr. Y. concludes as follows:

While I have followed for years this plan of putting up limbs, I have been called on to open the bandages, by reason of pain or swelling of the parts, in but a single instance; and in this the fault was mine rather than that of the dressing. Yet, to obviate in some degree the principal objection urged against this dressing—that it may become too tight as the swelling augments, or too loose as the swelling subsides (all without the knowledge of the surgeon)—I venture to recommend that as soon as the paste becomes dry the bandages should be cut throughout their entire length (as represented in Fig. 3),

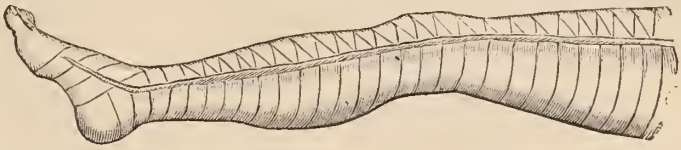


Fig. 3.

and their edges brought together either by additional strips, or, better, by loop-knots (as seen in Fig. 4). If this be done—and

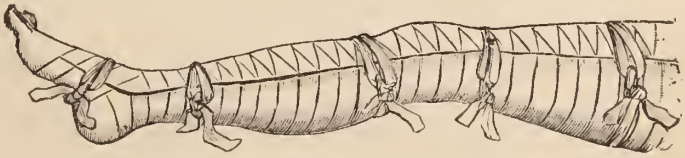


Fig. 4.

it may always be done in a few hours, if the paste suggested by Mr. Tufnell be used—I am unable to conceive how, if mischief follow, it can be fairly chargeable to the dressing. And if in addition the bandage be applied in strips, instead of as a roller, I must believe that the least skilled manipulator can dress a fractured limb without the slightest risk of danger from undue pressure. If swelling occurs, the dressing can be instantly loosened. When the parts shrink, the edges of the apparatus can be pared or overlapped. The limb lies in a bed which, though perfectly soft, is yet sufficiently snug and firm to insure entire immobility. Scutin advised division of the apparatus when it became dry; but when starch is used this is seldom before the expiration of thirty or forty hours—

the very period at which swelling is likely to occur. I myself rarely slit up the dressing before the end of twenty-four hours. I have never been called on to do so in consequence of pain in the limb, except in the single instance referred to. I not infrequently allow it to go untouched until its final removal. For, where the fracture is put up immediately, and with proper care, swelling is not likely to occur. Should it, however, already exist, it will be necessary, when it has begun to subside, to open the apparatus, and trim or overlap the edges.

As soon as the patient gets on crutches, which should be within the first five days, extension of the limb may be safely trusted to its own weight plus that of the apparatus. I am not sure that extension by other means is ever required where the fixed dressing is used.

Dr. Marion Sims returned to this country in the Cuba, on the 19th of October, fresh from the bloody field of Sedan, where he had been in charge of the American ambulance, and had done good service.

Large Doses of Opium in Tetanus.—In another part of this number of the Journal, we have collated a number of cases of tetanus, in which chloral was employed, both with and without benefit. In view of the increased attention which probably will be given to the use of this remedy by reason of the encouraging results already obtained, it should not be forgotten that heroic doses of opium have also proved in many instances successful.

L'Union Médicale gives the experience of Dr. Chazarin, who practised for seven years in the French colony of Senegal. He mentions altogether twenty-eight cases, twenty of which, treated by various means, terminated in death. The eight others were submitted to the following treatment: First day, 15 grains of gummy extract of opium in solution; second day, 22 grains; third day, 30 grains; fourth day, 37 grains; fifth day, 45 grains; and so on, increasing the dose each day seven grains if the symptoms did not improve. When 90 grains were reached, the doses were diminished in the same ratio from day to day. Of these eight patients one only died, and this in consequence of frictions of oil of turpentine imprudently undertaken on the advice of a neighbor. These cases deserve particular attention, though they are not very uncommon, as some analogous ones were published in *L'Imparziale* of Florence, in the year 1868. Quinine was, however, in these latter instances added to the opium.

NEW YORK

MEDICAL JOURNAL:

A MONTHLY RECORD OF

MEDICINE AND THE COLLATERAL SCIENCES.

VOL. XII.] DECEMBER, 1870. [No. 5.

Original Communications.

ART. I.—*The Relations of the Medical Profession to Modern Education.*—An Address[1] delivered at the Commencement of the Medical Department of the University of Vermont, June 16, 1869. By EDWARD S. DUNSTER, M. D., Professor of Obstetrics and the Diseases of Women and Children.

THERE is no question, perhaps, at the present day, which has so large and many-sided an interest for almost all classes of society as that of education—education, I mean, in its broadest sense, as applied to whole peoples, and not in its old acceptation of overculture of the few, or its still more subordinate aspect of teaching, which is but one of the means to the end of education. This question has assumed various phases and vast proportions, for it has a direct bearing on the material progress of society, and its advance in civilization. For this reason it has directly engaged the attention of our ablest scholars and keenest thinkers, and indirectly the opinion of the people has been unmistakably made manifest, by their distrust of the old systems of education, and their demand for a new, better adapted to fit the growing mind for the impor-

[1] This Address was also read, a week later, at the commencement of the Long Island Hospital College, Brooklyn, N. Y.

tant responsibilities of life. The question has elicited the most antagonistic opinions, and powerful arguments have been put forward in favor of the opposing lines of policy which are advocated by different parties. It is a question, however, that cannot be decided by argument, precedent, or authority; its solution is to be found in the relation which obtains between the demands of life and the existing systems of education. And, although I hold that we ought all to have sharply-defined opinions on a subject which is so important a concern of all, it is no part of my plan at the present time to enter into the controversy, nor to advocate either the classical or the utilitarian studies. But, keeping aloof from the questions immediately at issue, and from a distance, as it were, observing the progress and tendency of events, and accepting the situation precisely as it presents itself to my view, even if it does not accord with cherished wishes or convictions, I purpose to consider simply the relations which the medical profession should sustain to this work of the new and the incoming education.

The solution of this problem necessitates two other inquiries: 1. What is the general tendency of modern education? 2. What is it that is shaping and directing that tendency? The answer to these inquiries will be apparent as we proceed.

I.

"Modern civilization," says Prof. Huxley, "rests upon physical science," and herein we find the explanation of the rapid advance which civilization has made during the last century, in which time the experimental and applied sciences have been especially active. The prominent features of this new era are sharply defined, and the basis upon which they rest is apparent almost at a glance. The most careless observer cannot fail to be impressed with two characteristics of modern civilization, wherein it is immeasurably superior to the old order of things. They are, *locomotion and interchange of thought.* The improved methods of locomotion have virtually shortened distance, and brought the ends of the world into close relation; while the telegraph, flashing thought from city to city, and from continent to continent, gives us a knowledge of

events that are taking place in far-off lands, and, so far as the interchange of thought is concerned, it has practically annihilated terrestrial space. The printing-press, also, by the marvellous rapidity of its processes, and the wonderful cheapness and unlimited supply of its products, diffuses thought throughout the whole civilized globe, and places within the reach of everybody the means of acquiring and extending knowledge. Now, these potent civilizers are the direct and immediate creations of science. Without it no one of them could have been devised or perfected—no one of them could continue in existence. To illustrate: The invention of movable type was the starting-point in that remarkable series of improvements which have brought the printing-press to its present perfection. But the full benefit and the prodigious expansion of that invention could never have been realized, had not science come to its aid in the application of the laws of mechanics, of the expansive power of heat, of the chemistry of the metals, of the economy and transmission of power, of the strength of materials, of motion and resistance, etc.; and even all these would practically have been of no avail, had not science devised the means of furnishing a supply of material for receiving the impressions of the type. Indeed, it has been playfully maintained that civilization depends for its continuance on the supply of paper. In the improved methods of locomotion and in the telegraph, it is equally evident, without specifying details, that science is the leading factor.

In addition to these prominent and distinctive features of the present era, we need only look at the industrial pursuits which are alone productive of material prosperity and wealth, to see how largely science has contributed to civilization. She has impressed upon these pursuits new features: 1. In the form of production; 2. In the transformation of the products; and 3. In their distribution. Even in agriculture, the most simple and unskilled of all these pursuits, whose purpose is merely to draw from the earth the means of subsistence, there is implied a knowledge of the physiology of plants, the chemistry of fertilizers and soils, the economy of force, and the application of machinery; and, just in proportion as these scientific principles are understood and applied, is

success attained in this branch of industry. Indeed, in the struggle for life, there is no chance whatever between unskilled and skilled labor. This conviction is forcing itself upon our agricultural classes, and they are hastening to avail themselves of the methods and results of the applications of science to their occupation, although they may be in entire ignorance of the laws on which those applications are based. In this way not only the quantity but the variety of the earth's vegetable products has been materially increased. So, too, with the mineral products, which have been so bounteously stored up within the substance of the earth. Science has provided the means of extracting them, and making them subservient to man's interests.

2. In the transformation of these products is seen a still more remarkable evidnce of the impress of science on our civilization. New products are evolved by the separation or combination of the old, and the old are worked over and reappear in countless new shapes adapted to the necessities and convenience of man. Materials that were considered worthless are turned to profitable account, and made to minister to our daily wants. Each new supply creates new demand, while the never-ending demand of the advancing arts is met by new sources and means of supply. Thus the rude tastes and simple wants of the olden times have given place to the refinements and luxuries of modern life, not because man is more effeminate or degenerate, but because of the new relations imposed on him by the ever-changing conditions of civilization. These refinements and luxuries have become so interwoven with his daily existence that they must now in a large degree be looked upon as essentials. This feature of modern civilization is directly traceable to the application of science in the arts and manufactures. The invention and perfection of the steam-engine have furnished the means for the practical application of the laws of the expansive power of heat, and have thus made available a limitless supply of motor power for our manufactories. The laws of mechanics, which are based upon the laws governing the movement of solids, fluids, gases, and vapors, are applied to the construction and operation of machinery. Chemistry has devised new processes in the arts, and explained the old; in-

deed, so numerous and important are its applications, that there is hardly an art which is not indebted in some way to chemistry for the advance which it has made or which is not absolutely dependent upon chemistry for its every-day processes. Even the imponderables, light and galvanism, are made subservient to man's material interests, and it is impossible to anticipate what limits may yet be set to their application and usefulness. But it is unnecessary to pursue this illustration further. It is almost a self-evident proposition that science, applied to the arts and manufactures, is the prime motor in this transformation of products.

3. In the distribution of these products we can trace clearly another prominent feature in the influence of science upon the industrial pursuits. The application of steam to the purposes of locomotion and transportation has subverted to a large degree the old methods of the distribution of supplies. It has rendered both possible and profitable the bringing of raw materials from all quarters of the globe, and the placing back in return the manufactured products. Thus by the facilities afforded for communication between distant countries, and the economical carrying of large quantities of materials, it has both increased the demand for these products, and has enabled the supply to be adequate to the demand. Science has brought to bear its forces in the solution of this problem, for, underlying the whole, there is implied a knowledge of the workings and applications of many of the laws which, as we have seen, are applied in the other phases of the industrial pursuits. The illustrations are, however, so obvious, that it is quite unnecessary to enumerate them.

We discern in these considerations the first great *material* ground of the claims of science to recognition in education.

But, furthermore, science in recent times has been directed to the explanation of the physical and physiological laws whose workings, although not apparent to the superficial or hasty observer, are constantly manifested in all our surroundings and the conditions of our existence. Man, considered collectively, is unquestionably subject to the influence of these laws. It is the business of science to determine what these laws are, and what are the mode and limit of their action and

their possible modifications; for "science," to use the words of Mr. Hodgson, "is, in brief, the pursuit of law," or, in the still more concise phraseology of Herbert Spencer, it is "organized knowledge." By the exposition of these laws, then—another prominent feature in modern civilization—science takes cognizance and control of the most important questions of life affecting man in his social capacity and relations. Now, these questions, constituting the body of social science, or sociology, relate largely to the conservation of life. They have therefore a special and peculiar interest for all, and they establish a *second* fundamental claim for the recognition of science in education.

Finally, science has an important function to fulfil in training the mind to correct habits of thinking, and disciplining the mental powers. It is folly to assert that this can only be accomplished by the study of mathematics and the languages. Observation, comparison, classification, reasoning on external phenomena, and exercising the memory, are carried to as high a perfection in the study of the natural sciences as in the intricacies of the calculus, or the inscrutable mysteries of grammar. This is another consideration, substantiating the claims of scientific education, for there can be no doubt that, in the training of the young mind, the disciplinary value of the studies pursued should always be kept in view.[1]

[1] A writer in the *Edinburgh Review*, for January, 1868, on Liberal Education in England, gives the following testimony in favor of scientific studies—testimony which is all the more weighty from the fact that the whole bent of his argument, except this admission, is to sustain the classical studies, but not, however, as they were then studied in England. Speaking of the physical and natural sciences, he says: "Valuable for their own sake, they are also useful for the sake of every thing else. It is in these sciences that the intellect of the age we live in is most active and progressive. It is by the order of mind to which the study of these sciences is conducive, that our civilization is chiefly guided and controlled. The treasures wrung from that study constitute the richest heir-looms in the power of this age to bequeath to posterity. If we look to what should be the grand object of all study, namely, the formation of mind and character, we shall assuredly be compelled to admit that there is no kind of study so conducive to its attainment as science. For there is hardly any mental or moral faculty which science does not exercise, discipline, and develop better than any thing else which a man can set himself to learn."

II.

These great facts, which have been long familiar to careful observers and cautious thinkers, are now clearly perceived by all peoples, and the consequence has been a growing dissatisfaction with the traditional systems of education, and a demand for a culture which shall distinctly recognize this material element in a nation's progress, shall take into account the changed conditions of modern life, and shape the growing mind into harmony with them. This dissatisfaction has at length organized itself into open revolt, and the whole educational system, from top to bottom, is under arraignment. Our colleges and higher grades of educational institutions are indicted as clinging to an outworn curriculum, whose only effect is to overload their graduates with a mass of antiquated lore, which, while it may fit a man for the occupation of a gentleman, does not contribute largely to his usefulness as a member of society—does not even qualify him for the ordinary avocations of life. The lower grades of schools are charged with adapting their studies simply to meet the demands made upon them by the higher, acting as it were as feeders to these last. This influence extends even to the lowest and most primary of our schools, whose elementary instruction, it is claimed, loses sight of the great principle, which should constantly be kept in view, of training the young to meet and grapple with the realities and responsibilities of life. In short, the entire existing systems of education are declared unsatisfactory and inadequate so far as concerns the fitting of man for action, and action implies labor, and labor by divine command is ordained as the *great* and *only essential* condition of life.

This cry for reform is already producing its results, and a reaction has commenced which threatens to entirely subvert the old method of education, and possibly even to lose sight of the real value of the old studies, and so produce injurious results by giving a discipline and a culture as one-sided and unsymmetrical as was the old. The evidences of the new order of things are seen on every side. In our colleges, not only has the curriculum been remodelled, allowing a wide election in the mathematics, pure and the classics, but supplementary depart-

ments devoted exclusively to scientific instruction are everywhere being established. Special schools, for the technical education and scientific training of the large classes who will not attend college, are springing up all over the land, and in the various countries of Europe. In the lower grades of schools the plans of instruction give a greater prominence to the utilitarian studies; and even at the very outset young children, by the method of object teaching now so largely introduced, are made familiar with many of the principles and applications of the physical sciences long before they know even the meaning of the word science.

And while scientific education is thus forcing its way in our institutions of learning, its claims to recognition, not only as an integral part, but as a controlling influence in our system of education, are evidenced in many other ways. It pervades the periodical literature of the times; even the daily press has entered into the discussion of the question with an enthusiasm which, although not always based upon very clear views as to the necessities of the case, or the true principles which should underlie every method of education, is a reflex of the popular sentiment, and an evidence of the very general interest which obtains in this matter. It has received the indorsement of many of the most eminent men of the day; and, while it is true that a strong fight has been made by many distinguished men for the old order of studies, the weight of authority has preponderated largely in favor of the sciences. Even those who have taken the broadest view of the question, such as Mr. Mill, Lord Stanley, Mr. Farrar, and others, have made powerful arguments in favor of the scientific studies, both as a means of increasing knowledge and as a method of disciplining the mind. Others, equally eminent, like Profs. Huxley, Tyndall, Henfrey, Paget, Baron Liebig, Mr. Froude, Herbert Spencer, and many more, have not hesitated to throw the weight of their authority in favor of the superior claims of scientific studies, and to insist upon the necessity of a greater and increasing degree of attention to them.

It is curious to observe at this point that, almost without exception, the men who have made the strongest claims for science are men whose early education had been conducted

under the old method. Some of the profoundest classical scholars that our universities have produced have been the most bitter opponents of the old system of education; and in England, famous for its conservatism and attachment to traditional systems, the changes which have been brought about can be directly traced to the efforts of her most brilliant classical scholars. There seems to have been a very general conviction that their culture had been disqualifying for their lot in life, their studies misdirected, and their time misspent.

Looking at it, then, as we do, from an outside point of view, it is clearly evident that we have fallen upon a transition-period, when the old is to be in a large degree abandoned, and the new is to be arranged. How far the two shall be united—for it would be eminently disastrous to entirely abolish the first—it is difficult to say; but the unmistakable tendency is toward the scientific studies. The tide has set in so strongly in their favor that it cannot be turned back, and he who opposes it must beware lest he be swept away and overwhelmed in the torrent. The opinion of the people has been taken, and the verdict which they have rendered must be accepted as conclusive. Education is every day becoming more and more a serious matter of training the young for meeting and surmounting the realities and responsibilities of every-day life—the mathematics and the humanities must be subordinated to the physical sciences.

This may be a material and utilitarian view of things, but for this I am not responsible. It is the view which the masses of the people have taken of it, and it is my business now simply to state the case as it forces itself upon my observation, without allowing my predilections to influence judgment of the fact. It may be well, however, to remember that, although the issue is a material one to a certain extent, it is not directly between money-making, on the one hand, and a broad, dignified, and refining culture on the other, as the strict classicists are fond of asserting. The real issue lies far deeper than this, and is to be sought for in the problems and responsibilities of life, which, in a thousand different shapes pertaining to our social and material advancement, are crowding upon us every day, and which can neither be evaded nor postponed. These prob-

lems, "the safe and elegant imbecility of classical learning," as Sydney Smith calls it, is not competent to grasp or solve. From them it must inevitably shrink, to take refuge in its own legitimate sphere—the past. But the man of to-day does not live in the past, nor does he accord to it that veneration which was so long deemed its peculiar prerogative. He lives rather in and for the future, and progress is the high and guiding principle of his life.

I accept, then, this new condition of things, the two striking features of which are apparent and must continue, viz., the philosophical education of the masses, instead of the over-culture of the few, and the tendency toward scientific studies and pursuits—a tendency so strongly marked as to render inevitable the conclusion that the culture demanded by the incoming civilization will subordinate the old method of education to the new, and that the new must henceforth rely for its eminence directly, and in a very large degree, upon the study of the physical sciences.

III.

In this interesting change of policy, a revolutionary and reconstructive period in our mental development, in which all classes of society are so deeply interested, what are the duties of the medical profession? It is their prerogative and their duty to take the lead in the movement. This unqualified and somewhat startling assertion calls for the reasons on which it is founded; the claim must be substantiated before assent can be given to what, at first sight, and to many, will seem an entirely gratuitous assumption.

In man there is an instinctive knowledge of the superior power which superior education and intelligence confer on its possessors. This is continuously though unconsciously admitted in the every-day conduct of life; for it is a matter of simple observation that the masses of the people rely for instruction and guidance upon the educated classes. Reciprocally, these classes are bound, as it were, in certain duties to the people, and sustain to them certain peculiar relations. It is these relations in the matter of general education that we have to deal with. For our purposes it will be sufficient to

consider three classes only whose culture and attainments are closely allied to each other, and therefore comparable, and whose education *as classes* has been so liberal and complete as to have earned for them the title of "the learned professions" —a title, however, to which they can no longer exclusively lay claim.

True education itself is becoming more and more a recognized profession, and classes are trained for the details of this work in the matter of teaching; but teaching, as such, is not the only or even the most important part of education. Unless teaching be based on a proper conception of the objects of education, and on a thorough understanding of the nature of the being taught, it may prove not only useless, but injurious. And, besides, however perfect and complete may be the culture of the instructor, and however correct and exact the methods of doing his work, his relations to the other learned professions must, from the very nature of the case, ever remain unchanged.

Looking more in detail at the relations of these so-called learned professions to this question of modern education, it is easy to perceive that these relations grow out of the nature of their respective studies, which stamp upon each profession certain broad and obvious peculiarities. Of these three professions, then—clerical, legal, and medical—the medical profession alone has a training and a culture which are in harmony with the tendencies of modern thought and modern civilization, and on this is based the argument that they are to assume a leading part in the coming education.

The clergy are our traditional teachers. They have not only personally engaged in the work of education, but have directed the method and dictated the studies to be pursued. They practically, even at the present, monopolize all the high posts of learning. But a reaction has set in against their authority, and the unquestioning readiness with which assent has been yielded to their guidance is giving way to a positive refusal longer to submit to their control. Why is this? Not because they are clergymen, as has been flippantly asserted by some, and ignorantly supposed by others. The office of the clergy is no disqualification for the office of the educator. It is because they have failed to take into account

the changes which the advance of civilization has forced upon education, and have neglected to so alter their own education as to make it conform to the growing demands of science. "Content," says Dr. Draper, "with such a knowledge of Nature as might have answered a century ago, the imposing and ever-increasing body of modern science they decline. And yet it is that science and its practical applications which are now guiding the destinies of civilization." The training of the divinity-student for the highest functions of his office excludes much of that training which is so important an element in the new education. Having ultimate reference to the fitting of man for another life and another world, it overlooks in a measure the fitting of him for this life and this world. The languages are the predominant elements in this training, for they are the foundation of all his knowledge, the means which enable him to read and expound the revealed word; the keys which unlock for him the stores of patristic and scholastic literature; the media which acquaint him with the body of contemporary philosophy and of doctrinal and Scriptural exposition, which are such prominent features in his education. The sciences are unessential in his work and his culture. He derives no aid from them, takes no account of them, does not even recognize them.

But, independently of the fact that the culture of the clergy does not compass the scientific studies, the profession has, in the past, protested against the cultivation by others of these studies, and has strenuously opposed them. Time was, when science, such as it was, was confined almost wholly to the priestly order, and the alliance was conducive neither to the spread of true religion, nor the advance of science. Then, as science began to be studied apart, and to unfold itself and assert its claims, the profession looked on with distrust and suspicion. They estimated those claims by their own conceptions of truth. They assumed that the teachings of science would invalidate the trust in divine revelation. Hence arose that stupendous folly, which so long held sway, and for which the clergy were mainly responsible, that science and religion are incompatible, and which has compelled wellnigh every branch of modern science to put itself into an unsought-for attitude of

defence against this opposition. It is quite unnecessary to go back to the time of Galileo to find instances in point. To-day furnishes traces enough in the dread of free inquiry into the origin of races and species generally, a question which is prominently exercising the mind and engaging the attention of the scientific world. As science was largely engaged in searching out the secrets of Nature and unfolding her laws, it had to deal with material things. Thence arose the cry that the tendency of the study was materialistic. But in those very laws which science expounded, was it not more rational and more religious to recognize the simple yet grand expressions of God's will, rather than sink the prime moving cause in the mere working of law? In fact, science has furnished that great argument of natural religion, which deduces a First Cause from the evidences of design with its most striking and convincing illustrations. "Science," says Prof. Youmans, "is the revelation to reason of the policy by which God administers the affairs of the world." And every discovery which science has made only furnishes additional proof of the constant and overpowering control of a Supreme Being. Rightly interpreted, then, science, so far from fostering skepticism, is the most powerful agent in dispelling it—the strongest support which true religion can bring to its aid.

Happily for the world, this intolerance of science is rapidly passing away, and it cannot be said of the body of the clergy of to-day that they participate in it. But the legitimate result of this old opposition remains to some extent, and in it is found another explanation of the decreasing influence of the clergy in educational matters.

By these considerations, then, it seems to me apparent that the high position which has hitherto been accorded to the clerical profession, in their relations to education, cannot be maintained. In their capacity as conservators of learning, and as teachers under the old order of things, where a large part of their duty was to train up candidates for their own calling, they have accomplished a vast good, and they are entitled to all honor for it. But the qualifications which fitted them for this important office, in a former state of things, are no longer sufficient. The direction of their studies is faulty,

so far as relates to the new education, and the tendency of their studies is not in accord with the spirit of the age. Science has at length organized a revolt against their authority, and control in the educational field.

Now, consider for a moment the relations of the legal student to this question. He is engaged in the study of *human* laws which are made and unmade by legislation, and which many times are only the reflex of prevailing social or political necessities, assumed or real. Although the eternal principles of truth and justice are the basis of the superstructure which it is his business to build, precedent and authority are controlling and insurmountable conditions in that work. To quote the words of one who is himself a distinguished member of this profession: "He contributes little or nothing to the stock of human knowledge. He has given himself to the study and application of a science, if indeed it be a science, which as often deals with artificial principles and dogmas as with great abiding truths. In grasping at the philosophy of jurisprudence he is fettered, even in this day and generation, by precedents of scholastic absurdity which date back before the Wars of the Roses, and by statutes the very records of which were lost before the Reformation. The scientific aim and effort of his professional life are simply to show that '*thus it is written.*'" *Evidence*, than which nothing is more deceptive, is the material from which he must sift the truth, while *experiment* is the absolute and unmistakable test of truth in science. Science and its laws, which are not made and unmade, only interpreted by man, form no part of his education. And when, as is frequently the case, he is compelled to bring science to his aid in determining controversies or adjusting disputed questions, he very shrewdly relies upon the expert in science. As a class, the legal profession has never evinced any of that opposition to the claims of science which, as has been shown, emanated in former days from the clergy. No body of men have a keener perception of the truth that, while the exercise of private judgment is an unquestioned inherent right, the most precious, perhaps, of all our civil rights, such judgment, when exercised on subjects in which we are uninstructed, may put us all in false positions. They have therefore wisely

refrained from taking part in a work for which the peculiar nature of their studies and mode of thought is unfitted. And yet it cannot be denied that they have contributed to perpetuate the traditional systems of education by the very respect which their study compels for precedent and established custom. As a class, however, they have never taken any active part in the work of education. They have never in this relation had any recognized status, not even that which the breadth of their culture and the powerful influence accruing to them as incumbents of the highest executive and legislative positions clearly entitle them to, and there is no reason to hope for any change in this respect.

How stands the case now with the profession of medicine? It is the only one of the learned professions which does not plant itself on the dogmas of either authority, precedent, or tradition. Its doctrines are based upon the eternal and immutable laws of Nature, and are estimated by high scientific standards. Precedent and authority carry no weight here, except in so far as they accord with the principles which science has proven, and has established as reliable guides. There is none of that blind devotion to old ideas and methods which has so hindered progress in other callings, and which has rendered our educational systems so inadequate and unsatisfactory. The *old* is valued only as it squares with the *new*. The *past* is estimated solely by the standard of the *present*.

Not only does medicine thus discard authority, precedent, and tradition, but, first, its methods of study are purely scientific; and, second, its studies comprise the whole range of the physical sciences.[1] The knowledge of these sciences, which has so often and ignorantly been condemned as unnecessary to the practising physician, has of late years far outstripped all other branches of human learning. It is the application of these sciences in biology which has given the physician that truer insight into the nature of the living body with which he has to deal, upon which depends the proud eminence

[1] "Medicine, in its original and comprehensive sense, as one of the great divisions of human culture, must be considered as taking in the whole of physical science."—W. Whewell.

of the profession to-day. "The essence of science," says Prof. Acland, "lies in observation, comparison, and classification; in precision of data and precision of argument." This is precisely what is required in the study of medicine. Indeed, it may safely be affirmed that there is scarcely any thing true or valuable in medicine, beyond some of its therapeutical applications, which has not been wrought out and approved by scientific research. Observation, of course, is the basis of all knowledge; but, unless we do something more than observe—no matter how large may be the accumulation of facts—we can lay no claim to scientific method. There is not a single one of the physical sciences which is not contributory to medicine. On them the physician relies, and an understanding of, at least, the principles of them is absolutely essential in his study and his practice. Chemistry and mechanics, acoustics and optics, electricity and galvanism, the production and action of heat, the indestructibility of matter, the correlation and conservation of forces—these and all the other physical sciences are required to explain the many and varied healthy phenomena, or to correct the unhealthy phenomena, which are brought under the notice of the physician.

Covering thus, as it does, the whole range of physical sciences, and doing its work in strict accordance with scientific methods, medicine is entitled to rank as a science. It is constantly objected to this claim, that it is not an *exact* science. There is a very general, though vague, impression abroad that, while medicine is somewhat indefinitely scientific in its bearings, it is neither one thing nor another—a sort of a hybrid, entitled to no consideration whatever. Now, this objection can lie, to use a legal phrase, only against the *methods* of study and investigation which are employed, or against the *results* attained. It does not apply to the methods, for the methods are the same, as has been seen, that are employed in all other sciences, and as much nicety and precision are requisite and manifested here as elsewhere. As to the results, the objection at the present time is true to a certain extent. It arises from the great diversity of the study—including all the sciences—and the enormous number of interfering conditions met with in so complex a structure as man, the principal object

of the physician's study. But, as we advance in our study and perfect our methods of investigation, we are able to appreciate more accurately the value and significance of these disturbing conditions, and make allowance for them, just as the astronomer allows for the aberration in the movements of planets or for the effects of the refraction of light. Thus, we are, one by one, eliminating these sources of error, and gradually our results will approximate the accuracy of the fixed sciences. In its *essence*, therefore, both so far as concerns the methods of study and the results attained and attainable, medicine is an exact science. The study is only in its infancy when we take into consideration the period during which it has explicitly and directly called science to its aid, or, in other words, has had a scientific basis. Therefore, many of its laws are imperfectly elaborated, and many of its old errors are yet uncorrected. But the incorporation with it of advancing science is every day adding certainty to its results, overcoming former prejudices, and dissipating error. And in this very fact are founded the high hopes we entertain of the continued progress of Medicine, for she does not hesitate to acknowledge her error when new truth has convinced her of a mistake, and, however devoted she may be to-day to any theory or system, if to-morrow advancing science proves that theory or system incorrect, she will not let it encumber her progress, but will sweep it from her path as remorselessly as the whirlwind crushes down the forest in its destroying track. Hence the unnumbered remains, dead and dying, of erroneous doctrines that may be found scattered along the wayside of the historic march of Medicine.

It is apparent, then, that the medical profession, although trained for a specific occupation, must have a scientific education, and we have above seen that the tendency of modern education is in the same direction. "Scientific education," says Mr. Mill,[1] "apart from professional objects, is but a preparation for judging rightly of man, his interests and requirements." Now, if this assertion may be accepted as a postulate (and no one, I believe, can justly take exception to it), it

[1] Inaugural Address at the University of St. Andrews, February 1, 1867.

forms a strong point in our argument, that the physician must take control of the coming education; for his culture, and his alone, enables him to judge rightly of man, his interests and requirements. This is his peculiar office, the highest and most ennobling of his duties, and, in the use of the term education, we have expressly extended its application to the broadest limits, and have excluded its subordinate and narrow features.

The physician's studies were undoubtedly entered on with the professional aim of restoring the body to health when broken or disturbed by disease, but the very knowledge which enables him to do this is that which, according to Mr. Mill, is the aim of scientific education, and which is, therefore, indispensable to the educator. A knowledge of the being to be trained or taught,[1] it is evident, must underlie the whole subject of education, and form the basis of all intelligent culture. The physician alone is competent to supply this knowledge, which can only be acquired by a study of the laws governing the evolution and action of both mind and body, and which, as science has demonstrated, are determinate. This study, comprising psychology and physiology, is the peculiar province of the physician. Theology and law are powerless and utterly unavailing here. They cannot help us to this necessary knowledge, for they know nothing of it: their education has been directed in different channels to different ends. The physician has, therefore, in reality, to precede the educator, and determine and enunciate for him the laws upon which the healthful and vigorous development of mind and body depends. Thus is furnished a true physiological basis for education, and no system can be held faultless or complete which loses sight of this truly scientific study of human nature.

Then, as we proceed from the understanding of man, the

[1] "Man, as a problem of study, is simply an organism of varied powers and activities; and the true office of scientific inquiry is to determine the mechanism, modes, and laws of its action."—Prof. Youmans, *on the Scientific Study of Human Nature.*

"If there is any thing that deserves to be studied by man, it is his own nature and that of his fellow-men; and if it is worth studying at all, it is worth studying scientifically, so as to reach the fundamental laws which underlie and govern all the rest."—Mr. J. S. Mill, *loc. cit.*

being taught, and endeavor to judge of his requirements and interests, what a wide range of considerations is forced upon us here, wherein the medical profession alone can give an intelligent judgment! Apply these considerations to the body politic, rather than limit them to the individual, for thus their significance as objects comprised within the aims of scientific education becomes more apparent, and the importance of an acquaintance with the principles underlying them the more evident. There is scarcely a problem in sociology which does not bear upon this point, and which therefore comes within the legitimate scope of education. Thus we may instance the comfort and health of the community; the influence of the occupations on life; the deterioration of the race from residence in large cities and crowded districts, from inherited or transmitted diseases, from unhealthy occupations, from insufficiency or impropriety in food, from any cause whatsoever, affecting the capacity of a population for labor which alone is productive; the prevention of disease, endemic and epidemic, and the consequent saving of life, by the rigid application of the established principles of sanitary science; the proper equilibrium between work, both mental and physical, and repose; the care and training of the feeble-minded and insane; the management of criminals; the recognition of the influence of habit in developing mind and body, and therefore as an aid or a hinderance in education; the restraint or correction of the social evils; the explanation of the gross and wide-spread superstitions and ruinous mental and moral epidemics that sweep over our land;[1] the generally-recognized but illy-defined influence

[1] "The country is flooded with trashy and idle notions, taking on philosophical names, which owe their contagious spread to the fact that the widest interest in truth and the most active-minded curiosity exist in America, and is the prey of its own unscientific education, and of the pretenders, enthusiasts, and fanatics, that live by pandering to it, or are themselves spawned in its marshes of rank fertility. Now, it is only medical men who have much power to correct this perilous tendency, by their influence over popular education, their acquaintance with the sources of credulity, and the causes of mental epidemics, and their own rooted habits of cautious and precise investigation and slow and measured inference. Let the people be taught by medical men the unreliableness of their own senses out of the immediate sphere in which they are wont to use them; let them

of hereditary descent in producing certain aptitudes for good or for evil, and the means of correcting or restraining these tendencies when illy directed, or of developing them when pointing in a proper direction, as well as the uselessness of contending against them, except to protect the body politic from harm, when so far pronounced as to indicate organic irremediable defect. It is impossible almost to overestimate either the importance of the problems arising out of this single question, or the value of a knowledge of the limitations and modifications of this one item of inherited capacity in the mental, moral, and physical organization and development of a nation.

But it is unnecessary for our argument to continue these illustrations. These, and a host of other public objects and duties, are confronting us on every side, and we cannot escape from them. It becomes, therefore, a matter of some moment that our education should at least include a basis of training which, when carried out, will fit men to grapple with these serious responsibilities. The medical profession alone is the one whose training fits them for this work; they alone are competent to advise and guide the people in these matters; and in this we find another and powerful argument in support of the claim "that medicine," to use the words of Mr. Eliot, "as the science embodying, and as the art applying the laws of our existence, has a sort of a natural right to lead the way in the advancement of education."

Taking, then, into consideration all the arguments adduced, it seems to me that in some degree at least the startling claim for the relation of the physician to the educational problems of the day and of the future, has been made good. And yet, I do not entertain the opinion that this relation is to be speedily and suddenly assumed. This must be a matter of slow

understand the tricks of their own nerves and all the delusions short of insanity which the imagination plays on unscientific humanity . . . and just so far as they will labor and strive to disseminate these facts, the reality and force of which none but medical men fully appreciate and understand, may we hope to free our country from the bad reputation and the evil effects of the grossest medical superstitions and the most ruinous mental and moral epidemics."—Rev. Dr. Bellows, *Address at Commencement of the College of Physicians and Surgeons*, New York, March 14, 1867.

development, according as the appreciation of the propriety and necessity for the change enforces itself, not alone on the so-called educated classes, but upon the masses. Again, even supposing that this change should take place to the fullest extent, and should there be accorded to my chosen profession the position which I fondly anticipate for it, it does not follow that our physicians are to turn teachers, or that our teachers must have the special and technical training of a physician. They have failed entirely to appreciate the argument who take this narrow view of the case; they have wholly lost sight of the grander and more extended relations which have been constantly and expressly claimed as the function of the physician in this matter of *education in its broadest sense.*

Hitherto the medical profession has had but an indirect influence in education, but that influence, by the constant perfecting of their own studies, and the supplying of an essential knowledge, has undoubtedly contributed to the change which is now taking place in our educational systems. The state of things, to which they have thus indirectly contributed, now invites their direct guidance and control. It may be objected that the education demanded of the profession themselves in this country falls far short of the high requirements which have thus been set upon their office. Science and civilization it is said are advancing, and yet you demand but a little more culture in medicine than when its alliance with science had not been established. There is some truth in this objection, and it is deplorable that it should be true, as well as humiliating to make the confession. But this does not invalidate the force of the argument, which is based not on the *degree* but the *direction* of the culture. And besides, this is an evil which will rectify itself in due time. The exigencies which called for the establishment of medical schools in this country, allowed a very low degree of culture, and demanded very inferior qualifications on the part of the student. The influence of this state of things has been perpetuated, and is to-day evidenced in the manifestly-inadequate requirements for entrance into the profession.[1] Our thinking men have long been

[1] "The great evil of modern medical education," said the late Prof. Syme, in the concluding lecture of his course on Clinical Surgery, delivered

convinced of the necessity of reform, and this conviction is spreading over the minds of the entire profession; and it is no propheey to assert that the day is not far distant when the standard of qualification must be raised and made to aceord more closely with the important responsibilities of the offiee. The correetive must be applied in two ways: 1. By demanding a high seientifie edueation before admitting the student to the study of medicine proper; and 2. By lengthening the time of that study, and taking up the separate branches in their natural and progressive order. The present system of medieal teaching is more senseless even than superficial; but we may confidently expect, in view of the progressive spirit of the age, that we shall yet establish a more reasonable and adequate currieulum of medieal studies.

With no disposition to "magnify mine office," but with a clear conviction of the neeessary and inherent relations which must obtain between the studies of the physician and the eoming edueation, the assertion is reiterated that it is his prerogative and his duty to take an important part in the movement. And, as between the clerical and the medieal profession, for it is plainly here that the question lies, the latter must assume the place whieh has so long been oeeupied by the former. A great responsibility, then, rests upon the profession, and the young men who go forth from our institutions must be prepared to aeeept it, and they must find in this an addi-

at the Royal Infirmary of Edinburgh in 1867–'68, "is, that it has become a preparation not for discharging the duties of a profession, but merely for passing examinations which, for the most part, imply neither an accurate knowledge of facts nor the possession of sound principles, being simply affairs of memory loaded with dry terminology, to be thrown overboard at the earliest opportunity."

When so candid a confession as this comes from a representative man like Syme, and from a country where the requirements for entry into the profession are confessedly far higher than with us, we may well blush for the average standard of our own medieal attainments. But my faith is firm and abiding that the time will eome when this manifest evil will be corrected, and when it will no longer be possible, without fear of contradiction, to fling squarely in our faces such a bitter taunt—all the more bitter because true—as that uttered by Prof. Eliot, now President of Harvard, in his artiele on the new education, *Atlantic Monthly*, January and Febru-ary, 1869.

tional incentive for carrying up their own culture to its highest completeness, a new motive for keeping constantly abreast the advancing waves of science and knowledge.

More than two centuries ago, Descartes, one of Europe's keenest thinkers, said: "If it be possible to perfect mankind, the means of doing so will be found in the medical sciences." With a far-reaching prescience, he anticipated the influence which these sciences, then in a crude, almost chaotic condition, would inevitably exert. We, to-day, have only to look around us, to see this influence manifested in a thousand different ways and directions. And, although we are yet far from perfection, and may never reach it, it cannot be denied that the influence of these sciences is tending toward that end, toward man's improvement, mental, moral, and physical—the most ennobling duty and privilege, perhaps, of the new education.

ART. II.—*The "Rubber Air-Cushion" in the Treatment of Complicated Fractures, and other Severe Injuries of the Lower Extremities, with Illustrative Cases.*[1] By L. D. MASON, M. D., Adjunct Surgeon to the Long Island College Hospital.

THE employment of "rubber air-goods or rubber water-goods," by the physician or surgeon, has been hitherto limited to the "water-bed," and the ordinary air-cushion for the nates. Neither the "rubber air-cushion" nor the "rubber water-cushion" has, as far as the writer is aware, been employed in the treatment of complicated fractures of the lower extremities.

Previous to preparing this paper, and while testing the value of the "air-cushion," the works of various authors on surgery were referred to, in order to see if any reference was made to its use in the class of injuries under consideration.

The following paragraph was found in the last edition of Gross's "System of Surgery." In treating of fractures of the thigh, he thus gives the "air-cushion" a passing notice: "The

[1] Read before the Long Island College Hospital Journal Association, October 4, 1870.

heel must be seen to; if neglected it will be sure to inflame and ulcerate, if not slough; too much care, therefore, cannot be taken to ward off pressure by filling up the hollow on each side of the tendo Achillis with cotton, or by employing, if necessary, a small air-bag or a bladder filled with water." All reference to the use of the "air-cushion" is limited to the above instance. The author seems not to have had any experience with the "air-cushion," in its application to injuries of the lower extremities, in the method which it is the object of this paper to illustrate.

The surgeon is called to see a person who has sustained a compound fracture of the leg, and the nature of the injury is such that he is warranted in an attempt to save the limb, or probably the condition of the person such as to render an operation inadmissible. In either case the approved treatment would be, to place the limb in a Barton's fracture-box, and surround it with bran, and prevent motion of the ends of the broken bones on each other, by suspending the box to a frame, lifting it an inch or so above the bed. A soft pillow might be used, and this is the usual resort until a Barton's box can be procured. But whether Barton's fracture-box or the soft pillow be used, neither is proof against the evil consequences of ununiform pressure.

The soft pillow becomes packed and hard; the bran in the fracture-box becomes infiltrated with the discharges from the wound, and, although readily removed above and around the sides of the limb, is apt to become sodden and sour directly underneath it, thus increasing the danger arising from this condition conjoined with pressure.

Barton's fracture-box is invaluable to the surgeon in the treatment of compound fractures of the lower extremities, but there are, no doubt, cases in which the surgeon lays the injured limb in its bed of bran, not without hesitation, and only because he has no better substitute; we regard the "rubber air-cushion" as such a substitute.

To more clearly demonstrate this, let me cite a case in point that occurred in one of the surgical wards of the Long Island College Hospital last spring:

John Hart, aged thirty-seven, a native of England, on the evening of the 19th of last March, while intoxicated, fell from the front platform of a street-car.

He sustained a compound comminuted fracture of both bones of the left leg just above the ankle-joint.

I saw him, in consultation with Dr. George K. Smith, about one P. M., two hours after the accident had occurred. The injury was as follows: Both bones were fractured just above the ankle-joint. The upper end of the fractured tibia protruded through an opening on the inside of the ankle, just above the malleolus. There was a wound, communicating with the fracture, on the anterior surface of the leg, at the junction of its middle and lower thirds; and one also on the outer side of the ankle-joint. Pulsation in the posterior tibial and dorsalis pedis arteries was good. The soft parts about the ankle and dorsum of foot were somewhat contused and the toes discolored. The whole foot below the seat of the injury was lower in temperature than the rest of the limb.

The patient, although partially intoxicated, readily comprehended that his condition was serious, nevertheless he strenuously opposed any operation.

The treatment was as follows: The wounds were thoroughly washed out with carbolized water—about the strength of one drachm to the pint—and then sealed with Lister's "carbolized putty." The limb was now placed in a fracture-box, being laid on and surrounded by oakum.

At the suggestion of Dr. Smith, cloths wrung out in hot water were constantly applied to the foot and lower half of the leg.

This treatment was carried on faithfully by relays of attendants night and day, for at least one week, at the end of which time the hot-water applications were discontinued, the vitality of the limb being insured. About this period extensive suppuration had loosened the putty-dressings, and they were entirely removed. The pus, having a good outlet, escaped freely. The limb was now thoroughly cleansed with carbolized water, then well dried, and placed in a fracture-box, bran being substituted for oakum, and carbolized oil for the putty-dressing. This treatment was continued until the twentieth day, when secondary hæmorrhage set in, probably from erosion of one of the tibial arteries. The hæmorrhage was readily controlled by pressure upon the femoral artery, made by the fingers of the house surgeon and assistants.

Prof. Hamilton (who had previously assumed control of the case) ligated the femoral artery, in Scarpa's space, in the presence of the class, two hours after the hæmorrhage had taken place. The ligation of the artery effectually controlled the hæmorrhage, which did not recur at any subsequent period during the treatment of the case. A short time preceding, but more especially following the deligation of the artery, great pain was experienced in the heel and ankle. As it was deemed important not to disturb the limb after the hæmorrhage, the leg was not removed from the fracture-

box until several days had elapsed. It was then found that the under surface of the limb lay on a mass of dark, sour bran.

That portion of the limb corresponding to the situation of the tendo Achillis was badly excoriated, and the tendon exposed about its centre. The os calcis protruded through an ulcer on the heel. Besides this condition of the posterior surface of the ankle, there was the original opening, through which the tibia protruded on the inner side of the ankle, and two fistulous openings on the anterior aspect of the ankle and its outer side. The dorsum of the foot was partially denuded of skin, the result of vesication, and the toes were swollen and tender.

In this cursory history of the case, so far, I have been particular in describing the condition of the ankle and foot, in order to show with what difficulties we had to contend.

The parts were now thoroughly cleansed, and the wound re-dressed with carbolized oil. The upper half of the leg not excoriated resting on a soft pillow, an effort was made to relieve the under surface of the ankle from pressure by suspending the foot and ankle by means of adhesive straps, but the attempt, after two or three trials, failed completely. In the failure of all ordinary means to accomplish this end, the idea of supporting the limb upon an "air-pillow" occurred to me, and I resolved to reduce it to practical use.

A four-gallon india-rubber gas-bag was forthwith procured from the chemical room of the college department, and I proceeded to apply it in the following manner: A soft pillow was folded upon itself and placed underneath the thigh; a piece of patent lint spread with simple cerate was placed upon the rubber bag and the injured ankle and foot laid on it—the bag being first sufficiently inflated so as to support the foot on a level with the upper portion of the leg. In order to insure steadiness, and prevent lateral rotation, oakum was packed around the bag, and the toes were allowed to rest in a loop of muslin, which was fastened to a wire cradle placed over the entire limb. The usual dressings were then applied.

From this time the ankle and the condition of the patient began to improve, granulations covered the exposed tendon, and in time a scale of bone was removed from the protrudiug os calcis, and granulations closed over the denuded portion of the bone; *all this while the limb resting directly upon the air-cushion.*

The patient is still confined to his bed, but his limb is comfortable. A small superficial ulcer is all that remains of the results of the extensive slough of the heel. He can raise the injured member from the cushion with ease. His general health is excellent. Exfoliation of bone is now going on, and he promises in time to recover, having a maimed and shortened, but still useful limb; or, should this promise not be realized, amputation can be performed without more than ordinary risks.

This is an exceptional case. No one but the vigorous, healthy man that this patient was, could have passed through

the six months of suffering, and drain on the system to which he was subjected. His recovery surprises all who saw him, or knew the previous history of his case.

We do not assume the position that the rubber cushion saved the life of this man, but we do believe it contributed greatly toward that end, at a period when amputation was inadmissible, and the question was not alone how to save the *limb*, but the *life*, of the patient.

The apparatus as improved is simple: it consists of an air-cushion made of india-rubber, in the shape of a small pillow, twenty-two or twenty-four inches in length, thirteen or fifteen inches wide, and, when fully inflated, eight inches high. In giving the order for such a cushion, the measurements (which are optional) should represent the cushion fully inflated. A flexible rubber tube, about two feet in length, inserted into the middle of the side of the cushion serves to inflate it. A screw-valve, in the extremity of the tube, regulates the admission or exit of air, which is supplied by the lungs of the surgeon or an attendant.

Before applying the cushion to the limb, cover it with a stout muslin slip or pillow-case, placing between the cushion and the muslin slip a layer of cotton-batting, a sheet of spongio piline, or some other material; in order to prevent the overheating and vesication that might arise, if the limb were allowed to rest directly upon a rubber surface, or with only a single slip of muslin intervening between it and the cushion.

The application of the cushion to the injured limb will depend somewhat on the condition of the patient, but more especially on the nature of the injury. In the case of a simple fracture of the tibia, or of both bones of the leg, in which severe contusions exclude the employment of ordinary splints, apply the cushion as follows:

The fractured bones having been placed in as normal a position as possible, an assistant keeping up proper extension, the limb is laid upon the partially-inflated cushion, which has been previously covered with a pillow-slip. The cushion is then permitted to rise well up, and over the sides of the limb, until its edges approximate to within one or two inches of each other. Firm, unpadded splints of pasteboard or other ma-

terial, adapted to the sides of the limb, are then placed outside of the cushion. An assistant, pressing the splints firmly, moulds the cushion to the limb. When this is accomplished, the whole apparatus is retained in position by a roller, or, by what is more convenient, three or four slips of muslin bandage. The pressure of the air-cushion or air-pad on the limb may be still further and more accurately adjusted by slightly inflating the cushion, or, if desired, by allowing a little air to escape through the rubber tube. If there be danger of the ends of the broken bones overriding each other, as is the case in oblique fractures, the limb should be properly strung to a frame placed over the bed.

In those cases in which uniform support of the limb is desired, without necessarily maintaining it in any particular position, simply lay the limb on the semi-inflated cushion, and adapt it to the limb by gradually exhausting or inflating the cushion in the manner already explained. A roller bandage or slips of muslin will keep the cushion in apposition with the limb. The bandage may be omitted if the patient is sensible and quiet, the limb retaining its position by its own weight.

The above manner of using the air-cushion is adapted to severe sprains or contusions, erysipelatous or other inflammations of lower extremities, extensive scalds, punctured or incised wounds of knee or ankle joints, and other similar injuries of the lower extremities, in which gentle and equable pressure is desirable, associated with fomentations or lotions, and in which irrigation may be sometimes employed with advantage.

In case irrigation be employed, the cushion might be slung, by means of three or four bandages, to a frame placed over the limb. Splints or the fracture-box is not necessarily required, as the rubber cushion is of sufficient stiffness to support itself. The cushion at the knee should be raised an inch or two higher than at the ankle, in order to facilitate drainage, the fluids being received into a pan placed at the foot of the bed. The water (medicated or not), used for the purpose of irrigation, may be distributed over the limb by a siphon of lamp-wick, or in some other way. The vessel containing the fluid used for irrigation may be fastened to the

frame (to which the limb is suspended), at a sufficient height to siphon off it contents readily.

In the case of a compound fracture, the limb is to be thoroughly cleansed and dried, the fractured bones being kept at rest by moderate extension, and counter-extension. The cushion is then covered with a pillow-case and partially inflated; the dressings, if any, that are to go beneath the lint, are laid upon it. The cushion is then placed in a fracture-box (the sides of the box being down), and the limb carefully supported is laid upon it, and permitted to sink into it until it receives proper support. The sides of the box are now put up and secured, and the cushion is gradually inflated or exhausted of air, until it adapts itself to the limb, snugly filling the space intervening between the latter and the sides of the box. Such dressings as are required are now placed over the anterior surface of the limb, and finally the box is properly slung in the usual way.

Due attention to drainage, and to the prevention of dissecting abscesses, may require that the box should be slung at a slight angle, in this way forming an inclined plane, and favoring drainage. In the above instance it will be necessary to dispense with the usual foot-piece that forms part of the fracture-box. The foot may be supported by a loop of muslin fastened to the sides of the box.

Proper attention to cleanliness may demand the changing of the pillow-case, at least every other day, especially if there is a profuse discharge from the wound. If this is not seen to, the soiled dressings, being allowed to remain underneath the lint, will soon be a source of irritation. This attention to the *under surface* of the limb is required, not only when the air-cushion is used, but in whatever form of dressing may be employed.

This latter method of applying the air-cushion has been used in a case of compound dislocation of the ankle-joint, which was received lately into one of the wards of the Long Island College Hospital.

The patient had previously been under the treatment of a physician at his own home, but, becoming unmanageable, he was sent to the hospital. He was admitted, suffering from severe delirium tremens, associated with

fracture of the fibula, rupture of the internal lateral ligaments of the ankle-joint, and consequent luxation of the tibia. The soft parts were badly contused, and, after a day or so, sloughed directly over the internal malleolus, thus constituting a compound dislocation. A probe could be easily passed between the articular surface of the tibia and astragalus.

With the concurrence of Dr. Burge, the attending surgeon, the limb was placed on the air-cushion in the method described, and suspended to a frame in the usual way. A few days' rest in this position greatly improved the appearance of the ankle. The tension of the parts was much less. The skin lost its glazed appearance, and was much less congested, notwithstanding the general condition of the patient was bad, his delirium having become the so-called "muttering delirium," and his symptoms having assumed a typhoid character. The patient has since died, but lived a sufficient length of time to test the advantages the rubber-cushion possesses over the other forms of dressings employed in the treatment of compound fractures of lower extremities. The drainage in this case was perfect, and the ankle was gently douched from time to time with proper disinfecting lotions, the fluids in every instance running into the dish placed for their reception at the foot of the bed.

It is important, in the treatment of injuries of the lower extremities, to perform occasionally passive motion at the knee-joint. With the dressings ordinarily used in the treatment of the class of injuries in which it is proposed to use the air-cushion, passive motion cannot be readily accomplished without more or less disturbance of the dressings, and much reluctance on the part of the patient. With the air-cushion passive motion may be made without disturbing the dressings in the least, and without touching the limb. In this manner, the thigh being already flexed at a convenient angle, by resting on the pillow already referred to when speaking of the application of the cushion to transverse and simple fractures of tibia, passive motion is accomplished by simply inflating the cushion, and then allowing the air to escape gradually. The thigh resting on the pillow is a fixed point, and by alternately depressing or elevating the leg—by exhausting or inflating the cushion—passive motion may be easily accomplished, and a change in the position of the leg readily effected, when it is desired to do so.

This method of making passive motion applies to the limb when the cushion rests directly on the bed. When the limb

is slung, passive motion is readily made at the knee-joint by lowering or raising the fracture-box.

The following are the conditions to which the air-cushion is particularly adapted :

1. Complicated fractures of the lower extremities in which amputation is inadmissible, and an effort to save the limb is warranted.

2. Cases in which the fracture is simple, but complicated with severe contusion, so that an ordinary splint would not be proper, at least for several days, and when a soft pillow is the usual resort.

3. Cases in which the limb is not fractured, but badly contused or inflamed, and in which irrigation might prove desirable.

4. After amputation, a properly-constructed air-cushion would afford a good rest for the stump, especially if the patient had to be transported. It would therefore constitute a valuable addition to the outfit of a field-ambulance, serving, as an elastic medium, to break the shock of travel over rough ground.

5. In brief, it is adapted to all cases in which *uniform support* of the limb is a desideratum.

In a few words, then, the advantages claimed for the air-cushion, over the usual methods employed in the treatment of complicated fractures, or other severe injuries of the lower extremities, are these : It is more cleanly, and the dressings can be changed with greater facility. Under certain conditions, in which, with the ordinary dressings commonly employed, passive motion could be accomplished only with difficulty, it affords an easy method of making passive motion. Owing to the readiness with which air can be admitted into, or allowed to escape from, the cushion, it can be very accurately adjusted to the limb, and pressure can be easily regulated from time to time *without removing* the dressings.

It is particularly adapted to cases in which it is desirable to use irrigation. And, finally, it fulfils a most important indication in the treatment of fractures and other severe injuries of lower extremities, by affording *uniform support* to all parts of the limb.

The principal objections made against the rubber air-cushion are these:

1. Tilting upward of the ends of the fractured bone, thus enhancing the danger of irregular union.

2. Difficulty in dressing the limb, especially its under surface.

3. Rubber being a poor conductor of caloric, danger of overheating the limb, and by confining the cutaneous perspiration inducing vesication.

The rubber air-cushion has been employed up to the present time in three severe cases: 1. A case of compound comminuted fracture of both bones of the leg, just above the ankle-joint. 2. A case of compound dislocation of tibia, at the ankle-joint. 3. At present, in a case of compound comminuted fracture of tibia, at junction of upper and middle thirds. In neither of the above cases, which are as difficult ones as could be selected to test the relative advantages of the rubber air-cushion, none of the above objections have held good.

The objection made with reference to vesication would hold good, were not the necessary precautions taken to prevent it, by allowing some material such as cotton-batting or spongio piline, in addition to the muslin slip, to intervene between the limb and cushion.

The writer has in this paper endeavored to place before the profession that which past experience has proved as so well adapted to afford *uniform support* to parts, and which his experience leads him to believe has not any disadvantage sufficient to justify its exclusion, from the by no means extensive resources of the surgeon, in the treatment of complicated fractures, and other severe injuries of the lower extremities.

The rubber air-cushion is manufactured by the "Goodyear India Rubber Glove Manufacturing Company," of New York, and can be obtained through the surgical instrument dealers.

Art. III.—*Dangerous Effects of a Hypodermic Injection; Extraordinary Slowness of Respiration; Recovery.* By Frederick D. Lente, M. D., New York.

Mrs. B., aged forty-nine, rather intemperate. Was called to her, April 17, 1870, and found her in an excited condition, and complaining of a severe "oppression" or pain, or some extremely distressing feeling at the epigastrium, difficult for her to describe. She said she could not lie down, as it interfered with her breathing; insisted on walking the floor, and at the same time having some one rub her back; in this way, she would, now and then, get rid of a little gas by eructation, but not with much relief. Had eaten very little through the day; pulse rather frequent; no abnormal chest-sounds. Bowels regular; had taken some castor-oil and brandy an hour or so before my arrival. I endeavored to persuade her to take an *emetic*, more for its relaxing effect on the stomach than to produce an evacuation of its contents. But she refused. Feeling that it would require several hours to act on the disease by anodynes administered in the ordinary way, and knowing that my former partner, Dr. Barker, had relieved her of a somewhat similar attack by the hypodermic injection of morphia, I injected two-thirds of a grain. After waiting twenty minutes, and finding no indication of any effect, I gave one-third of a grain in the same manner. For ten minutes longer she continued to walk the floor, apparently uninfluenced by the anodyne; then she was induced, after much persuasion, to get into bed, and sat up for a time, complaining bitterly of the distress; when, suddenly, she fell back on the pillow, with her mouth open, and with a succession of spasmodic jerks of the muscles of the back. She answered a question a moment after feebly, and then lapsed into complete insensibility. Pulse at this time 120, strong and regular; respiration soon became infrequent, and the pulse proportionately more frequent; pupils fixed, and but slightly contracted; a natural heat over the whole surface. Within half an hour from this time the respiration had fallen to seven in two minutes, three and a half to the minute, but not at all stertorous; pulse 120, fair strength. Watched her closely for half an hour longer, doing nothing, as the pulse gave no evidence of danger; when, suddenly, respiration threatened to cease altogether. I then injected one-sixtieth of a grain of atropia hypodermically, and, after waiting twenty minutes, and finding no improvement, I repeated the dose. Still no change took place, the pupils remaining *fixed* at full a line in diameter. I now summoned Dr. Murdock to my assistance, as artificial respiration and other means of relief appeared necessary. About this time respiration again threatened to cease, there being an interval of half a minute, by the watch, between the inspirations, but the *average* remained constantly at *three and a half* per minute. The pulse gradually rose to 150, and, at one time, to near 160, but, except at the two periods when death seemed imminent, maintained its volume and strength. The tongue soon became dry and brown, the surface moderately

livid. For an hour and a half she frequently opened her eyelids, especially when a cloth, wet with ice-water, was applied to the head, which was frequently done, but not when loudly addressed, the balls remaining fixed, and turned upward. Rapid friction of the chest seemed to have some influence on the respiration, and color of the surface. At times, the respiration was slightly "sighing," but generally natural in inspiration and expiration, except that the latter was rather prolonged. I attempted to give a stimulating enema, but found the sphincter ani so completely relaxed as to render it impossible, the *rectum* feeling precisely like the *vagina*. About the time of Dr. Murdock's arrival, however, I found it slightly contracting, and injected an ounce of brandy diluted, and holding in solution twenty grains of *caffeine;* also got a battery in working order, but had no occasion to use it. Finding the respiration still at three and a half per minute, and the symptoms occasionally becoming threatening, we injected brandy into the stomach through a long, flexible catheter, introduced through the mouth; although the end did not reach within three inches of the stomach, the injection passed easily (for some reason, the instrument could not be made to pass into the pharynx through the nose, which has been recommended as preferable to the mouth). The stimulants did not, however, seem to have any effect, good or bad. Finally, I applied a cloth, wet with Granville's lotion, to the chest. This vesicated within a few minutes, and the respiration rose to four and a half, continued so for half an hour, then rose to six, which it did not attain until near three hours and a half from the inception of the alarming symptoms. As the respiration increased in frequency, the pulse diminished. An injection of egg-nogg was now given *per rectum*. About this time, a profuse perspiration suddenly covered the surface, and for a few minutes only the pupils became more contracted, but still insensible to light. At about 4.30 A. M., six and a half hours from the beginning of the attack, the respiration had risen to seven, and the pulse had fallen to 120; and, upon addressing her loudly, she opened her eyes, and, on attempting to give a teaspoonful of brandy-and-water, she vomited a dark fluid, and soon after made a feeble attempt to speak. Two hours after this (having left the house in the mean time), I returned and found her fully conscious, and very nearly in the condition in which I found her at my first visit—restless, the same sensation at the epigastrium, with the addition of vomiting, insisting on getting out of bed, etc. She rose with some assistance, and had a considerable evacuation from bowels and bladder. Pulse 100, skin merely moist, pupils about the same, but now sensitive to the stimulus of light.

April 19th (evening, forty-eight hours from the attack).—Has vomited every thing which she has taken, and has passed all the nutritive enemata which have been given, notwithstanding various anti-emetic remedies. Pulse good. Complains of "soreness all over;" no disposition to sleep.

April 26th.—The unpleasant symptoms very gradually subsided, and she is now fully convalescent. She was sleepless for several nights.

Remarks.—The above case is given in full, and at considerable length, because it includes several interesting points deserving attention, not the least important of which is that which indicates the necessity for caution in the administration of hypodermic injections of *morphia;* and I feel the more impelled to draw attention to this, on account of the recent publication of a letter of mine to a distinguished member of the profession,[1] highly eulogistic of this method of medication. Not that I feel disposed to take back one word already uttered in its favor, but, as the use of the anæsthetic power of chloroform may, if persisted in, materially restrict the employment of anæsthesia in medical and surgical practice; so, the rash or indiscriminate use of the hypodermic method may unduly circumscribe the application of a medical discovery which should be considered as second only to that of anæsthesia. The patient was in such a peculiar nervous condition, that it was impossible to ascertain whether the distress, of which she complained, was actual pain, or oppression from regurgitant bile, aided by a certain amount of hysteria. It is evident, from the manner in which the injection acted, that there was no very intense pain, for the amount given was not more than sufficient to neutralize intense pain, considering the delay between the doses. When there is severe pain, as from neuralgia, choleraic cramps, uterine irritation, etc., less than a grain will rarely quell it completely, though it is customary to divide the dose, unless a previous use of the full dose, in the case of the same patient, has indicated its safety. In ordinary *cephalalgia*, however, even though very intense, a much smaller dose often gives complete relief. The nervous excitement and the constant locomotion, which the patient insisted on keeping up, as the only relief, doubtless tended to delay the action of the narcotic, but it is rare that a large dose of morphia, hypodermically administered, does not manifest its power in some degree within fifteen minutes. The moment the nervous excitement was overpowered by the medicine, there being probably no severe degree of actual pain to neutralize, the patient *instantly* fell back in a state of stupor; hence the caution necessary in cases of *delirium tremens*, or mania, or violent excitement of any

[1] Prof. G. T. Elliot, M. D., in April number of this Journal.

kind existing without pain, or complicating painful affections.

The absence of any considerable contraction of the pupil, the most constant symptom of opium-poisoning, is remarkable; and also the additional fact that the thirtieth of a grain (Nichols's extract) of atropia, a quantity usually considered amply sufficient to neutralize a grain of morphia, aided by the caffeine, had no appreciable effect whatever, either on the pupils or the general symptoms. A larger quantity of atropia was not ventured upon because, in a noted case recently reported in Philadelphia, it was the opinion of Dr. Gross that this drug decidedly increased the narcotism. The extreme infrequency of the inspirations, and continuing for so long a period, is considered very rare, if not unique.

The rate of the *pulse* varies very much in different cases of opium-poisoning, but a frequency of 150 and upward, in cases of recovery, is not common. The absence of the profuse sweating, which almost always attends the action of opium, even in full, not toxicological doses, is worth noting. It did occur, only for a few minutes, just as the patient showed signs of returning consciousness. The rather abrupt and complete disappearance of such formidable symptoms, immediately succeeded by the symptoms noted at the inception of the attack, is a feature not usually observed in cases of narcotic poisoning. Finally, the complete recovery of the patient, without the use of any extraordinary means, is remarkable and instructive.

It is possible that the atropine or the caffeine, or both together, might have had some influence on the result, or might, at least, have modified the symptoms usually attendant on opium-poisoning, but there was no evidence of this. It is probable, but not certain, that the stimulant had some influence in sustaining vitality. It is worth noting that, with the respiration in such a precarious condition, a tube could be introduced with facility, by the mouth, into the œsophagus, and brandy injected into the latter at some distance from its lower extremity, without interfering with the respiration in any degree. (The advice to introduce, in such cases, through the nasal passage, judging from the trial in this case, I do not consider necessary or judicious.) The effect of the rapid vesica-

tion of the chest, produced by the lotion, evidently did produce a decided effect: the inspirations immediately rose from three and a half to four and a half, and then very gradually to six, and the hue of the skin was permanently improved.

In extreme threatening cases of opium-poisoning, it is customary to resort to very active and energetic measures, such as rousing the patient by flagellation, or locomotion, artificial respiration, the galvanic battery, etc. A battery was ready on the table, and the moment when artificial respiration seemed to be imperatively demanded was watched for. But, so long as the pulse, though frequent, maintained a fair degree of force, and the blood, though dark, maintained a fair degree of aëration, except at brief intervals, it was concluded that as perfect quiescence of the patient as possible, under the circumstances, would give her the best chance, and that, with such a remarkable condition of the respiration, any considerable disturbance of the system might precipitate a disastrous result. It is probable that patients, under these circumstances, are sometimes lost from the *nimia diligentia curæ*.

ART. IV.—*Relation of Hæmoptysis to Phthisis.* By E. HOLDEN, M. D., Newark, N. J.

APPROPRIATE to the extracts in the October number of this JOURNAL, which present in interesting contrast the views of Profs. Niemeyer and Skoda, I beg to submit a few facts that may be of interest. They are drawn from a large mass of material bearing upon the general subject of "Phthisis, Prospective and Probable," which will, at some future time, be laid before the profession.

The conclusions toward which they lead are corroborative of the first postulate, quoted from the article of Niemeyer, viz., that "most, though not all, patients who suffer from capillary, bronchial, or parenchymatous hæmorrhage of the lungs, are either already phthisical or become so later."

The difficulty of collecting reliable information of a statistical character in regard to those who have suffered from pri-

mary or initiative hæmoptysis is very great, and made so chiefly by a perfectly natural weakness of human nature.

The man or woman who, for the first time, notices the tinged expectoration, or recognizes with an alarmed thrill the peculiar taste of pure blood from the throat, realizes at once that he has "raised blood," and may be already a marked victim, but in a week or a month the hæmoptysis was simply a little blood from the teeth or stomach; in six months a rusty expectoration; and in a year, or at most two, if a hæmorrhage more profuse has not supervened, it is denied or really forgotten.

Every one to any extent familiar with phthisical patients, has probably noticed this singular tendency to believe what is wished to be true, and even had difficulty in extorting the facts where the necessity for a prognosis demanded it.

This peculiarity has, moreover, been fostered by the diversity of modern opinions, not only in relation to hæmoptysis, but to tuberculosis in general.

This, however, is not the occasion to descant upon the views of writers, or to dilate upon the almost inextricable confusion in the pathology of tubercle which has been brought about by the talented observers of the present day; but it cannot be denied that the growing tendency is toward doubt in the existence of tubercle as an entity, and to cause the initiative symptoms to be regarded with less apprehension.

The admirable researches of Southey on the nature and affinities of this mysterious precursor of death contain, however, one point pertinent to the present subject; since, if the initiative point of election of the disease be either between the coats of the capillaries of the alveoli, or in the connective tissue immediately adjacent, hæmoptysis may well be regarded as significant of a future phthisis.

That the complicating question of hereditary influence may be as far as possible eliminated, only those persons are included in the following table who were presumably free from family leanings toward phthisis. In no case had more than one member of the family died of, or suffered from, the disease, and in but very few had *any* member so suffered.

Fifty-five also, being under thirty years of age, and without

information in regard to family tendencies, are for the same reason not included.

The average number of years during which parties have been under observation has been between nine and ten, and they are divided into classes for convenience.

The whole number collected who had raised blood in appreciable quantity, including all who had expectorated the same with sputa, whether they deemed best to style the fact "hæmatemesis," "hæmoptysis," "the rusty sputa of a subacute pneumonia," "a little touch of blood from the throat or gums," or whatever palliating cognomen besides, has been *one hundred and fifteen* adults.

Of these, 37 were between 30 and 35; 31 between 35 and 40; 22 between 40 and 45; 10 between 45 and 50; and 15 between 50 and 60.

Of the whole number, sixty-two, or more than one-half, passed from under observation and have not been heard from. Nineteen have died, and eleven of these of consumption. This large percentage of deaths would of itself seem to indicate some inherent weakness of constitution, whatever the ultimate cause of decease; and, in reference to the death from phthisis within so short a period as ten years, if we allow even one-half as unfavorable a record for the sixty-two not heard from (and there is no reason for not ascribing the same rate of mortality to them), we have a startling commentary on the assertion that the raising of blood from the throat is a forerunner of consumption, for the conclusion may be thus briefly stated:

Of one hundred and fifteen adult persons who, with no hereditary tendency to consumption, had yet experienced hæmoptysis, from twenty-five to thirty-three per cent. died of phthisis within ten years.

ART. V.—*A Case of Partial Placenta Prævia. Novel Mode of controlling Hæmorrhage.* By J. H. HOBART BURGE, M. D., Surgeon to Long Island College Hospital, President Kings County Medical Society, etc., etc.

JUNE 16, 1870, Mrs. D. summoned me in haste, the messenger announcing the fact that she had lost a quart of blood.

I found her sitting up and quite comfortable. She said she ought to have three weeks yet before confinement, but, though she had had no pain whatever, she felt that labor would not be deferred many hours. She had lost more than a pint of blood on two previous occasions during this gestation, and the present hæmorrhage was much larger. I told her she must lie down immediately, and not rise again until she was delivered. I found, as I expected, a margin of the placenta presenting. The liquor amnii had so completely drained off that the outlines of the child were easily recognizable through the abdominal walls. The examination excited some pain, and immediately hæmorrhage recurred. I observed that during the pain the pressure of the child's head upon the placental edge completely controlled the hæmorrhage, and that the moment relaxation took place the flow commenced. Taking advantage of this indication, I grasped the uterine tumor and pressed steadily in the direction of the os. This I continued with perfect success for two and a half hours, when a living child was born, and the placenta followed without interval of time.

During all this period, if I relaxed my pressure when the uterus was not in a state of contraction, hæmorrhage was sure to commence immediately. In a prize essay written by Prof. James D. Trask, and communicated to the American Medical Association, fifteen years ago, I find the following sentence: "Rupture of the membranes by permitting the escape of the liquor amnii, and allowing the direct pressure of the presenting part against the placenta, is, for the most part, sufficient to restrain hæmorrhage in partial presentations, but usually proves insufficient when the presentation is complete."

I learn from the same source that Mauriceau, as early as 1682, introduced the practice of rupturing the membranes in cases of partial placenta prævia, whenever it was possible to do it, "with the hope of securing increased contractions of the womb."

Dewees and Bandelocque both opposed it, "because of the difficulty of its performance and the risk of increasing the hæmorrhage by separation of the placenta." Besides, they asserted that it very seldom stopped the hæmorrhage, and the draining off of the liquor amnii was a serious source of embar-

rassment in case version became necessary. In my case, the membranes were already ruptured, so that I had no responsibility in the matter, but whether ruptured spontaneously or designedly, I find nowhere any recommendation of the practice which I instituted and found so efficient. If it is new, I am glad to contribute it as an additional means of success in a class of cases always sufficiently grave. If it is old, those who are greater readers in this department will soon advise me of the fact.

ART. VI.—*Report of Three Cases of Poisoning by Whiskey in Children, with Remarks on Alcoholism.*[1] By P. DE MARMON, M. D., King's Bridge, N. Y.

IF sudden death from the effect of alcohol is very rare in habitual drunkards, the same cannot be said of those who are not in the habit of drinking spirituous liquors; and where the first may take alcohol in large quantities without any immediate danger, the latter, on the contrary, may be poisoned by a small quantity of it. It is impossible to say what quantity is necessary to produce death in an adult, it depends in a great measure upon the idiosyncrasy of the subject; sometimes one pint of brandy has been sufficient to cause death; some women in pregnancy have taken at a single draught over that quantity without being injured by it; but every one knows how little it takes to intoxicate a child.

Within a year I have seen three cases of poisoning by alcohol in children, and of those three cases two died.

CASE I.—Philip A., aged five years, a healthy and strong child, born of Irish parents, took on a Sunday morning, at 6 o'clock, a tumblerful of whiskey. As I was absent the whole day, I did not see the child until 9 o'clock in the evening. He was then in a completely comatose state, respiration stertorous and 82 in a minute; pulse full, very irregular, but rather slow; temperature taken in the axilla 93½° F.; the room in which he lay was about ten feet square, and contained as many adults as it could uncomfortably hold, say eight or ten. I politely advised the majority of them to evacuate the premises, before beginning an examination of the patient. This child had had involuntary stools and micturition, which, added to the

[1] This paper was read at a meeting of the New York Medical Journal Association, February 18, 1870.

vital signs, indicated great danger. He was perfectly insensible, and had some clonic convulsions. I prescribed warm applications all over the body, and liquor ammoniæ acetatis to be given in doses of half an ounce every hour, but I must say without much hope, for the whole of the symptoms, and the long time elapsed since the absorption of the whiskey, indicated that death was unavoidable. My prognosis was unfortunately confirmed four hours after, viz., nineteen hours after the ingestion of the fatal drink. No *post mortem* could be obtained.

Case II.—Sarah F., a little girl, five years old, took on Saturday afternoon, at 4 o'clock, a tumblerful of whiskey-and-beer, given to her by a lad about fifteen years old. I saw her at half-past six o'clock, that is to say, two and a half hours after the ingestion of the liquid.

She is a strong-looking, healthy child of Irish and sober parents; my attention, on entering the room, where she was lying on a sofa, was first called to the manner in which she was breathing—she was almost suffocating; this the mother told me was her usual method of breathing, though not so bad; it was due to an intense hypertrophy of the tonsils. There was hyperæsthesia of the skin, principally of the lower extremities, which were cold, and anæsthesia of the cornea, which was glassy; respiration stertorous; if it had not been for the odor of the liquor exhaled, it would almost have been impossible not to think it was a case of cerebral hæmorrhage or of asphyxia. Temperature in the axilla 94° F.; pulse 60; respiration 80; the finger introduced in the mouth beyond the pharynx produced no sensation; she had involuntarily soiled her bed, and she vomited a couple of times about an hour after taking the drink.

I ordered the child to be kept warm, and every half hour a tablespoonful of liq. ammon. acet. to be administered.

I saw the child again three hours later, but found very little change, except that the temperature was one-half degree higher. The medicine had been given in much smaller doses than I ordered, under the pretext that the child could not swallow; I then took a syringe, and gave the patient an enema with about two ounces of the remedy; the father of the child was at my house the next morning at 7 o'clock, and declared that the child was all right.

Case III.—Rob. X., a boy eight years old, of Irish parents, father and mother both regular inebriates, took some whiskey at 8 o'clock on Friday morning, the quantity of which could not be ascertained, still less the quality, inasmuch as the child's parents were both drunk, and denied that the boy had taken any thing; some charitable neighbors, however, took upon themselves to send for a physician at about 12 o'clock. I was absent on business at the time; my friend and neighbor, Dr. Varian, was also away. I was, however, able to see the patient at 2.30 P. M. (six and a half hours after the ingestion of the liquid), but found a doctor from the vicinity in charge of the patient. The doctor had been administering to the child a strong solution of mustard in water, and was then in the act of tickling the

child's throat with a quill, to provoke emesis. I could not, as I would have wished, examine the vital signs in that case, which were very interesting to me, the attending physician requiring no further advice, though, as he acknowledged afterward, he had never seen a case of that kind before. The patient died on Saturday morning at 5 o'clock, twenty-one hours after the ingestion of the drug. On the next day, Sunday at 12 M., I was summoned by the coroner to make a *post-mortem* examination of the subject.

Autopsy, thirty-one hours after death.—Body thin, icteric; rigor mortis well marked in the lower limbs, but none in the arms nor in the neck, the head rolling about as if it had been dislocated in its cervical articulation. The lungs were thoroughly congested, of a dark-purple color, and contained a large quantity of black blood, which could be pressed out, as if from a sponge, after cutting through the texture of the organ. The internal membrane of the bronchus was livid and coated with bloody, spumous mucosities; the pericardium contained about half an ounce of serum. The right ventricle of the heart was much distended with dark blood, and had black clots; the left ventricle was empty; the blood had a smell of whiskey. The liver was congested, of a pale-yellowish color, and the gall-bladder less than half full. In cutting through the œsophagus a thick yellow fluid escaped from the stomach, which I at first took for pus, but which after examination I found to be mustard. The mucous membrane of the stomach was soft and red, principally toward the cardia and the great curvature, where it was inflamed and punctated. This was probably caused by the action of the mustard, the child being in a left decubitus during its administration, and *diluted* alcohol never producing local inflammation of mucous membrane; the kidneys were also congested; the bladder contained very little urine. The bowels were empty.

The head was not examined, for want of time; but, according to all probabilities, the brain must also have been congested, as it has always been found where death is caused by neurosthenic poisons, and particularly by alcohol.

We have here three cases of acute alcoholism in children, of whom two died, in a small neighborhood, and within one year. I do not count a fourth case of a boy about twelve years old, whom I picked up on the side of the Bloomingdale road last August, and whom I unsuspectingly brought to his home thinking he had been sunstruck. This boy was only drunk and quite insensible; and should this have happened to him in cold weather, he would probably have died, for every one knows what a depressing action cold has upon intoxicated subjects.

Alcohol diminishes the circulation, and its ingestion is followed by a decrease in the activity of the organs, from the slow

circulation of the blood; it is demonstrated in Cases I. and III., where it is seen that both temperature and pulse were much below the normal rates, while respiration was much increased. This anomaly may be accounted for by the irritation caused upon the pneumogastric nerve, which is affected by alcohol, as I have noticed in my experiments upon frogs. If, then, alcohol diminishes the circulation, by thickening the blood, and of course retarding elimination by it, a remedy which will increase the circulation and fluidify the blood is indicated. M. Claude Bernard says: "If nitrate of potassa accelerates the circulation, is it astonishing that it should be a diuretic? The kidneys separate the urine from the blood which goes through them; if, in a given time, a larger quantity of blood passes through them, they will separate more urine. . . .

"Alcohol retards the circulation, therefore its ingestion must be followed by a decrease in the activity of the organs, from the retardation in the passage of the blood. Drunkenness is nothing else. How must we combat drunkenness? By giving back to the circulation the activity it has lost. Acetate of ammonia ought, then, to be a perfect remedy against acute alcoholism. It is, in fact, what takes place."

This theory is confirmed by experience; thus in Case III. we see a congestion of all the organs, distention, embolism of the heart, as shown by the hard clots contained in its right cavity, and forming thus an obstacle to the circulation.

Alcohol coagulates and precipitates fibrine and albumen; the blood contains some small granulations, which remain on the filter (Lanecreaux), the fibrine is shorter; its detritus may form some nucleus of embolia, obstruct the capillaries of the lungs, and thus cause the highly-congested condition of these organs.

The presence of clots in the blood has also been ascertained. Petit said that alcohol, injected in the veins, coagulates blood and causes death. In one of Orfila's experiments, the right heart contained a few gelatinous clots. Gasté has noticed the presence of fibrinous clots. Mr. Tardien saw once (Case VII.) some soft clots in the right heart. Casper (Obs., 219) remarks that the right heart, and notably the auricle, was filled with dark and coagulated blood. We have

observed this coagulation of the blood in autopsies and experiments. On three rabbits drowned in alcohol, a clot was filling each half of the heart, and extended to the large vessels. In two autopsies of individuals dead from the effects of drunkenness, we have seen reddish and blackish clots in the right half of the heart, and once at the same time in the left ventricle. The right ventricle is most frequently the seat of these diffluent concretions. In some cases, even where drunkenness was combined with modes of death apt to fluidify the blood, we have seen these exceptional clots. A man leaves a tavern to go and hang himself; the right ventricle contains a rather large coagulum. In a drowned subject whose stomach and blood contained Kirschwasser, a few dark clots were found in the right heart; in two others, dead from the same cause, while drunk, the blood was clotted in the right side in the first one, and in the second it was mixed with dark clots in both sides of the heart. A phthisical person dies suddenly after drinking three pints of claret wine; the blood contained alcohol; discolored clots existed in both halves of the heart. If death is very sudden, notwithstanding the presence of alcohol, the blood may have a different color in the two sides of the heart; we found it redder in the left side in a drowned man and in one who hung himself, both while drunk.[1]

Before making any further remarks upon alcoholism, I must here draw a few conclusions regarding the acute cases of poisoning above cited:

1. When called to see a case of poisoning by alcohol, care must be taken, if but a short time has elapsed after the ingestion of the liquid, and none has been vomited, to give an emetic immediately. I prefer brown emetine to any other, inasmuch as, in a dose of from two to four grains for an adult, it produces emesis almost immediately without nausea.

2. Keep the patient warm, and not, as some persons do, take him out of doors under the pretext that fresh air will do him good; it is a very great mistake, as a man who is only half intoxicated in a warm room may become quite drunk by going out in the cold air.

[1] Dict. Encycl. des Sciences Méd., vol. ii.

3. Give liquor ammoniæ acetatis, in large and repeated doses, to fluidify the blood and reëstablish the circulation.

4. When the patient is not seen until a long time, say, from two to six or eight hours after the alcohol has been taken, the comatose state, the stertorous respiration, the decrease of the pulse, cold temperature, and accelerated respiration, are noticed; it is then probable, if the patient has not vomited, that the greatest part of the liquid taken may have been absorbed. In this case, warm applications, and liquor ammoniæ acetatis in large and repeated doses must be given immediately, an emetic being of no use, for several reasons: 1. Because in such bad cases, and after such a lapse of time, the stomach, œsophagus, and pharynx, are almost always paralyzed, and the emetic can have no effect; 2. Because, being usually given in larger doses for the purpose of producing emesis, it only adds to the severity of the case. I should say the same of all mechanical means used for irritating the pharynx and larynx, with the view of producing emesis, inasmuch as these parts are, as I have already said, paralyzed—the stomach-pump being, if supposed necessary, the only available means.

Here terminate the observations I desire to make upon acute poisoning by alcohol, as they were suggested to me from the three cases above cited. Such cases cannot be too well known, as being terrible examples—they may be useful to people as a warning to keep alcoholic drinks as well as other poisons out of the reach of children.

REMARKS ON ALCOHOLISM.

History.—Much has been said, I know, about alcoholism, but not enough yet about this vice, to which man alone of all the animal creation is addicted. Although the name is of recent date, the abuse of spirituous liquors is almost as old as the world itself. The Indians[1] and the Chinese have used spirituous liquors from very remote ages; they practised the art of distillation a long time before other nations.[2]

From the most remote time, the use of intoxicating liquors

[1] L. F. Maury, Croyances de l'Antiquité.

[2] Morehead, On Ebriating Liquors, page 107, in R. Baird's History of Temperance Societies.

attracted the attention of legislators. In Lacedæmon, Lycurgus, according to Plutarch, intoxicated slaves, in order to inspire the people with disgust of drunkenness. In Athens, drunkards were sentenced to death by Draco.

If we consult the works of ancient medicine, we find scarcely any mention of alcoholism; by contrast, however, this disease is noticed by poets and prose-writers, and notably by Nero's preceptor, who was well situated for this sort of observation: "Inde pallor, et nervorum vino madentium tremor, et miserabilior ex eruditatibus quam ex fame macies; inde incerti labutium pedes, et semper, qualis in ipsa ebrietate, titubatio; inde in totam cutem humor admissus, distentusque venter, dum male assuescit plus capere quam poterat; inde suffusio luridæ bilis et decolor vultus, tabesque in se putrescentium et retorridi digiti articulis obrigescentibus, nervorumque sine sensu jacéntium torpor, aut palpitatio sine intermissione vibrantium. Quid capitis vertigines dicam? Quid oculorum auriumque tormenta, et cerebri exæstuantis vermusationes?" Trembling, anæsthesia, vertigo, tinkling of the ear, delirium, dyspepsia, icterus, ascites, anasarca, cachexia—such are, in a few words, the principal accidents of alcoholism.

It is said that, in Arabia, Mohammed found the abuse of drunkenness so common that he was compelled to totally proscribe the use of wine. In France, Charlemagne forbade provocation to drinking, and since this emperor several edicts relative to fermented beverages have been published; but, for the most part, they were badly executed. Wine, beer, cider, and a few other intoxicating liquors made by the fermentation of the juice of a small number of plants, were at that time the only liquors known. It was only in the eleventh century that a new liquor was obtained from the distillation of wine; originally manufactured by the Arabs, the name of *alcohol* was given to it, and it was first looked upon as a poison; later, as a remedy (*aqua vitæ*); and, in the sixteenth century, as a panacea. It was at a very early date given to men employed to work in the mines in Hungary; in 1581 the English soldiers received some as a cordial during the war in Wales (*Camden, Annals*, 1581). In France especially the use of that liquor

[1] Sénèque, epist. 95, § 16.

spread. In 1514, Louis XII. granted to vinegar-makers the privilege of distilling brandy, and from 1678 their sale, instead of being, as before, confined to druggists, was made publicly in the streets. Thus, very soon, the evil results of this pernicious drink laid hold upon all classes of people.

In the eighteenth century the abuse of brandy increased; but it was principally in the north of Europe that this beverage made the most extensive ravages. It was ascertained that in 1764, in St. Petersburg, six hundred and thirty-five individuals were killed by the use of brandy. In Sweden, the privilege established by Gustavus III. for the sale of these liquors, toward 1783 developed to such a degree the vice of drunkenness, that it was necessary to abolish this branch of fiscal income. Beer was the ordinary drink of the working-classes in England until the reign of William and Mary; but the use of spirituous liquors was introduced by an act of Parliament, for the encouragement of distillation, in 1744, and from this time brandy was sold in all the shops of the capital. The physicians at this time remarked that many persons died victims of this abuse, and a law was passed to prohibit it. It was, however, not until 1751 that the steps taken by the government succeeded in bringing back the consumption of beer to the same ratio as before.

The introduction of spirituous liquors in the United States dates from the time of the first establishment of English colonies in this country, but for a long time their consumption was very limited. The fatal mistake that they are useful to the healthy man was spread among the people during the Revolution. In this great struggle a ration of spirituous liquors was daily distributed to the soldiers, to help them in bearing the fatigues of the war, but a certain number of them contracted the fatal passion of drinking, and thus contributed to spread that vice in society.

The consumption of spirituous liquors in this country in 1828 was 81,782,242 gallons for the whole United States (it was at that time that temperance societies began to spread; the first being organized in 1823). The population of the United States was then about twelve million inhabitants; which would give over twenty quarts per annum for each in-

dividual. Thus, it is proved that at that time there were in the United States over 300,000 drunkards, and that the number of deaths caused every year by the abuse of spirituous liquors was over 30,000 (R. Baird). In 1842 Dr. Samuel Forry [1] counted in the army of the Northern States 1,370 cases of ebriation, of which five were terminated by death; and in the army of the Southern States 2,616, of which fifty-eight died. *Delirium tremens* was noted in 408 cases.

Mr. Everett says, in his report of the last census (1860): "For the last ten years the use of spirits has: 1. Imposed on the nation a direct expense of $600,000,000; 2. Has caused an indirect expense of $600,000,000; 3. Has destroyed 300,000 lives; 4. Has sent 100,000 children to the poor-houses; 5. Has committed at least 150,000 people into prisons and work-houses; 6. Has made at least 1,000 insane; 7. Has incited to the perpetration of at least 1,500 murders; 8. Has determined at least 2,000 suicides; 9. Has caused the loss, by fire or violence, of at least $10,000,000 worth of property; 10. Has made 200,000 widows and 1,000,000 orphans."

We shall know, as soon as the results of the present census are published, the difference in the consumption of alcoholic liquors for the last ten years, with the period alluded to in Everett's report.

But in the mean time we can learn the increase of consumption of liquors in the United States as reported recently by Commissioner Wells: "The retail sales of liquors amounted in one year in the United States to $1,483,491,865; of this amount New York alone is in for $246,617,520; Pennsylvania, $152,603,495; Ohio, $151,734,875; and Illinois, $119,033,945." "When," says Dr. John Bell, "to this enormous amount of nearly fifteen hundred million dollars, is added the value of the time wasted in the consumption of ardent spirits and of the property destroyed by intoxicated persons, we can readily credit the assertion that the savings from the disuse of alcoholic drinks would extinguish the public debt in one year."

Now, leaving aside political economy, and looking into the moral and physical evils to which man is subjected from the effects of alcohol, we find the following statistics:

[1] American Journal of Medical Sciences, 1842, April and July.

The returns for a period of twenty-eight years show in the Pennsylvania Hospital for the Insane 389 cases of insanity from intemperance during this period; of whom 357 were males and 32 females; being collectively in the proportion of nearly 14 (13.9) per cent. of the 5,315 patients insane from all causes.[1]

Bayle attributes to the abuse of ardent liquors one-third of the mental diseases he has observed; out of 1,079 insane admitted at Bicêtre from 1808 to 1813, he finds 126 cases caused by the habit of drinking; out of 264 cases of insanity observed in the "Salpétrière" in women, 26 were caused, according to Esquirol, by the abuse of wine. Casper[2] tells us that one-third of the insanity in the lower classes is caused by the use of brandy. In a census of 12,007 cases of insanity made in England, 1,799, or nearly one-fifth, were caused by intemperance. MM. Deboutville and Parchappe, for the period included between the 11th of July, 1825, and the 31st of December, 1843—eighteen years—found 28 per cent. Morel counts 200 patients out of 1,000 in whom mental affections were owing to the same cause. Out of 1,595 cases observed at Mareville, 115 were found to have been inebriates (Motet).

The above statistics show the frequency of alcoholic mania; the following will show its progress: from 1826 to 1835, 1,557 inmates in the Charenton Insane Asylum[3] gave 134 cases caused by the abuse of ardent spirits, i. e., 8 per cent. In the same asylum, from 1857 to 1864, 1,146 patients were admitted, out of which 277, or 24 per cent., were drunkards; at Bicêtre M. Contesse found 1,000 cases of alcoholism out of 5,238 cases of insanity. From 1855 to 1862 the same author has been able to observe that the proportion of inebriates increased in a surprising manner, namely, from 12.78 per cent. to 25.24 per cent.

[1] The last report of the Lunatic Asylum at Northampton, Mass., for 1870, shows that, out of eighty-four male patients admitted in 1869, twenty-one, or 25 per cent., are credited to intemperance, and it is to be remarked that, out of the twenty-three sundry causes accounted for in the report, this last presents the largest figure.

[2] Beiträge zur Medicin Statistik, Berlin, 1825.

[3] Esquirol, Traité des Malades Mentales.

These figures show, unfortunately too plainly, that the abuse of alcoholic liquors is one of the most destructive agents to moral and intellectual life; they furthermore teach us that the disorders connected with the intellect are both numerous and diversified. But, notwithstanding their great variety, they may be confined to a few characters—mania, lypemania, imbecility, and dementia.[1]

If we now look at home, in New-York City, we find that, for the last ten years, 132,303 persons, of whom 66,629 were men, and 65,674 women, were committed to the city prisons for *intoxication* alone; that, according to the city inspector's report, from 1851 to 1862, there were 2,522 deaths caused by intemperance, and from that period to the 31st of December, 1868, they amounted to 2,170.

It is necessary to remark here, that these statistics of deaths from intemperance, as furnished by the city inspector, and now by the Board of Health, are very imperfect, as they can only relate to deaths caused directly by intemperance or delirium tremens. In other cases, where the abuse of liquor is the real cause of the disease which kills the patient, the cause of death is charged to the disease.

Another fact to which I would call attention is the enormous proportion of women we find among the drunkards. In 1862, out of 18,517 committed, there were 11,397 women, and 7,120 men. Reports of the City Prison show that women are much more incorrigible than men. The Commissioners of Charities and Corrections, in their report, dated January, 1867, in speaking of the work-house, remark: "There the vagrant, the slothful, and the drunkard, are taught, by forcible lessons in hard work, the folly of their past conduct. The term of service is brief, rarely exceeding three months, but it is a term of sharp discipline, and generally inspires among the males a wholesome dread of their repetition. On the female prisoners, however, this effect is not produced. They are subjected to the same rules as the men, but neither the sense of confinement nor their laborious employment have much effect on their conduct. They are generally committed for intoxication. They are impatient for the end of their terms of

[1] Dictionnaire Encyclopédique.

committal, but it is only that they may indulge their craving for liquor, and in a few days they are again inmates of the work-house. In many instances women have been committed thirty and forty times, and in some cases one hundred times."

Topography.—Fermented drinks with different names are known and used by almost all nations, but not in the same degree. It may be said that the use of liquors increases from the equatorial regions toward the cold climates: it is in the temperate climates that they are the less dangerous.[1]

There is in *cold countries* a particular appetite for strong liquors; this the want of stimulants and the absence of wine seem to sufficiently explain. In the campaign of Russia, in 1812, no one offered less resistance to the intense cold than the soldiers who were drinking strong liquors; they died in the snow, victims of a comatose drunkenness. Experience has also taught to the monks of Mont St. Bernard that alcohol is the most frequent cause of death among those travelling in the midst of snows. A good alimentation, principally composed of fatty substances, is the best medium of protection against cold.

Sweden is one of the countries where alcohol makes the greatest ravages. In 1837, for a population of three million inhabitants, there were one hundred and seventy thousand distilleries, producing annually one hundred and eighty million quarters (the Swedish quarter being equal to nearly one gallon); according to the most moderate figures, fifty million gallons are consumed yearly, giving, after deducting women and children from the population, twenty to twenty-five gallons a year for each male adult inhabitant.

In England, until 1751, according to Smollett, intemperance had reached such a point, that dealers used to put on their signs that, for one penny (two cents), one could get tight, and for four cents was allowed to get dead drunk, and have into the bargain some straw to sleep on until sober! To give an idea of the consumption of alcohol in Great Britain, we borrow the following from the *Revue Médicale* (July and August, 1863): "It results," says the report, "that the distilleries of Scotland have made last year 14,901,575 gallons of alcohol,

[1] Lancereaux, Dict. Encycl. des Sc. Méd.

viz., 52 per cent. of the total production of the kingdom. . . . In the year ending September 29, 1862, 94,908 persons were arrested for drunkenness, and 63,255 found guilty; 7,000 were committed to jail. The records of the coroner for the year 1862 have shown 211 verdicts of deaths from alcohol; 145 men, and 66 women."

Well-established statistics show that the number of persons whose death is caused by alcohol amounts in England to fifty thousand and in Russia to ten thousand a year.[1]

In Germany and France the use of alcoholic liquors increases every day. M. Jules Simon says that in Rouen, in the space of one year, the sale of brandy amounted to one million two hundred and fifty thousand gallons, besides cider, wine, and beer; at Amiens, says the same author, there is a consumption of eighty thousand small glasses of brandy every day.

Italy, Greece, and Spain, have less to complain about the bad results of drinking. The Spaniards have a horror of drunkenness.

In India, and other parts of Asia, according to Mr. Warren's report, the people get intoxicated with palmetto-wine and opium.

In Central Africa, several tribes make use of fermented drinks. "The idolatrous negroes," says Mungo Park (*Travels in Africa*), "drink beer and hydromel often to excess, while Mahometan negroes drink only water." Going toward the countries watered by the Orange River, the Hottentots, of a weak constitution, continue to degenerate by the unrestricted use of alcohol and brandy. Alcoholism produces there ravages beyond expression, and, in the opinion of observing physicians, the extinction of the Hottentot race may be calculated to be near its end. (*Bull. de la Soc. d'Anthropologie.*)

In Mexico and Central America the brandy, the pulque, and the chica, made with the fermented juice of the aloe, are monopolized by the government, and the right of sale conceded to contractors, called *estanqueros*, who manufacture dreadful beverages, and literally poison the Indians; some of their drinking-holes are established in the smallest places, where the unfortunates are attracted by all sorts of means;

[1] Union Méd., vol. xi., 1861.

and they are persecuted in a frightful way, when, according to old customs, they make themselves a little chica, and what is the most horrible is that, after having been drawn into the snare, they are imprisoned, fined, or condemned to public work, if they are found lying drunk in the streets!

The statistic details into which we have entered show with an unfortunate evidence that the abuse of alcoholic drinks is met with upon all parts of the globe. They prove, besides, that savage nations, as well as civilized, are inclined toward the terrible plague of alcoholism. The hardest drinkers in America are the Germans, the Irish, and the English. The black race has always been remarked for its fondness for alcoholic drinks. MM. Ruiz and Luppe pretend that three-quarters of the deaths in negroes are caused in Martinique by the use of rum.

Mungo Park, and most of the courageous persons who have travelled in Africa, are explicit upon this point. It would appear even that drunkenness in the African race has something in it of bestiality (Dr. Ivan, *De Paris en Chine*).

Physiological Influences.—In Scotland the habit of giving whiskey to small children is, according to the report of Maenisch, quite prejudicial. They become pale, sad, etiolated, subject to convulsions and functional troubles of the stomach, or of the intestines, such as vomiting or diarrhœa. Dr. Hunter[1] tried to experiment on the effects of fermented liquors on two of his children, who so far had never used wine: to one, aged five years, he gave every day a glass of sherry; to the other, who was about the same age, he gave an orange. At the end of one week there was a notable difference in the pulse, the urine, and the evacuations of the two children. The pulse of the first was raised, the urine became colored, and the fecal matters did not present the usual quantity of bile. In the second nothing was changed. Do not these facts seem to demonstrate that in youth spirituous drinks are more hurtful than in a more advanced age? Fortunately, the immoderate use of fermented drinks is rare at this period of life. It is in the adult that spirituous drinks are the best supported. At that age also is seen the greater number of cases of alcoholism. It is more

[1] Anatomy of Drunkenness.

rarely met with in old age, probably because drunkards never live to an advanced age.

Pathology.—Alcohol may be introduced into the system in two ways: 1. By inspiration; and 2. Through the digestive organs.

Orfila has intoxicated and killed dogs by making them breathe air charged with alcoholic vapors. There is no doubt that in man the same effect may be produced by the same course. In places where alcohol is distilled or manipulated, men are exposed to accidental intoxication, owing to the evaporation of the liquid.

Analogous accidents are observed in persons remaining a certain time in stores containing a quantity of alcoholic liquors. Dr. Mesnet, cited by A. Racle (*de l'alcoholisme*), reports the case of an alcohol merchant, whose apartments were situated immediately above a store where he kept his goods. The alcoholic vapors passed through the cracks of a badly-jointed floor, and he experienced every night symptoms of intoxication. This man, who was very temperate, was taken, at the end of eighteen months, with all the symptoms described under the name of acute general paralysis. Rapid and severe symptoms soon put his life in danger; but they became modified, to give rise to the chronic form of general paralysis.

But the stomach is the most common medium of absorbing alcoholic drinks. We do not know whether it is absorbed by the mucous membrane of the stomach proper, but, as we accept the reality of it, we must indicate the conditions which increase or diminish this absorption.

Dutrochet says that the absorption of liquids by the membranes is effected by endosmosis, and that alcohol does not escape this law. Now we know that liquids rich in alcohol are easily and rapidly absorbed. The presence of salts retards the absorption of alcoholic liquids, also mucilages, oils, or fatty substances, and sugar; it is well known that, when the stomach is empty, intoxication takes place a great deal easier, and with a less quantity of liquid, than when it is full of aliments: thus, when some people want to drink to excess, they take sweet oil before beginning.

The mixture taken by the English in India, and which they

call *kill devil*,[1] is composed of rum, syrup, eggs, and water; the presence of albumen and sugar diminishes the violence of the rum. They sometimes drink large quantities of it without any inconvenience, though at length particular and serious effects may result from it, especially the so-called crab-clawed malformation of the articulations of the fingers.

The stomach is subjected to several functional and organic troubles, such as loss of appetite, vomiting, particularly in the morning (*vomitus matutinus potatorum*); gastralgia, dyspepsia, and dilatation of the stomach (Morgagni), may be the alterations due to chronic gastritis, ulcer (Cruveilhier), and cancer. Dr. Racle says that alcohol cannot be considered as the productive cause of the cancer, but as the agent of localization of the diathesis.

We will not revert to the subject of pathological anatomy of acute alcoholism, that we have already exposed sufficiently; but we must say that the acute and chronic forms of the disease are not identical, though produced by the same cause; there is a great difference in the characters of the intoxication. "The first," says Marcet (on "Chronic Intoxication"), "consists in an acute and violent trouble of the functions of the nervous system, lasting generally from four to ten days; while the second variety, on the contrary, though resembling the first under more quiet appearances, takes the form of a long disease. Chronic alcoholism is a state of suffering lasting a long time without interruptions, and depriving the patient from rest night or day."

Magnus Huss, who is justly considered as a classic author upon the subject, divides alcoholism into six different forms: 1. Prodromic; 2. Paralytic or paresic; 3. Anæsthetic; 4. Hyperæsthetic; 5. Convulsive; 6. Epileptic.

As it would require too much time to enter into all the details given by the author, we will describe only the principal symptoms characteristic of each of these forms:

1. *Prodromic Form.*—Trembling of hands, mostly in the morning, relieved by the use of a little stimulant; weakness in the arms and legs. Formications in the legs, vertigo, dimness, dilatation of the pupils; on awaking, sensation of dul-

[1] Marshall, Edinburgh Medical and Surgical Journal, 1837.

ness of body and mind, ill-humor, dryness of throat, impediment of speech. These symptoms may increase or decrease, according to the way of living.

2. *Paralytic or Paresic Form.*—Predominance of decrease in muscular strength, beginning in the arms; sleep is interrupted by visions; the fingers become so weak that the patient can hardly hold any thing in his hands; titubation; voluntary motions are not totally abolished, but the patient is unable to hold himself in any position, and remains lying down; dislikes to move; cannot eat by himself; sometimes there is paralysis of the bladder, of the large intestines, of the œsophagus, and even of the tongue; some subsultus tendinum and cramps. As to his intellectual faculties, he becomes indifferent, stupid, his memory fails, his sleep is interrupted by all sorts of hallucinations of sight and hearing. The liver is generally hypertrophied, so much so as to extend sometimes to the left hypochondria.

3. *Anæsthetic Form.*—This form is generally preceded by a more or less high degree of half paralysis (paresis); the decrease of sensibility extends progressively to the sole of the foot, to the instep, the tibia, the calf of the leg, and the popliteal space, but hardly ever any higher; the same happens to the upper extremities, the diminution of sensibility not reaching higher than the elbows. This decrease of sensation is only superficial, and does not extend any depth into the tissues.

The patient can rarely make any intellectual effort; he is aware of the failing of his memory; has hallucinations of sight and hearing, and finally falls into all the symptoms of general paralysis of the insane. As soon as the anæsthetic form is well confirmed, sexual desires diminish or even disappear, as well in women as in men. There are no more erections, and the faculty of conception ceases, even when menstruation continues.

4. *Hyperæsthetic Form.*—This form is very rare, and has only been observed once by Stetsom; it is preceded by all the symptoms of the paralytic form, and is marked by formications, sensation of freezing cold alternating with burning heat in the legs or feet; sometimes the sensibility is so exaggerated that the patient starts at the least touch and screams; it is more marked in the evening and at night; sleep becomes impossible.

5. *Convulsive Form.*—The first symptom manifested in this form is trembling, of which the highest degree is a sort of chorea, afterward followed with subsultus tendinum, and finally convulsive paroxysms presenting sometimes the epileptic form, after which comes a prostration which is in ratio with the intensity of the paroxysm. If the abuse of alcohol is continued, the convulsions may degenerate into true epilepsy.

6. *Epileptic Form.*—This form is characterized by tetanic convulsions, followed by a comatose sleep. The paroxysms are more frequent by degrees, and are often preceded by an aura. Alcoholic epilepsy may degenerate into general paralysis of the insane. It may also be cured, even easily, after the suppression of alcoholic drinks. Finally, it may persist for years without much impairing the faculties of the patient.

We have seen all the different symptoms and forms of chronic alcoholism, as described above from different authors, but they are far from being the same in all subjects: in one case I observed last year, itching in the anus was a constant symptom the day after drinking; the pulse was very small, the temperature low, 95 to 96; there was some dyspnœa, some trembling, swallowing of air, but no muscular weakness. The patient had at times horrible hallucinations. One evening, when he was quiet, I had been admonishing him, and endeavoring to make him ashamed of his conduct, speaking to him about his friends and family, etc. The next morning when I saw him he told me that he had spent a very bad night, he did not sleep at all; every time he shut his eyes, he would see his room filled with all the persons he knew, and every one repeating to him the same words I had spoken the evening previous. He felt sometimes so bad, for the want of liquor, that he would drink bay-rum, or cologne-water.

Among the interesting cases cited by Morel we find the following: "A few months ago a patient was brought to me; he was eighteen years old, his walk was vacillating, his eye staring, his face injected, and his general locomotive system prostrated; he looked like a man drunk or paralyzed. When he was spoken to, he smiled in a stupid manner; his mouth remained half open, and saliva ran out of it. He only answered by yes and no, and his answers often did not accord with the questions.

His father had been in the asylum for twelve years. When brought together, the son remained impassible, and did not seem to recognize his father, though he saw him a few months before. There is a pedigree of insanity. His great-grandfather was a dipsomaniae in the full aeeeptation of the word, his son beeame a maniae, and died in the asylum, of the sequel of general paralysis; he is the father of the patient we have had here for ten years past; this man was of more sober habits than his aneestors, but hereditary deseent has eaused in him the evolution of a delirium of persecution (*delire de persecution*); as to his son, the present patient, he was taken without known cause about eight months ago with an aecess of mania, prodromie of idioey, and in fact beeame eompletely idiotie a short time after."

Therapeutics.—I will not undertake to review all the means whieh have been used in the treatment of ehronie alcoholism; it is easy to understand that the treatment must aceord with the organs affeeted, and the degree of the dypsomania.

Opium, veneseetions, eold applieations, emeties, tonics, moral treatment, voyages, distractions, ete., have been used with more or less success. Lately Dr. Mareet has praised the use of oxide of zinc, as having the effeet of eombating insomnia, hallucinations, and trembling. I have tried it in several cases, without result. One of the most important eonsiderations is to break off the habit of drinking; this is extremely diffieult, as alcoholism is a disease most subjeet to relapse. I have known patients to go for several months without drinking, and one particularly, who embarked on a temperanee ship for a eruise of three years; during that period he did not see a drop of liquor; three days after landing in New York he was intoxieated, and has ever since continued the abuse of alcoholic drink.

In the annual report of the Board of Commissioners of Charities and Corrections for 1870, it is said that sixteen hundred and forty-one patients were admitted into the Inebriate Asylum during the year, but that the time elapsed since the opening of the institution has been too short to determine the value of the asylum treatment as a cure of the inebriate. "That it may be," says the reporter, "instrumental in the ref

ormation of those who are earnestly desirous to reform, the experience of the past year has demonstrated, but it will probably be found that the sanguine expectations of the more ardent advocates of inebriate asylums will hardly be justified by the results. Habitual drunkenness is a moral disease, for which, as in other forms of licentiousness, there is no specific, except the resolute determination of the patient. So far as freedom from temptation is secured, the asylum may be regarded as a means of cure; but mere isolation, or the temporary and compulsory abstinence from spirituous liquors, rarely provokes the desire of amendment. And, even in some cases where the reformation of the patients has seemed to be complete, they have, on their return to their former associations, lapsed into intemperate practices. Those addicted to drunkenness are in general too infirm in purpose to persist in their resolutions of amendment, and this infirmity of purpose is one of the sad consequences of their vice. . . . . They are impatient for the term of their detention to expire, that they may again indulge their appetites. For the small number who desire to abstain from inebriety but cannot, and for such as by their excesses disgrace their families and friends, the asylums are fitting retreats. But, for the lasting cure of confirmed inebriates, it is apprehended they will be found of little practical value."

The therapeutics of Magnus Huss, says M. Lasegue (*de l'Alcoholisme Chronique*, *Arch. de Méd.*), are based upon the simplest indications, and comprise but very few remedies. To remove the causes which keep up the disease is evidently the first indication to fulfil; then the troubles of digestion are treated with the help of a good diet, a few tonics, warm cathartics; finally, with the several agents advised in nervous and spasmodic affections, as assafœtida, special stimulants, as nux-vomica, etc. A single remedy deserves notice: it is the empyreumatic oil which gives that special flavor to potato-brandy (*fermentoleum solani*), in the dose of five to ten centigrammes (one or two grains), five or six times a day, in a mixture or in pills. This remedy seems to act principally in diminishing the epigastric pains and pyrosis, and appears to have given the most satisfaction.

I should regret to pass over the treatment of alcoholism, without speaking of that strange method of medication proposed and boldly used by one of Dr. Huss's countrymen, and which consists in the abuse of alcohol carried to its last limits (a sort of homœopathy at high doses). It is well known that the success and failure of this method have been praised or decried according as the experimenters were advocates or adversaries of the method. Nasse has collated experiments and the results of his observations, which have been rather favorable. The addition of alcohol to all the drinks or aliments of the patients has the effect of inspiring them with the greatest disgust for the liquor which they have abused, and of which after a while they cannot even bear the smell. The cure, however, has not been always permanent, some relapses having been observed. As the medication, after all, must be persisted in for a long time to be of any avail, it is not without dangers, and Nasse has seen death produced by this artificial intoxication.

There would be a great deal to say yet, if we were to enter into the prophylaxis, the hygiene, or the medical jurisprudence of the subject, the last especially, which is one of the most important questions, but I have already extended my remarks farther than I had intended. The coincidence of the cases I have reported in the beginning of this paper and the interest of the subject have led me farther than I expected.

I may refer those who desire further information upon the subject, to the works of Magnus Huss, Delassiauve, Morel, A. Tardieu, Racle, Lancereaux, Marcet, Brierre de Boismont, Trousseau, Esquirol, Orfila, Pinel, Roesch, Perrin, Lallement and Duroy, Seller, Hardwick, and to the complete bibliography of alcoholism given in *Dict. Encyc. des Sc. Méd.*, etc., etc.

Relapsing Fever has for some months been prevailing to a great extent at Liverpool, and has now recently appeared in Manchester, and is spreading among the poorer classes. By the last report there were more than two hundred cases. Active measures were being taken by the Corporation and the Sanitary Association to hinder the spread of the disease.

Proceedings of Societies.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Adjourned Anniversary Meeting, November 7, 1870.

Dr. John R. Van Kleek in the chair.

After the reading and approval of the minutes, the President *pro tem.* read the following farewell letter and synopsis of the business of the Society for the past year, from the President, Dr. George T. Elliot:

Gentlemen: At the close of my second term of office, the time has arrived for me to say farewell, and to return my thanks for the kindness and sympathy you have shown me during my illness, as well as for many other tokens of good feeling during my administration.

It is pleasant to know that the position of the Society has been strengthened, its numbers increased, and the benefits of its labors laid regularly before the profession through the admirable stenographic reports of Dr. Winslow. Such reports are often invaluable, securing, for the many, benefits of the unpremeditated utterances of men of experience, who lack the leisure or the inclination to write or publish for themselves.

I do not see in what way the working plan of the Society can be greatly improved. Its founders have left little to be done in that respect by their successors; and especially have they provided against an infinite waste of time and temper by the admirable custom of referring all business matters to the Comitia Minora.

The custom which I introduced, and have carried through the past year, of regularly holding an adjourned meeting, in addition to the monthly meeting, seems to me deserving of being maintained, while it is not probable that time could be found for more, in deference to the claims of other societies. I have had no difficulty in arranging for papers for the meetings, and I am happy to express my conviction that a steadily-increasing interest is being felt in the city, both for papers on scientific and practical subjects, and for the debates to which they give rise.

Therefore, with every prospect brightening for the increasing activity and usefulness of the Society, and with the sincere hope that it may not only increase its reputation, but may stimulate its fellow-societies throughout the land, there only remains to wish you all individually happiness and success, and to submit the following report of the past year's work:

November Meeting.

Address by the President.

Announcement of Committees.

Paper by Dr. Jacobi, on "The Theory and Demonstrations of the New Hypnotic, Chloral."

December Meeting.

Paper by Dr. Hammond, on "The Physiological Effects and Therapeutical Uses of the Hydrate of Chloral."

Paper by the Vice-President, Dr. Thomas, on "The Induction of Premature Delivery as a Prophylactic Resource in Midwifery."

Adjourned December Meeting.

Paper by Dr. John C. Peters, on "Arterial Sedatives."

January Meeting.

Paper by Dr. Clymer, on "Some Points in the Clinical History and Pathogeny of Locomotor Ataxia."

Adjourned January Meeting.

Paper by Dr. William A. Hammond, on "Spinal Irritation."

February Meeting.

Paper by Dr. C. R. Agnew, on "Ophthalmic Therapeutics."

Adjourned February Meeting.

Paper by Dr. Foster Swift, on "The Pathology of Eczema."

March Meeting.

Paper by Dr. Austin Flint, on "The Prognosis in Chronic Diseases of the Heart."

Adjourned March Meeting.

Paper by Dr. William R. Whitehead, on "Reproduction of Bone."

April Meeting.

Remarks by Dr. Austin Flint, Jr., on "The Physiological Effects of Muscular Exercise."

Adjourned April Meeting.

Paper by Dr. J. C. Nott, on "Intra-Uterine Medication."

May Meeting.

Paper by Dr. William T. Lusk, on "The Theory of Diabetes."

Adjourned May Meeting.

Second paper by Dr. J. C. Nott, on "Intra-Uterine Medication."

June Meeting.

Paper by Dr. William B. Neftel, on "The Action of the Galvanic Current upon the Sympathetic Nerve."

September Meeting.

Specimen of Diverticulum of the Intestinal Canal, presented by Dr. Finnell, with remarks.

Maps of the Course of the Different Epidemics of Cholera, presented by Dr. J. C. Peters.

Nomination of officers.

Adjourned September Meeting.

Paper by Dr. Austin Flint, Jr., on "The Influence of Long-continued Muscular Exercise on the Composition of the Urine."

Number of new members admitted during the year.....33
Average number present at each meeting.....80

With the reading and approval of the minutes of this adjourned meeting, the Anniversary meeting was concluded, and Dr. Van Kleek resigned the chair to Dr. Jacobi, whom he introduced as the President-elect, the session now becoming the stated meeting of date.

Stated Meeting, November 7, 1870.

Dr. Abram Jacobi, President, in the chair.

The President proceeded at once to read an elaborate and exhaustive paper upon craniotabes, illustrated by specimens and drawings. Any just abstract within our limits would be simply impossible, but the paper will immediately appear in full in the November number of the *Journal of Obstetrics.* After completing his review of this subject, he remarked as follows:

ADDRESS OF THE PRESIDENT-ELECT.

In the foregoing, gentlemen, I have not confined myself to simply a few introductory remarks. If I were more eloquent, I should have tried to thank you in more appropriate terms

than I shall probably be able to command, for the honor you have conferred upon me in electing me your President for the ensuing year. As it is, I have considered it my duty to contribute something to the scientific ends of the Society—the more so, as there are only eight or nine stated meetings in the year designated for that purpose; and for the further reason that you have deemed proper to effectually seal my lips for the next twelve months.

Still it would be improper not to express the thanks I feel for the honor you have given, and which I certainly had no reason to expect, inasmuch as I had the pleasure of being chosen your Vice-President a few years ago.

I will not speak of the customary surprise at my election, nor will I say it was undesired or unhoped for. The honor of being the President of the largest medical society in the United States, this Society being, moreover, the County Medical Society, is certainly worth craving and hoping for; and, therefore, I trust that you will appreciate my thanks as I your goodwill.

There is only one duty left to me this evening—just to give you my ideas on the position this Society ought to hold and its duties in relation to science, to its individual members, to the public, and to the body politic. Do not fear I shall be too prolix on these points. But I think the Society justifiable in wanting to know the views of its officers on the most important points.

The stated meetings of this Society are principally dedicated to the reading of scientific papers, and to their discussion. I believe that, as long as I have been acquainted with the working of the Society, its efforts compare favorably with the merits of other societies. Some of the papers I remember to have listened to were far above the average, and replete with new ideas and fertile suggestions. But we suffer from one circumstance, which has crippled our progress, and detracted from the scientific value of our exertions. We have good physicians and surgeons, we even have eminent men in many branches of the exact sciences. But we have, with very few exceptions, no profession of learning, no men who can afford to give their whole time to study, to independent work. The

great names of medical science are all European, and Europe would be very willing to receive us among the best of her own: The names of Nott and Gliddon, of Morton, Silliman, Wormley, Flint, of Elliot and Thomas, of Gross, Peaslee, and others, are so well appreciated on the other side of the Atlantic, that America, while being proud of what has been attained under the most difficult circumstances, ought to look for means to improve her scientific standing and usefulness.

It has long been a petted idea of mine, that the County Medical Society will, one day, help in solving the question how science can deliver herself from the weight of daily mechanical toil, which so impedes the freedom of thinking and working; that it will aid in creating institutions that shall be worthy of the country we live in, and afford the means to such as by Nature are destined to become the teachers of their fellows, to follow the inspiration of their genius, without the spectre of Necessity driving them into the hardship of daily mechanical work. Such men as Europe possesses by the score, are absolute requisites for us. It is true, that electricity and steam have made the world one country, and that no secrets are known in the republic of science that are not common good. But the life of civilization is reciprocity; it will not do always to take without giving. We have the greatest territory, the longest railways, the largest steamboats, the most extensive telegraphs, the boldest bridges and buildings, and the smallest original scientific literature. The wants are clear. Let us all do our share in elevating our science, ourselves, and each other.

I believe that a large number of our members will agree with me in one point concerning the composition of this Society. Not everybody can be a great genius; there are but few such; average intellect is what most of us have to be satisfied with, and beyond the gifts of Nature we cannot possibly go—neither we, nor the members of any other profession or society. But there is one thing which can always be of the highest order, because it but partially depends on intellect and education. It is wisdom and morals. While we have to be satisfied with the mental powers we can command among us, we must command the morals, not of the average,

but of the best. I speak in my own name, and in that of my colleagues, when I ask you to help in gaining the coöperation of the best men that can be found, and in keeping or driving off such as ought not to belong to us. We ought not to believe that any profession ennobles a man who is not worthy to enter. There is no trade or profession that can be protected against unworthy intruders. If there is any profession, however, that deserves not to be thwarted by them it is ours.

If it must be our object to obtain the good-will and active coöperation of good men, I entreat you, gentlemen, to help your Board in enlisting those among our numbers, whom we see here but rarely, for active work. Some of the best men of the city, who are members of our Society, are absent more frequently than the interests of the Society will permit. To whom much is given, from them much is required. If the dignity, the solidarity of the medical profession of the city and county are to become a fact, not one member ought to refuse to go on duty. There are always more men willing to listen and learn, than there are such as are able to teach. I do not make this remark with regard to such of our members only as have gained a well-deserved reputation by life-long work, but also with special regard to those younger men, in whose brains the future of American science is getting prepared, who are given to studies of a special nature, and to exact investigations.

Only those who do their full duty to themselves and their fellows will have a right or a chance to modify our relations to the public, and also to the body politic. I do not speak of the individual relations of the physician to his patients—rules cannot be given in regard to them—but of our relations to them in matters of common interest, for instance, public institutions. We live under peculiar circumstances. Our political organization is such, that our theory is frequently better than our practice. We have the best constitution on the globe, a constitution framed by wise men, and adapted to wise and prudent men, and at the same time a larger class of ignorant and illiterate fellow-citizens, in the territory of the United States, than any other civilized, even monarchical country. We have the good republican rule of electing the

best men to offices, and they say it has happened that a bankrupt mechanic has become the moral and mental leader of a large community, or an incompetent tradesman all at once a wise statesman, the savior of his country politically. The remedy will be found in a civil-service bill, the necessity for which is so generally felt that it is a Republican senator and a Democratic representative who have undertaken the task of securing it.

In our public relations generally, we have to deal with similar difficulties. As a country, we are young, upstart, and are suffering from all the incongruities of upstart communities. The great process of growth, helped by unbounded appetite and good digestion, is not yet finished. Society is by no means in a steadier condition. As there are marble palaces and hovels in close proximity, so we have sadder wealth and young education—very young and unfinished education—under the same roof. Society is not always ruled by the best; it is usually controlled by the powerful and the ambitious. The greatest and most uncontrollable power is money; no matter whether it is made by brain-work, industry, and saving, or by blockade-running, shoddy, or stock-jobbing.

The public institutions, in which the medical profession take a lively interest, are controlled a great deal by money, family, clique, or political influences. They ought to be the subjects of the closest attention on the part of the profession as such. United efforts in that direction will prove efficient, for certainly, in every board, no matter how composed, there ought to be some members willing to do the best. We ought not to despair of human nature to such an extent as to believe that there should not be some who would be glad to be guided by the judgment of experts, rather than by their own inexperienced intuition. I have always thought that the County Medical Society, by studying the affairs, the statistics, the resources, results, merits, and short-comings of our public institutions, would work in just the proper sphere, and for the benefit of our fellows and of science. There is no medical society which has more talent, and not one which has more authority. It is our duty as well as our right. The Medical Society of the county is, moreover, through the State

Medical Society, intimately connected with the State and its politics. I know the time will come when the opinion and advice of the County Medical Societies and the State Medical Society will be asked for in regard to our most important matters—I allude to medical education. The material wealth and power of the country had its best help in decentralization, but private means and competitive efforts do not appear to be able to afford the millions, with which to collect the genius and talent, and create the museums and institutions, worthy of seats of learning such as Europe boasts of by the dozen. If the time shall come for such progress, the task of advice and practical interference will be with the County Medical Societies.

I throw these hints out, believing in their being correct; requesting the gentlemen to keep them in view, and finally, requesting you to believe that, whether they are wrong or right, I shall be but too willing to work with you for our common interests.

NEW MEMBERS.

The President announced the admission to membership of Drs. Henry Griswold, Charles P. Russell, John G. Frazer, and Gustavus Langmann. He announced also the following standing committees for the year.

STANDING COMMITTEES.

Committee on Library.—Drs. Thomas S. Bahan (chairman), George M. Beard, R. J. O'Sullivan.

Committee on Intelligence.—Drs. B. S. Thompson (chairman), William T. White, Jerome C. Smith, Robert Newman, James B. Hunter, Benjamin F. Dawson, Andrew H. Smith, Salvatore Caro, Norton Folsom, Charles S. Wood, F. A. Castle.

Committee on Meteorology.—Drs. David H. Goodwillie (chairman), John Messenger, Frederick E. Hutchinson, Edwd. C. Harwood.

Committee on Diseases.—Drs. Morcau Morris (chairman), A. B. Judson, Horace T. Hanks, Leonard Weber, Henry G. Piffard, Edward Bradley, T. Munson Coan, Samuel A. Raborg.

Committee on Finance.—Drs. William B. Bibbins (chairman), Thomas Addis Emmet, Edwards Hall, Joseph Kammerer.

A communication preferring charges against a member was received, and referred to the Comitia Minora.

BLEPHAROPLASTY.

Dr. H. Knapp presented a patient upon whom he had restored the lower eyelid, with (substantially) the following remarks :

This woman suffered from epithelial cancer of the left lower lid, which I removed about six months ago. The disease was nodular in character. It extended laterally from the punctum to the outer canthus, and downward considerably below the tarsal cartilage, involving the whole thickness of the lid.

I made the incisions for the removal of the growth as you see in this diagram—two incisions passing vertically downward from the punctum and from the outer canthus to the extent of eight or nine lines, and being joined at their extremities by a horizontal one. I kept at a distance of at least a line and a half from the globe at every point, so as to get all the germs, going through the whole thickness of the lid—skin, orbicular muscles, cartilage, and conjunctiva. This left exposed a square surface, the eyeball being laid bare, and some little space below it.

To fill up this gap, I resorted to a somewhat peculiar method, which I had before employed in several cases. The horizontal incision, from the point where it joined the outer vertical one, was extended outward, and very slightly downward, across the cheek for a distance of nearly two inches. From the outer canthus a similar incision, directed very slightly upward, was carried to the same extent. On the inner side the horizontal incision was extended to about the middle line of the nose ; and from the punctum, for a short distance inward, a careful dissection was so made around the canaliculus as to allow this to be stretched along with the flap containing it. Both flaps were very freely dissected up, and then stretched so as to bring their vertical ends together at the middle of the lid, where they were fastened by interrupted sutures. They

united perfeetly, so that you can now hardly diseover the line of union. A mueous lining for the new lid was made of conjunetiva drawn from the inferior fold.

This method has the advantage that it gives a lid perfeetly adapted to the globe. The slight traetion of the flaps, as they shrink a little, is lateral, not downward, and brings them elose to the eyeball. There is no eetropion, and no unsightly swelling out of the flaps, sueh as are so often sourees of ineonvenienee and disfigurement after other operations. Celsus says that, when the whole lid is destroyed, it eannot be restored. This is eertainly true for the upper lid, for that has a large eartilage and a speeial muscle of its own, without whieh it eould not perform its offiee. But the lower lid is eomparatively inert. If fitted nieely to the globe, it will fulfil its triple funetion of proteeting the eyeball, holding it in plaee, so as to allow of the ball-and-soeket motion, and retaining the tears, without a eartilage and without a partiele of muscular fibre (it is possible, however, to bring in orbieular fibres from the sides). You see that here there is not the slightest laehrymation; yet there is no defieieney of tears on the lower part of the globe, although so large a part of the mueous membrane was taken away. The eye is properly lubrieated, and follows all the movements of its fellow with perfeet ease. And the lids ean be as easily and eompletely elosed as on the other side, though the whole eartilage is gone, and nothing of the old lid remains beyond the punctum. In short, the new lid answers every funetional demand; there is barely a traee of the pseudoplasm; and, exeept for the absenee of lashes, you would hardly notiee any differenee between the two eyes.

A more eustomary operation is that of transplanting a flap from the temple. So far as I have observed its results, both in my own cases and in those of others, there has invariably been swelling of the flaps and more or less disfigurement. Another operation is that of removing the morbid growth by a **V** incision, and filling up the triangular space by *glissement*, i. e., disseeting up the flaps at its edges, and bringing them together. This, as it affords no lateral support, almost always draws the lid downward, producing eetropion, and, of eourse, an overflow of tears.

The method which I have here shown has its limits. The stretching of a flap is always a calamity, and can be practised without risk of failure only where the skin is very supple. The integument of the lower eyelid, however, and of the parts adjacent is supple enough to bear stretching as much as I have done in this case; I do not know how much more it would bear.

Dr. L. Weber remarked upon the wonderful accuracy with which the lid fitted the eyeball, such as could only have been attained by the traction of the lateral flaps.

Dr. Sayre had never seen a result approaching this. He wished to inquire whether the stretching of the canaliculus might not tend to close it, and obstruct the passage of tears?

Dr. Knapp replied that, even if the punctum and canaliculus of the lower lid were obliterated, those of the upper would probably prove sufficient to carry off all the tears. But in this case, although the lower punctum was drawn outward a line or a line and a half, it seemed to perform its office completely.

The President stated that at the meeting of December 5th Dr. Fordyce Barker would read a paper. The Society then adjourned.

Bibliographical and Literary Notes.

Art. I.—*A Descriptive Catalogue of the Warren Anatomical Museum, Harvard University.* By J. B. S. Jackson, M. D., Curator of the Museum, and Professor of Morbid Anatomy. Boston: A. Williams & Co. 1870. 8vo, pp. 759.

To attempt to review this bulky volume, now before us, would be as absurd as the effort to analyze a library catalogue, and still the book is one of great value, and should not pass unnoticed. The title indicates the character of the work. It is a description in greater or less detail, according to the importance of the cases, of the specimens contained in the Museum of the Massachusetts Medical College (Harvard University). This museum was founded by the late Prof. John C. Warren, who, on resigning his chair, donated to the college the collection which he had gathered in an active practice of forty years In addition to this, he made an endowment to

the college of $6,000 for the preservation and increase of the collection. In acknowledgment of so valuable a donation, the corporation of the University voted that the museum should be called by the name of its founder.

Since Dr. Warren's donation, the museum has steadily increased, both in number and importance of pathological specimens, and it may now be ranked as one of the most valuable collections in the country. Now, to make this collection available to science, has been the object of preparing this descriptive catalogue. Histories of many of the cases from which the specimens were obtained have been published in the various medical journals of this country, and whenever it has been possible this fact, with the name and date of publication, is noted. The name of the donor in all cases where known is also given. Dr. Jackson, the Curator of the Museum, and author of the catalogue, has done his work with rare discretion. He has classified the whole collection, and arranged the catalogue accordingly. More than this, the abstracts which he has made of the histories of the cases are models of conciseness and clearness. There is but a single illustration to the volume, a frontispiece, giving photographic views of the skull of a man who lived twelve and a half years after the passage of a large iron bar through his head. This celebrated case was first published in the *Boston Medical and Surgical Journal*, December, 1848, by Dr. John M. Harlow, and is well-known to the whole medical world, and, although deemed by many incredible, must now be acknowledged by the most persistent unbeliever as a true bill. The description of the lesions in the specimen is most instructive, by showing how great an injury may be inflicted on the cranium and brain, and yet the patient may recover.

We might refer to many cases of rare interest that are noted in this catalogue, but to do so would only extend this notice without adding to our appreciation of the importance and value of the book. It should be placed in every medical library of the country, and so be made accessible to the whole profession, for there are few who individually will care to purchase the book. The liberality of the Faculty of the College in publishing and distributing the volume is deserving of the

highest praise, and we desire publicly to express our thanks to them for the great service they have thus rendered to our profession.

Art. II.—*Lectures on Some Subjects connected with Practical Pathology and Surgery.* By Henry Lee, F. R. C. S., Surgeon to St. George's Hospital, etc., etc. In 2 vols. Third edition. London: John Churchill & Sons. 8vo, pp. 309, 386.

This work contains the substance of the second editions of two volumes published separately, together with several lectures which are now printed for the first time. They have been enlarged, revised, and in part rewritten. Much of the first volume is taken up with the subjects of Purulent Infection, or Suppurative Fever, and Phlebitis. Mr. Lee's views on these questions are well known, having been long before the profession. Time and experience have worked no change in them, but have strengthened the author's convictions of their correctness. He is fully up in what has been done by others in the same direction; and contests, or admits, after fair consideration, objections or agreements. Polli's treatment by sulphurous acid and the sulphites, he regards as not confirmed by clinical experience—as what sane person does not who has made any extensive use of them?—and Prof. Lister's antiseptic method he considers as still under trial.

Lectures V., VI., and VII., on Varicose Veins, Varicocele, and the Obliteration of Varicose Veins, are well worthy of careful study; as also the one following, on the Repair of Arteries and Veins after Injury. The eight lectures on the Diseases of the Rectum are very thorough, and excellent in description, pathology, and treatment; they are, in fact, a most satisfying treatise on the subject. Lecture XIX., on Excision of Joints, has three tables showing results of cases in which hip, knee, and elbow, were exsised by Mr. Lee, and they compare favorably with the average mortality after amputation in the London hospitals. Of four cases of resection of the head of the femur, all were successful; in thirteen cases of excision of the knee, there were two deaths; and of four

excisions of the elbow, two made a very favorable recovery; in one, where the forearm could be flexed and extended when discharged from hospital, a sinus subsequently formed, through which exposed bone could be felt. In the fourth, which apparently for a time did well, amputation was subsequently done, on account of long-continued and severe pain in the humerus; perfect fibrous union had taken place; "a small piece of detached dead bone was found in the ulna, and a considerable quantity of new bone had been deposited on the surface of both the ulna and humerus."

The second volume includes the lectures on Syphilis, which appeared several years since, and are now mostly rewritten; together with lectures on Gonorrhœa, Gonorrhœal Rheumatism, and Ophthalmia, and on Albuminuria as a Consequence of Surgical Diseases—new subjects. We regret that we cannot speak of these at greater length, and point out their excellences in detail. We must be satisfied with a strong recommendation of them to our readers. They will in every way abundantly repay attentive study. Our space will allow us only to give Mr. Lee's conclusions respecting syphilization, as a method of treatment, after a full witnessing of the experiments made at the London Lock Hospital, by one of the apostles of what, to use the most charitable language we can command, may be set down as one of the hugest medical delusions of the day :

1. That no evidence has hitherto been adduced satisfactory to the profession that the syphilitic virus can be successfully inoculated upon a patient who is at the time the subject of constitutional syphilis.

2. That occasionally from the surface of an indurated sore, matter may be taken which, in a subject of constitutional syphilis, may be made to produce a number of local ulcerations, having some of the characters of the soft chancre.

3. That, during the continued irritation and depuration produced by such ulcerations, the manifestation of secondary syphilis will disappear.

4. That the time required for the treatment of syphilis in this way is so long, and the inconveniences attending it are so

great, that it is not at all likely to be generally adopted in practice.

These views have received ample confirmation by full and impartial trials, under every favorable circumstance, in Paris and in this city.

We recommend most heartily Mr. Lee's volumes to American physicians and surgeons, and trust that they will have a large circulation in this country. They are beautifully printed on most luxurious paper, and do credit to the publishers, the Messrs. Churchill.

Dr. W. A. Hammond reprints his essay on Spiritualism,[1] contributed to the April number of the *North American Review*, with additions. Its object is to show how little the belief in the materiality of spirits can be sustained by the evidences brought forward by its advocates; and that, even if the alleged phenomena of spiritualism could be satisfactorily shown, the hypothesis proposed in explanation of them would be the least plausible which could be suggested; there is nothing in common between the asserted facts and the interpretation. After witnessing many spiritualistic performances, the author of them says: "No medium has ever yet been lifted into the air by spirits, no one has ever read unknown writing through a closed envelope, no one has ever lifted tables or chairs but by material agencies, no one has ever been tied or untied by spirits, no one has ever heard the knock of a spirit, and no one has ever spoken through the power of a spirit other than his own" (p. 84).

There is an interesting section on "Levitation," or the faculty of rising in the air against the force of gravity, which has been claimed not only for chairs and tables, but also for the human body, the records of witchcraft and spiritualism, and the romances of the early Church, abounding with like instances. This little book is both pleasant and profitable reading; it is full of entertaining matter, and, moreover, exposes fraud and self-deception, by showing the methods of the

[1] The Physics and Physiology of Spiritualism. By William A. Hammond, M. D., etc. New York: D. Appleton & Co. 1871. 12mo, pp. 86.

various puzzling phenomena of animal magnetism, and the several forms of somnambulism, and successfully stripping them of the supernatural.

The title of Dr. Eldridge's book[1] is, we think, a poor one; for, though "less inelegant than the terms usually employed, such as masturbation, onanism, etc.," it is so unfamiliar that but few would have an idea of the contents of the book from its title. The author is very flowery in his style, and a few quotations will, we are sure, convince our readers that the work is hardly worth the perusal. The dedication is to his father, "who, through his ministrations at the bedside, has oft tempered the dread elements of disease, and mitigated the agonizing struggles of death." He speaks of "supervention of abscessal formations," of "the first and most paramount desideratum," "the mad hand of pollution," "pathogenetic panoply," etc., etc. His chapter upon pathology "contains no new ideas," while the mere fact of his recommending no less than *nineteen* remedies for the cure of this disease, from which "no grade or circle of society enjoys an immunity, as the rude habitation beggaring description, and the palace of affluence and luxury become the fostering receptacles of its silent destruction," is sufficient to show us that the author has contributed nothing but words to modern medical literature. But one paragraph meets with our approval: "Books calculated to suggest amorous thoughts, or engender lustful desires, we need scarcely say, are exceedingly pernicious; no less objectionable are the many obscene pictures and drawings upon pocket-cutlery, tobacco-boxes, and in the private albums of young men."

We have too long passed without special notice the claims of the *Practioner*[2] to the consideration and patronage of our readers. It has a character and aim peculiarly its own in the attempt to redeem therapeutics from the opprobrium

[1] Self-Enervation; its Consequences and Treatment. By C. S. Eldridge, M. D. Chicago: E. S. Halsey. 1870. 12mo, pp. 64.

[2] The Practitioner; a Monthly Journal of Therapeutics. Edited by Francis E. Anstie, M. D., F. R. C. P. Vol. IV. MacMillan & Co., London and New York.

which it has earned as an empirical series of expedients, and to endeavor to give it a higher and more definite position in medicine as a body of principles, the outcome of observation and experiment. This happy and meritorious thought belongs, we believe, to Dr. Austie, so well known to our readers by his contributions to therapeutics, and in his endeavor to carry it out in the *Practitioner*, of which he is the projector and editor, and, if we are rightly informed, has taken the risks of a proprietary interest. The special character of the journal, and the circumstances of its establishment and publication should have protected it against the injury of a reprint in this country; and we are glad to learn that hereafter the English edition, so much superior in paper and print to the American, will be furnished to subscribers here at the same price as the latter.

M. Bourgain, in this thesis presented for the degree of doctor of medicine, describes the various methods of external urethrotomy upon a conductor,[1] giving preference to that of our *confrère*, Prof. John W. S. Gouley, of this city, over that of Mr. Syme, for the reason that it so fully realizes all the improvements proposed. "The instruments used by Dr. Gouley, consisting of a catheter-staff, a whalebone guide-bougie, and a small-beaked bistoury, are very simple, easy to handle, and readily carried in the ordinary pocket-case. Strictures of smallest calibre can be penetrated without danger of making false passages. The method of Gouley, therefore, extends the circle of operations of urethrotomy on a conductor at the expense of urethrotomy without a conductor, and is attended with far less danger—points which cannot be too highly appreciated."

The subject seems to have been suggested to the mind of the author by his former preceptor, M. Verneuil.

[1] De L'Urethrotomie externe sur Conducteur. Procédé du Docteur Gouley. Thèse pour le Doctorat en Médecin. Par Louis-Marie Bourgain. Paris, 1870.

External Urethrotomy upon a Conductor, according to the Method of Dr. Gouley. Thesis for the Doctorate of Medicine. By Louis-Marie Bourgain. Paris, 1870.

We are glad to see the merits of our collaborators so freely recognized abroad.

Dr. Gouley's paper, on which this is based, appeared in this JOURNAL, July, 1869.

DR. SEGUIN'S well-known Prescription and Clinic Record [1] has passed to a sixth edition.

The first part of this pocket-book is calculated to obviate the effects of the hurry inherent to medical practice, by a stringent and rapid systemization.

The second part is mostly devoted to the illustration of the instruments and methods of *positive diagnosis*, serviceable to extend, complete, or correct the notions of our senses: premises of sound judgment.

The last pages are arranged to group facts in regard to temperature, medical constitution, epidemics, etc., permitting physicians of different wards or regions to compare these data, improve their practice, enlarge their views, and prepare important generalizations.

We have received the first number of the *Photographic Review of Medicine and Surgery.* This journal is a bimonthly, published by J. B. Lippincott & Co., of Philadelphia, and edited by Drs. F. F. Maury and L. A. Duhring. The object of the publication is to illustrate, by means of photography, remarkable cases of disease attended by external lesions that admit of such representation. The number before us contains four beautiful prints, respectively of multilocular hydatid tumor of thigh, meningocele in an infant, horny tumors of the face, and enormous keloid growth of neck and back. As a mere work of art, the journal is a valuable addition to our literature, but, besides this, the cases are well described, and the histological appearances accurately detailed. If the cases selected for publication are such unusual specimens of disease as those delineated in the first number, the journal may well take rank in medical literature with the celebrated *causes célèbres* in jurisprudence. We wish the editors and publishers most hearty support in their undertaking.

[1] The Prescription and Clinic Record. By E. Seguin, M. D. New York: William Wood & Co. 1870.

Messrs. William Wood & Co., of this city, announce: A Manual of the Practice of Surgery. By Thomas Bryant, F. R. C. S. A Treatise on Post-Mortem Examinations. For the Use of Coroners and others. By Francis Delafield, M. D. A new edition of Bartholow on Spermatorrhœa. A Practical Treatise on the Diseases of Women. By Robert Barnes, M. D. A new edition of Isaac's Anatomical Remembrancer. A Treatise on Surgery. By Prof. F. H. Hamilton, M. D. Lectures on the Diseases of the Genito-Urinary Organs and their Treatment. By Prof. J. W. S. Gouley, M. D. A Treatise on Diseases of the Ear. By D. B. St. John Roosa, M. D.

Books and Pamphlets Received.—Catalogue of the Iowa State University, 1869–'70.

Annual Circular and Catalogue, Medical Department of Willamette University, 1870–'71.

Circular and Catalogue, St. Louis College of Physicians and Surgeons, 1870–'71.

Eighth Annual Announcement New York Medical College for Women, 1870–'71.

Report of the Resident Physician of Brigham Hall and Hospital for the Insane, for the Year 1869.

Charter of the Society of the New York Hospital, and the Laws relating thereto, with the By-Laws and Regulations of the Institution, and those of the Bloomingdale Asylum for the Insane. Pamphlet, pp. 140.

An Essay on the Causes of Infant Mortality. By John W. Thrailkill, M. D., St. Louis, Mo.

Sixth Annual Report of the Board of State Charities of Massachusetts, to which are added the Reports of the Secretary and the General Agent of the Board. 1869. 8vo, pp. 396.

Intemperance as a Disease. Report to the Medical Society of the State of Pennsylvania.

Twenty-seventh Annual Report of the Managers of the State Lunatic Asylum, Utica, N. Y. For the Year 1869. 8vo, pp. 92.

Report of the Surgery of Mobile, for the Year 1869. By J. T. Gilmore, M. D., Professor of Anatomy and Clinical Surgery in the Medical College of Alabama. To which is added a Supplemental Report on Ovariotomy and Vaginismus. By Jerome Cochrane, M. D., Professor of Chemistry in the Medical College of Alabama. Mobile, 1870, pp. 37.

From the pamphlet bearing the above title, we have quoted in another place an interesting case of removal of the tongue by Prof. Gilmore.

Reports on the Progress of Medicine.

SURGERY.

1.—*Analysis of One Hundred and Eighty-four Cases of Stone in the Bladder of the Adult treated by Lithotrity.* [British Medical Journal, June 4, 1870.]

Sir Henry Thompson, in a paper upon this subject, read before the Royal Medical and Chirurgical Society, gave an analysis of one hundred and eighty-four cases that had come under his observation. To estimate clearly the value of his results, it is to be borne in mind that the cases had been treated by a uniform method and within a comparatively brief period of time; that they occurred consecutively, and had not been selected; that all the patients were adults, and presented every variety of constitution; and, finally, carefully written records had been kept of each case:

The results of the operation were discussed under the following heads: 1. The rate per cent. of recovery after the operation, and the causes of death when it occurred. 2. The general condition of the patient after the operation. 3. The frequency of recurrence of stone after lithotrity.

The mean age of the one hundred and eighty-four cases was no less than sixty-one years. The youngest was twenty-two years old. Only three were below thirty years. The oldest was eighty-four years. There were forty-six cases of seventy years and upward. With very few exceptions, all stones of an ounce and upward were reserved for lithotomy. All obviously below that were crushed. Not one case was refused operation, not one was left unfinished, and in no instance was an operation of lithotrity completed by lithotomy. The recoveries, reckoning every kind of casualty following the operation, were ninety-three per cent.; but, omitting five cases of death, not by any means due to it, the mortality amounted to only four per cent. A second operation for recurrence of the stone was performed for thirteen of the one hundred and eighty-four cases; one hundred and twenty-two were uric acid and the urates; sixteen were mixed; forty were phosphatic; four oxalate of lime; one cystic oxide; and one pure phosphate of lime.

The important logical conclusion to be derived from the mass of facts considered was, that lithotrity is an eminently successful operation. For a certain number of cases, its success may be regarded as a certainty—absolutely without fear of any contingency, except such as attends the minor operations of surgery—for example, the opening of a small abscess, or the passing of a catheter. For the author stated that he had never lost a patient in the whole course of his experience after crushing a stone which was no larger than a small nut; and this he considered was a size at which, with few exceptions, every stone ought to be discovered. But this very fact led the author to remark that the success of lithotrity cannot therefore be considered apart from the knowledge of the extent, in regard of the magnitude of the stone and the constitution of the patient, to which the capabilities of the operation have been pushed. When it is employed for stones as large as a date or a small chestnut—and it is impossible to deny

the excellent chance of success which this method offers to the subjects of such stones—a certain but still only small proportion of deaths must be expected. And the rate of mortality will correspond with augmentation in the size of the stone, and with the amount of existing disease and age on the part of the patient. Given a small stone in a fairly healthy person, and success is certain; the possibility of contingency in such a case depending only on the presence of those remote and excessively rare conditions which will make for an individual here and there the mere passing of a catheter a cause of death. The rule observed had been, for the most part, to apply lithotrity to all calculi obviously less than an ounce in weight, easily discovered by sounding, and to operate on all larger ones by lithotomy.

In this connection we print below an abstract of a paper read by Mr. Teevan at the recent meeting of the British Medical Association at Newcastle-on-Tyne. The cases on which he had operated were twenty in number:

Nine of the patients were adults, and eleven boys. Six of the adults were operated on by lithotrity, and three by lithotomy, the latter operation being necessitated in each case by the great size of the calculus. All the boys were operated on by lithotomy. Eighteen of the patients recovered, and were permanently cured, and two died. When possible, lithotrity ought always to be preferred to lithotomy in adults. For the successful performance of lithotrity, the stone ought to be of moderate size, and the bladder not too much diseased. The removal of a calculus by lithotrity was one thing, and the cure of the patient another thing; for there were sufferers now alive in whom surgeons had successfully removed the calculi by the lithotrite, and yet failed to cure the patients—a state of chronic cystitis and paralysis remaining. In old men the lithotrite ought only to be used for a couple of minutes at a sitting, the patients being merely confined to bed for a day or so in each week. The confinement of old men to bed was perilous. In young men large phosphatic stones might be crushed with safety. Extensive heart-disease forbade lithotrity, as patients had lost their lives while straining in passing fragments. Much information was yet required before we could ascertain the extent to which the introduction of the lithotrite had reduced the mortality after operations for stone. The median operation of lithotomy was only justifiable for small stones, and these had much better be crushed. In lateral lithotomy the stone ought to be cut and not torn out. There was no such thing as dilatation of the prostate; it could be torn, but not dilated. The external incision ought to commence low down, as thereby less blood was lost. The internal incision ought to be free, as the chief dangers incident to lithotomy were phlebitis and pyæmia, resulting from the bruising of the parts in tearing out the stone. A rectangular staff ought to be used, and held with two hands, the lower resting on the pubes. The forceps was unnecessary in children, and often in adults, for in the former the stone could be better removed by the left forefinger, and in the latter a simple polypus forceps ought to be used, when wanted, in preference to the heavy and unwieldy instrument now employed. The introduction of a tube after lithotomy was useless if there were a good assistant in charge of the case. Mr. Teevan concluded by relating the results of a personal examination of the various pathological museums, and of a series of experiments which he had performed on the dead subject.

2.—*Case of an Extra-uterine Fœtus successfully extracted from the Bladder.* By Joseph Bossuet, M. D. [Medical and Surgical Reporter, September 3, 1870.]

Although this case has remained unpublished for more than fifty years, its rarity makes it well worth reproducing in our pages:

In the month of October, 1807, Mrs. Coleman, of Braintree, Mass., found herself in a state of pregnancy, attended with uncommon distress, and some pungent pains shooting from the hypogastric to the epigastric regions. She continued in that way until the latter part of the ensuing spring, when she had all the symptoms of a true travail. She sent immediately for an accoucheur, who, not being able to come at the child by the natural passage, ordered large doses of opium, with the injunction to repeat them as often as the pains reeurred. A fortnight after that the pain abated, ... the time when I suppose the child died in the abdomen. She was for two months afterward very much troubled by a disagreeable sensation, which she called drawing.

The abdomen swelled to a very large size, which after some time gradually subsided. The three succeeding years she passed without much distress, but at the end of that time she began to experience very acute pains attended with evacuation, by the urethra, of a matter sometimes of a yellow cast, sometimes bloody and of a very fetid smell, and voided in the same time, by the same canal, some very small bones. A communication also took place between the bladder and the rectum, so as to let the fæces and urine pass either way.

During five years before my first visit to her she experienced the most excruciating pain night and day. Having been informed of my recent arrival from Martinico, with my family, and that I resided in Hingham, she sent for me the 20th of May, 1816. I visited her the same day, and, after a critical examination, found the child in the bladder (mostly in the bladder and partly in the abdomen), crusted over with a calculous matter. Considering her in a dangerous situation, I advised her to submit to the operation of lithotomy as the only means of relieving her from her sufferings. She readily consented to it, and the operation was performed by me, the 17th of June, 1816, attended by Drs. Noah Fifield, of Weymouth, and Robert Thaxter, of Dorchester, two respectable members of the Medical Society, in whose presence one hundred and forty-six bones of a fœtus, about seven months old, were extracted, together with a stone about the bigness of an olive. She has since entirely recovered, and enjoys at present a perfect state of health, without any pain whatever; but the communication between the bladder and the rectum is not yet wholly obliterated.

3.—*On Burns. From* Mr. F. C. Skey's *Clinical Lectures on some Stray Subjects of Hospital Surgery.* [Lancet, August 27, 1870.]

Surgeons have described this form of injury as affecting the human body in three degrees of severity: 1. When the skin alone is the seat of injury. 2. When the areolar tissue is involved. 3. When all the structures of the injured part are implicated. I shall not trouble you by enlarging on the various degrees of injury. I wish to draw your attention to the important subject of the treatment of burns and scalds in all their variety. Now, what is the treatment usually adopted, I do not say in this

hospital nor in that, but adopted by the surgical profession generally, and especially by the medical authorities attendant on mines, founderies, and in our larger iron-works? The affected parts are bathed in oil—carron-oil, as it is called—or oil and lime-water in combination. The patient undergoes this process of immersion or local bathing in this very harmless but equally useless compound. The virtue of the oil, it would appear, is in a ratio with the quantity consumed on each case, and therefore the great curative remedy is poured on with boundless liberality. The limb is then placed in flannel, or more commonly in coarse cotton-wool or wadding, and the patient is consigned to his bed. Now, observe, this treatment, be it good or be it bad, affords no relief from the exquisite suffering caused by a large burn, the pain of which continues uninterruptedly for several days, depriving the sufferer of sleep and indirectly of food. But in the end he recovers, and that, it would appear, is sufficient for the cause of surgery. But recollect that the cause of surgery can only be represented by surgery of the highest class, which demands the quickest recovery combined with the smallest amount of human suffering; and these essential objects are not obtained by carron-oil. The principle I am anxious to insist on as far preferable to any involved in the carron-oil treatment is exhibited in the results of the application of heat to any small burn on the hand, as from a drop of melted sealing-wax. The very smart pain occasioned by this trivial accident is entirely relieved by immersing the hand in hot water or by holding the hand to the fire for a few minutes. If this be a fact—viz., that by the brief application of an agent promoting pain (for *heat* is not essential) one important element of the injury, that of pain, is quickly relieved—there must be some virtue in the principle involved. And there is a virtue, and a very important one; for I maintain, from many years' experience in the treatment of burns, that not only is the pain far more quickly relieved, but that the cure is hastened in the same proportion.

Some half a century since this principle of treatment by local stimulants was enunciated to the profession by Dr. Kentish, of Bristol. Its value was at once acknowledged by observing men; and I think I am not mistaken in asserting that the principle was adopted in the majority of the hospitals of the metropolis, if not in all. I know that it was thoroughly appreciated by my own teacher, Mr. Abernethy, who would naturally influence the opinions of a considerable proportion of the profession. The agent employed by Dr. Kentish was spirit of turpentine, which was applied, diluted or otherwise, over the affected surface. The application was accompanied by an increase of temporary pain, which, however, passed off in the course of a few hours, and thus improved the condition of the patient. The amount of pain was in relation to the extent and severity of each injury. How it has happened that we have reinstated the fomentation and carron-oil system again I know not. I don't understand how a surgeon who has once adopted the application of treatment by local stimulants could abandon them for the negative principle of oils or warm water. I wish to recommend to your recollection the employment of a remedy on the same principle I have for many years resorted to both in St. Bartholomew's Hospital and elsewhere—viz., a solution of nitrate of silver in a proportionate strength to the extent and severity of the burn. I have used the solution in the strength of from five to twelve or more grains to the ounce of water. The lotion would, of course, be modified by the age of the person, five grains, or about five, sufficing for a child. If the whole surface be freely bathed with the solution, and entirely covered up in cotton-wool, and a moderate opiate be administered in a glass of brandy-and-water in strength proportioned to the age and habits of the patient, with the object of counteracting the sense of chilliness that will otherwise necessarily follow in all these cases, I think you

will find you have made a good start in the future management of your case. In all cases, whether of burn or scald of the external skin, I say, resort to local stimulants. The soft and soothing system, I believe, answers no useful purpose whatever beyond that of excluding air, if that be, as supposed, a great desideratum.

I prefer the solution of nitrate of silver to the turpentine of Dr. Kentish, because it can be made of variable strength to suit each individual case, and the relief it affords after its first application is yet more complete than that afforded by the latter remedy. The theory of the excellent results of the treatment of burns by provocatives, or remedies that provoke physical pain, is not very clear. It would appear that relief invariably follows a temporary increase of pain; but one is inclined to ask whether the benefit consists in the actual presence of pain, and how far the same agency—whether of fire, hot water, turpentine, or the nitrate-of-silver lotion—would be equally beneficial when the subject of the injury was placed under the influence of chloroform. This question I must refer to others more fortunate than I in having at their command a larger field of inquiry than now falls to my lot.

My advice to you is, to abjure carron-oil and all demulcents, and to adopt the treatment of burns and scalds by local stimuli.

4.—*Nephrotomy and Renal Lithotomy.* [Chicago Medical Examiner, September, 1870.]

Prof. Moses Gunn, M. D., of Chicago, read a report on Surgery at the last meeting of the Illinois State Medical Society, from which we make the following interesting extract:

In April, 1869, Mr. Thomas Smith read a paper before the Royal Medical and Chirurgical Society, on the subject of "Nephrotomy as a Means of treating Renal Calculus." In this paper it is stated that Hippocrates mentioned and recommended the operation of nephrotomy in certain cases attended by external swelling. But one case only of the operation, however, had ever occurred; that was a successful case on the person of the British consul, at Venice, by an Italian surgeon, in the seventeenth century. Since the presentation of Mr. Smith's paper, Mr. Simon, of Heidelberg, has successfully extirpated the kidney of a female patient, for an incurable urinary fistula, originating in a wound of the ureter made during an ovariotomy, In February of the present year, Mr. Durham, at Guy's Hospital, London. cut down upon the kidney for the purpose of removing a renal calculus. Unfortunately, no stone was found. But, notwithstanding, his patient was greatly relieved by the operation. Your reporter has, also, during the current spring, in contemplation of an operation which he subsequently made on the 16th of April, repeatedly cut down upon the kidney in the cadaver. In the absence of definite directions upon the subject, these sections were made in order to arrive at a safe and expeditious method of operating. The following seems to be the only safe method which the anatomy of the region will permit: An incision is carried from the eleventh rib just over the outer border of the erector spinæ muscle, to the crest of the ilium, and down upon the surface of the outer layer of the lumbar fascia; this structure is now divided upon a grooved director, and the muscle is drawn inward and backward, by an assistant, with an angular spatula. The middle layer of the lumbar fascia is next divided in a similar manner to that pursued in division of the superficial layer; this incision will call for the ligation of two or three small arteries. The quadratus lumborum muscle is now drawn inward and backward with the erector spinæ, and the anterior or deep layer of the fascia is uncovered, an incision through which brings

us to the posterior surface of the lower two-thirds of the kidney, obscured only by loose areolar tissue which contains variable amounts of fat, according to condition of the patient. Careful dissection of this tissue will now expose the hilus of the kidney and the expanded commencement of the ureter. Tactile examination will enable the operator to ascertain the size and firmness of the kidney, and also the condition of the pelvis of that organ, and the commencement of the ureter, which latter can be easily opened in case a renal calculus is found. Should the surgeon, however, desire to push his operation further, he can carefully and readily pass his index-finger around the kidney, separating it from the peritonæum; the upper extremity of the organ can now be dislocated from its position in front of the lower two ribs to a corresponding position behind them, and thus the whole organ is readily enucleated. This process of enucleation is now carried inward along the renal vessels as far as may be necessary to enable the operator to pass a stout ligature around them, after which they are divided as close to the hilus as possible.

On the 16th day of April last, as before stated, I made an exploratory operation upon a patient of Prof. Allen's, who for five months had suffered from symptoms which indicated the probable presence of a renal calculus. The operation was conducted upon the plan described above, and was performed in the presence and by the aid of Prof. Allen, Drs. Chesbrough, Parks, and Smith, the latter gentleman being an uncle of the patient. But little blood was lost, and posterior surface of the kidney was readily reached, which position enabled us to make tactile examination of the pelvis and commencement of the ureter. But, like Mr. Durham, at Guy's, we were disappointed in our expectations of finding a calculus. The organ seemed shrunken and soft, but was not interfered with, as the patient had enjoined upon us that in no event should the kidney be extirpated. A pledget of lint was laid on the bottom of the wound, and with three ligatures was brought out at its lower angle, the upper half being closed with three sutures. The operation was borne well, though the patient was greatly reduced from his long and severe suffering. Like Mr. Durham's patient, ours, too, was greatly benefited by incision; the nausea which had been nearly continuous and extreme, was completely relieved, and the pain, which had been severe, wholly disappeared.[1]

As some very erroneous statements have been made and circulated regarding Prof. Simon's case of nephrotomy, alluded to in the above paper, we copy from the *Edinburgh Medical Journal*, of May, an account of the case by the operator. Prof. Simon states that this abstract must be accepted only as a provisional communication, and that it was prepared solely to correct the inexact statements above referred to. A complete and detailed narrative will probably be made hereafter:

Our patient (a laborer's wife, aged forty-six) was operated upon by Dr. Walther, of Offenbach, on account of a cystoid tumor of the ovary, one year and a half previous to her admission into the Heidelberg Surgical Clinique.

After the abdominal incision was made, it was discovered that the ovarian tumor was so intimately connected with the very enlarged uterus that that organ had to be removed at the same time as the degenerated ovary—i. e., that ovariotomy had to be combined with hysterotomy. But the ovarian tumor was not alone connected with the uterus, but also with

[1] The improvement was of six weeks' duration, after which time the old symptoms gradually reappeared.

the left ureter; so that, at the removal, the ureter was severed in its whole circumference.

The patient recovered, but an abdominal-uretral fistula remained, through which all the urine which was produced by the left kidney involuntarily escaped. I attempted to cure this intolerable state by trying to make a communication between the ureter and the bladder, and by a subsequent occlusion of the abnormal passage, which opened through the abdominal walls and into the vagina. But after many unsuccessful attempts, during which even the life of the patient was several times at stake, we had ultimately to give up this plan of cure. Attempts to produce artificial occlusion of the ureter (and by that means obliteration of the kidney) had also to be abandoned on account of very dangerous symptoms, which made a favorable result most doubtful.

Ultimately I contemplated extirpation of the kidney. By perusing the literature of the day, by experimenting on dogs, by anatomical researches, and by comparing this operation with other somewhat similar operations which had been introduced into surgery, I had convinced myself that, in our case, nephrotomy was not only justified, but even indicated. Consequently, I performed extra-peritoneal nephrotomy in presence of a great number of medical practitioners and students, after having stated the reasons which, in my opinion, urged me to perform the operation. The patient stood the operation pretty well, and, after six weeks, was so far advanced toward recovery that she could leave her bed. The ligatures of the pedicle did not show any sign of detachment, so I did not try to remove them forcibly, because there was increased suppuration and pain whenever strong traction was made. After six months the ligatures came away with comparatively slight traction. Two days afterward, the sinus in which they were embedded was closed, and thus the whole wound was cicatrized.

After the ovario-hysterotomy there remained a contraction of the muscles of the calf of the right leg, which took a long time to cure. The patient, whose health, as may well be imagined, had been seriously impaired in consequence of all the operations which she had undergone within three years, is now in a most satisfactory state of health. She is engaged all day in needlework, and sometimes takes long walks in the environs of Heidelberg. The reason that she has not been long ago discharged is, that we wished to have her as long as possible under observation, and because we knew that she must, on going home, return to very reduced circumstances.

These are the chief points of our operation, which hitherto has not been attempted in man. In a pamphlet on the case, which will be published in a couple of months, I shall enlarge on the admissibility of nephrotomy in my case; then I shall give the history of the case, and describe the operation, and shall discuss the bearing of my case on the operative treatment of some diseases of the kidney; concluding with observations at the bedside, and the relation of the experiments on animals, which I have deemed necessary for the decision of some physiological and pathological questions no less interesting than important.

5.—*Almost Complete Severance of the Body without a Break in the Skin.* [British Medical Journal, August 20, 1870.]

R. A., aged nineteen, a telegraph clerk, was seen near Camden Road Station at 11.50 on the night of Saturday, June 26th. He was then sober, had over two pounds of money in his possession, and stated his intention of going to Euston Square by the 11.56 train. Although he was known to the officials, and there were very few passengers, no one saw him get in at

Camden Road, or get out at Euston Square. The ticket-collector also said that he should have recognized him at once had he been in the train. The train, after discharging at Euston, was backed into a shed; and, as two shunters, who had performed this duty, were returning along the line which the train had just passed over, they found R. A. lying on his back just inside the station, straight across the outer rail, with his head between the rails, and his hat tilted over his eyes. He was alive when found, but died in a few minutes. The body was at once brought to University College Hospital. It was clothed in a long jacket, waistcoat, and trousers, of thick, coarse cloth, on which the marks of the carriage-wheels were plainly visible. Only a few pence were found in his pockets. There was not the smallest wound on the body, and only a few abrasions of cuticle across the abdomen. After some hours, pretty extensive ecchymoses appeared. On opening the abdomen, all the abdominal muscles were found completely cut through horizontally, retracted, and curled up, leaving a gap five or six inches wide. The back muscles were in the same condition. The right kidney was cut in half. The transverse colon and a large piece of the ilium were lying free in the abdomen; and the body of the third lumbar vertebra was crushed literally to powder; every thing was divided except the skin. The rest of the body was healthy.

The case excited a good deal of interest at the time, and remarks on its occurrence appeared in most of the daily papers. Some suggested suicide; but suicides generally put the head or neck on the line. The position of the body, laid out quite at right angles to the rail, with the hat on the face, favored this view; but no motive was made out. Many seemed to think he had been stunned, robbed, and thrown out; but the absence of any bruises, and the position of the body, almost negatived this view. His money was loose in his pocket, and probably fell out in the moving. Lastly, the driver declared that it was impossible that he could have been run over at all; for, besides the three carriages and break-van, his engine weighed over thirty tons, and must infallibly have cut him in half. So it did, except the skin, which was protected by three layers of thick cloth, etc. Neither driver nor guard felt any shock as the train passed over him. Altogether, the case presents several points of great medico-legal interest.

6.—*Complete Dislocation of the Tibia forward; Gangrene; Amputation; Recovery.* By J. W. Thompson, M. D. [Nashville Journal of Medicine and Surgery, October, 1870.]

W. B——, a steamboat mate, aged about twenty-eight years. The left tibia was dislocated forward, by explosion of the steamer Phantom, September 14, 1869. I saw him two or three hours after the accident, and had him conveyed to St. Vincent's Infirmary. On examination, I found the head of the tibia pushed considerably forward, and the condyles of the femur resting beneath the muscles of the calf of the leg.

After putting him under the influence of chloroform, with the aid of two assistants, flexing and extending the limb, with my knee resting just below the popliteal space, I succeeded in reducing the dislocation.

The circulation in the leg was feeble, and continued to become more so, notwithstanding the limb was enveloped in large flaxseed-poultices, and other stimulating applications were used, until the fifth day, when dry gangrene commenced, and continued to progress, and, on the eighth day, the entire limb was gangrenous to the knee.

On that day, after consultation with Drs. R. Saunders, D. H. Maxwell, J. G. Brooks, and H. M. Gilson, I amputated the thigh in lower third, as-

sisted by the three gentlemen last named. In about two or three hours I called to see my patient, and I never witnessed such excessive perspiration. It was so profuse, that two of the Sisters of Charity, constantly rubbing him with cloths, could not keep it removed. The prostration was so great that I almost despaired of being able to bring about a reaction. I directed for him twenty drops of tinct. ferri chloridi, with two grains of quinine, every hour or two, according to circumstances; also whiskey and milk, freely. The stomach would not retain the whiskey, but the other remedies were continued promptly during the night, and the next morning I found my patient somewhat reacted, and presenting more favorable indications. He continued to improve, and at the end of six weeks he was discharged from the infirmary, the stump almost entirely healed.

Dr. J. G. Brooks examined the limb after it was amputated, and found the coats of the popliteal artery and vein very much lacerated. These vessels were torn and compressed by the downward thrust of the condyles of the femur.

That dislocation is attended with the greatest deformity. I never saw such a dreadful deformity as this case presented. A considerable number of citizens had collected at the wharf to see the unfortunate wounded, and I heard many of them remark, "That limb is broken all to pieces." I merely instance that, to indicate the appearance of this limb.

Surgical statistics show this to be a very rare dislocation. Prof. Gross, in the last edition of his work on Surgery, states that he has never met with but one case. Prof. Hamilton, in his work on Fractures and Dislocations, copies the notes of four cases of this dislocation, and states that "B. Cooper, Malgaigne, Little, and others, have recorded examples of this accident."

As this dislocation is of rare occurrence, and thinking this case presents some points of interest, I have concluded to offer it to the notice of the profession.

7.—*Avulsion of the Arm and Scapula; Recovery.* By T. E. Jones, Esq., Llanasa. [British Medical Journal, May 28, 1870.]

Compare, with this case, that referred to in the February (1870) number of the Journal as occurring in the practice of Dr. S. W. Thayer, of Burlington, Vt.:

On November, 1869, Joseph Parry, aged eleven, met with an accident at Trelogan Lead Mine. Early that day, when he went to work, he found a piece of loose rope, and threw it over a cog, or rather a hook, which was in motion. His coat and arm became entangled in the rope, and he was dragged between an iron rod and a wooden frame six inches apart. The machine, being worked by steam, could not be stopped immediately; consequently, his right arm with the scapula attached was clearly drawn off. The median and ulnar nerves remained hanging down his side like two white strings. The humerus was fractured in two places—at the middle and at the surgical neck. There was also a wound skin-deep seven inches long in the left groin, which healed by the first intention. He lost some blood, fainted, and fell into a heap of gravel, which filled the wound. When I saw him between 8 and 9 A. M., he was in a state of collapse; his pulse was scarcely perceptible; his feet, hands, and face, were cold and livid. Warm bottles were applied to the feet and body, and brandy-and-water was given every fifteen minutes. It was 3 P. M. before reaction was fairly established. I then cleaned the wound of the stones, removed the median and ulnar nerves, and, after some difficulty, secured the axillary

artery, which was surrounded by the brachial plexus. Two other small arteries were also tied. I next removed a piece of the clavicle two inches long to enable me to bring the parts together, which were kept *in situ* by metallic sutures. The wound was dressed every four hours with solution of carbolic acid. A fourth of a grain of opium was given night and morning, and continued for a fortnight. Brandy, beef-tea, and milk, were given frequently.

November 30th.—He had passed a restless night, and was sick and feverish; pulse 120, tongue furred. He was ordered to take every third hour a tablespoonful of a mixture containing a drachm of chlorate of potash and half an ounce of liquor ammoniæ acetatis in four ounces of water.

December 1st.—He had had a good night, and was less feverish; pulse 90. He passed no urine since the previous evening, and his bowels were not moved. He was ordered to have a senna-draught immediately. Warm fomentations, by means of wet flannels, were applied to the abdomen.

December 2d.—He had passed a good night, and voided urine freely; pulse 80, tongue clean. The bowels were not moved. He was ordered to have immediately two grains of calomel and a scruple of jalap. In a few hours after taking the powder, the bowels acted.

December 5th.—The wound was looking healthy. Three of the sutures were removed.

December 6th.—The remaining sutures were removed. The wound was dressed with long narrow strips of plaster an inch apart, and solution of carbolic acid was applied as before. This treatment was continued for about three weeks, when the wound was healed, except where the ligatures were. One of the ligatures came off on the seventh, and the other two on the eighth week; and the lad was perfectly well, and running about.

I found the opium and carbolic acid most useful in this case.

8.—*Paracentesis Thoracis in Acute Pleurisy.* [Paris correspondent British Medical Journal.]

Since Dr. Peter took charge of the medical clinic at La Pitié, on the 1st of January of the current year, up to this date, he tells me that he has performed paracentesis of the chest in nine other hospital cases. From the official records I have derived (with permission) the following particulars. The last four cases on the list came under my own observation:

1. *January.*—Diagnosis: Pleurisy of the right side, consecutive to pulmonary apoplexy. Organic disease of the heart. Result: Death. The fatal result, retarded by the operation, followed a succession of morbid symptoms caused by the cardiac disease.

2. *February.*—Diagnosis: Tubercular pleurisy of right side. Result: Death. Relief followed the operation; and death took place five months afterward, from the progress of the pulmonary phthisis.

3. *March.*—Diagnosis: Chronic pleurisy of the left side. Result: Cure.

4. *April.*—Diagnosis: Acute pleurisy of the left side. Result: Cure.

5. *May.*—Diagnosis: Acute pleurisy of the right side. Result: Cure.

6. *May.*—Diagnosis: Scarlatinous empyema of the left side. Pericarditis. Result: Amelioration. In this case there was a fresh attack of pleurisy; and at the same time phenomena depending on pulmonary tuberculosis.

7. *June.*—Diagnosis: Acute pleurisy of the left side. Result: Cure.

8. *July.* Diagnosis: Acute pleurisy of the left side. Result: Cure.

9. *July.*—Diagnosis: Pleurisy of the right side in an individual in whose family phthisis is hereditary. Result: Cure.

10. *October.*—Diagnosis: Particulars given above. Result: Cure.

It appears, then, that, taking into account all the hospital cases, ten in number, in which paracentesis of the chest has been performed by Dr. Peter since he took charge of the clinical wards of La Pitié in January last, the results have been most satisfactory—as satisfactory as those recorded by Trousseau. In fact, the results obtained were as good as it was possible to expect. The cure was complete in seven cases; in one case, complicated with scarlatina and tubercular disease, there was amelioration; and, in the two cases in which death occurred, the operation prolonged life, and afforded great relief; the fatal issue being ultimately caused by the primitive protopathic disease, of which the pleurisy was an epiphenomenon.

In this connection we may compare with interest the results of M. Dupré's (of Montpellier) experience as detailed in a paper read to the French Academy of Medicine:

He commenced by dividing cases of pleuritic effusion into three principal classes: 1. Those inflammatory effusions accompanying or succeeding to true pleurisies. In these the operation is unnecessary, as they tend, as a rule, to get well without it. 2. Serous effusions or hydropsies, the result of organic lesions. The special dangers of the lesions which cause the effusions, and the tendency to increase and recurrence, show that in these cases the operation is ineffectual. 3. Those cases which the author calls rheumatismal or scro-plastic effusions. These latter are in some cases connected with pleurodynia, neuralgia, and articular rheumatism, with great pain and without a proportional amount of fever. In these cases the effusion occurs without pain, oppression, cough, dyspnœa, or even fever, with little loss of sleep or appetite; yet the patient is pale, full inspiration is checked, the decubitus is confined to one side, there is *malaise*, the pulse is irregular, perhaps dicrotic; there are signs enough to show what is wrong even without the exact evidence of a physical examination.

Against the latter cases, a purely medical treatment is slow in its effects, uncertain in its results, in some cases quite powerless. The slowness of its action permits injury to organs which may be irreparable, and even exposes the patient to the risk of sudden death.

M. Dupré shows that evacuation of the fluid by operation can prevent these accidents, and that the trifling operation in itself adds nothing to the danger of the case.

He has operated seventy-six times, with the following results:

Operated on during second week,	47;	cured, 46;	died, 1
" within first month,	19;	" 15;	" 4
" within second month,	8;	" 5;	" 3
" fifth month,	1;	" 1;	" 0
" seventeenth month,	1;	" 1;	" 0
Total,	76;	" 68;	" 8

Unless there are any special indications, M. Dupré makes the puncture in the sixth intercostal space on the right side, and the seventh on the left, in a vertical line, extending from the centre of the axilla to the hypochondrium.—*Gazette des Hôpitaux*, No. 37, 1869.

9.—*Amputation of the Scapula with the Arm.* By Kenneth McLeod, M. D. [Edinburgh Medical Journal, December 1869, from Indian Medical Gazette, September, 1867.]

To complete our record of the cases wherein this formidable surgical procedure has been adopted, we append the following. Our previous record (January, 1869, and February, 1870) comprises, we have every reason to believe, all the cases hitherto published:

On Saturday, June 29, 1867, a boy, about two years old, was brought to the Jessore Charitable Dispensary with an enormous tumor of the right arm, extending from the elbow to the infra-spinous fossa of the scapula. The child's parents stated that the tumor had existed at birth, and was originally small, but that it had increased much and rapidly of late, and that the child had strong fever, and was falling off in health. The tumor measured seventeen inches in circumference, and was tense and fluctuating; the skin covering it was smooth and distended, and the superficial veins much enlarged. The patient was in a high fever, and, though not much emaciated, was wan and feeble-looking.

An exploratory puncture was made with a small trocar, but only a few drops of straw-colored fluid issued. After a careful examination I found that the tumor was so intimately connected with the muscles in the infra-spinous fossa, that any operation for its removal must include the scapula. Believing that the fever was symptomatic, finding the other organs healthy, and feeling that amputation gave the only chance of saving the child's life, I proposed it to the parents, and obtained their consent. The operation was performed on the 30th June. The patient having been put under chloroform, I took a semi-lunar flap from the front of the armpit and shoulder, and cut down at once through the pectoralis major and minor on the axillary vessels. These were secured immediately with a ligature; but the vein discharging copiously, and a large branch (acromial) quite close to the ligature on the artery bleeding actively, I passed a needle, through the skin under the vessels, and thrust the point outward and upward so as to rest on the clavicle. This expedient *completely and at once* stopped all bleeding. The remaining steps of the operation were rapidly performed. The clavicle was cut through, and the scapula drawn out from the body; the axillary glands, which were enlarged, were swept away. The serratus magnus were severed close to its scapular attachment; the trapezius, omo-hyoid, and levator anguli scapulæ were divided at their insertions; the rhomboids were next cut, and the latissimus dorsi divided near its insertion. The whole arm and scapula were then removed. The supra-scapular artery was the only one requiring ligature, and the semi-lunar flap fitted accurately into the concavity of the other flap. The whole wound was sutured, and looked exceedingly neat. The child recovered from the chloroform, began to move about, and drank some milk. I gave directions for its management, and left it in hopes that all immediate danger was past. I was greatly mortified when I heard that, soon after I had left the child, it grew pale, showed signs of oppressed respiration, and soon died. Death could not have been caused by loss of blood, for the amount lost was comparatively small; so that I am forced to the conclusion that the shock of the operation, coupled with its previous condition, was too much for the child.

I made two deep incisions through the tumor, one on its radial, the other on its ulnar side. The former laid open a number of cells or cavities, lying in firm white tissue. These cavities communicated with each other, and contained some soft, friable, curd-like matter, and a straw-colored fluid, which coagulated on emission. In some of them a colloid substance was apparent. The ulnar incision showed a soft, elastic, homogeneous mass, with a tendency to the formation of cysts and softening.

The diseased mass was nowhere bounded by any cyst, but was gradually lost in the healthy parts. The bone was not involved, but all the muscles of the arm and infra-spinous fossa were more or less diseased. All the morbid texture had been removed by the amputation.

No *post mortem* of the body was obtained. The tumor was forwarded to the Medical College Museum, and its microscopic appearances are thus described by Dr. Colles, the officiating Curator, in a letter to me:

"The 'soft, friable, curdy matter' contains hardly a trace of stroma. It consists, besides a large quantity of fat globules and granules, of cells, some of which are oval or circular, with granular contents, and without nuclei. Others are polygonal, fusiform, or caudate, with well-marked nuclei, and (in many cases) nucleoli—and, in short, possess all the characters of the so-called 'cancer-cell.' The firm white tissue of the tumor contains the same elements, entangled in the meshes of a remarkably dense and closely-woven stroma of white fibrous tissue."

10.—*Ligature of the Internal Iliac for Diffused False Aneurism in the Gluteal Region.* By Prof. Gallozzi, of Naples. [British Medical Journal, January 22, 1870.]

A young man, named Domenico Grammatico, came, on March 22d, under the care of Prof. Gallozzi. About the middle of February he had been stabbed in the upper and inner part of the right gluteal region. The instrument passed obliquely downward and forward. There was much hæmorrhage, from which he fainted; it recurred after the first dressing, but was arrested by perchloride of iron, and cicatrization took place rapidly. About a week after he had left his bed, he began to feel pain extending from the wounded part to the whole of the corresponding limb. The medical man whom he consulted at once detected a large pulsating tumor in the gluteal region, and sent him into hospital. On his admission, Prof. Gallozzi found a vast tumor extending from the crest of the right ilium to the sulcus of the nates, and in a horizontal direction from the middle of the crural arch nearly to the middle line of the sacrum. From the iliac crest to the sulcus of the nates, the measurement was thirty-five centimetres, against twenty-five on the sound side; from the middle line of the sacrum to the anterior superior spine of the ilium, the distance was thirty-five centimetres against twenty-five; and transversely, from the middle of the iliac crest to the anus, thirty-five centimetres against twenty-seven. The skin covering the tumor was unchanged, except at the upper and inner part, where the cicatrix (nine centimetres long by six wide) was seen. On pressure, deep fluctuation was detected; and palpation revealed an extensive pulsation synchronous with the heart's action. On auscultation, an intense blowing sound was heard; both it and the pulsation were arrested by pressure on the abdominal aorta—a process which gave much pain. The inguino-crural region was distended with infiltration of blood under the facia, from the gluteal region to the crural arch. The abdomen was tense; percussion over it gave normal results. The patient complained of pain in the whole of the right lower limb, and of cramps in the upper limb of the same side. His countenance was very pale. He had daily febrile attacks, preceded by short rigors; the temperature during the attacks was 100.75, and the pulse 106. For some days after admission, he had difficulty in passing urine, and constipation. Pounded ice was at first applied, in the hope of arresting the progress of the tumor, or at least rendering it stationary, while the patient was being prepared for operation; it continued, however, to increase. Attempts were also made to compress the abdom-

inal aorta, but were always unsuccessful, on account of the pain which they produced. After fully considering the various methods by which gluteal aneurisms have been treated, and the possibility of their application, Dr. Gallozzi determined on tying the internal iliac artery. An incision in the form of a C, or rather of a horseshoe, was made over the region of the vessel through the integuments and muscles as far as the fascia transversalis; this was torn open with the finger, after a small opening had been made in it on a dilator. The peritonæum was then raised by carefully separating the connective tissue, and the external iliac artery was soon reached. After some further careful manipulation, the internal iliac was seen and felt. The peritonæum, with the contained viscera, was held aside by an assistant (Signor Jennaro) by means of a metallic spatula (a part of Jobert's speculum); this threw the light on the tissues lying deeply in the pelvis, and especially on the part where the internal iliac artery lay. Having ascertained that compression of the artery entirely arrested the pulsation in the tumor, Dr. Gallozzi proceeded to tie it. In doing this, he carefully introduced a small needle (Cooper's), armed with a ligature of three threads, between the vein and the artery, and seized the ligature, when it appeared on the other side, with polypus-forceps. The ligature (which had been placed on the middle of the artery) was then tied. One end was cut off; the other was brought out through the incision. Scarcely a drop of blood was lost. The operation-wound was closed at three points by twisted suture, the lower angle being left free. The patient bore well the operation, which lasted about forty minutes; some spoonfuls of Marsala wine being given to him from time to time. The tumor very soon diminished in size; the pain in the limb entirely ceased. There was no need of wrapping the limb in flannel or other covering in order to maintain its heat, as the circulation in it was not interfered with. On the morning of the operation the temperature of the patient was 102.1, and his pulse 106; in the evening and on the following day, the temperature was 100.2, and the pulse 96; and on the fourth day the temperature was 98.6, and the pulse 70. There was no pain in the peritonæum, nor any trouble in the abdominal region; the pains and cramps entirely disappeared. For the first three days the patient was fed on gelatinous broth with eggs and milk, and had for drink an acidulated solution of quinine; an opiate was given in the evening. Cold was at first applied to the abdomen, but was discontinued, as there were no symptoms of peritonitis. The operation-wound healed favorably, and the ligature came away on the eighteenth day without secondary hæmorrhage. All appeared to be going on well, when, on the fortieth day, it was found that suppuration had taken place in the remains of the aneurismal tumor, accompanied with some fever; and, at the end of May, it became necessary to make incisions. The continued discharge by suppuration of large clots, and the change produced in them by the contact of the air, placed the patient in danger of dying of ichorrhæmia, especially as, through some error in diet, an obstinate diarrhœa set in. The wound in the abdominal wall again opened; and the peritonæum on the one side and the psoas and iliacus muscles on the other were exposed "as if they had been prepared by careful anatomical dissection." This state was accompanied by fever; the temperature being 102.2, and the pulse 160. The diarrhœa was arrested by remedies, and solutions of hyposulphite of soda were frequently and regularly administered; and, on June 27th, the patient was well enough to be sent into the country, where he perfectly recovered his health.

11.—*Rupture of the Bladder in a Woman.* [Dublin Quarterly Journal of Medical Science, February, 1869.]

Mr. M. Collis exhibited at a meeting of the Dublin Pathological Society a specimen of rupture of the bladder in the female, resulting from external injury, a lesion so very rare, that some considered its occurrence as barely possible. The patient, who was a woman of intemperate habits, retired to bed on the night of the 7th September, without relieving her bladder, and got up in the course of the night for that purpose. Not succeeding, she endeavored to get into bed again, but fell across the footboard. She fainted at once, and was lifted into bed, and in the morning complained of inability to pass water, and said that she had felt something give way. On the third day after the accident she was brought to the Meath Hospital in a state of collapse. A large male catheter was introduced, and about half a pint of urine, mixed with blood and clots, drawn off. About the same quantity trickled away afterward, and she voluntarily passed water more than once. She died upon the following day, the fourth from the date of the injury. There was an ecchymosis on the front of the abdomen, where the blow had been received.

Upon examination, *post mortem*, a large transverse rent, which admitted the points of the fingers, and with rugged, irregular edges, was found in the anterior wall of the bladder, which was in a contracted state. This large aperture communicated with a gangrenous cavity of considerable size in the neighboring cellular tissue. There was no communication with the cavity of the peritonæum, which, however, contained a pint of turbid serum, and was inflamed in the vicinity of the bladder. In his remarks on the rare occurrence in the female, of the injury in question, Mr. Collis alluded to the memoir of M. Homël, in which forty-five cases of rupture of the bladder were recorded; five only of these occurred in females, one of them, moreover, being an example of spontaneous rupture.[1] He also alluded to the explanation of the circumstance offered by the late Dr. Harrison, who ascribed it not only to the greater size of the female pelvis, but also to the fact that the distended bladder in the female "does not incline so much backward as in the male; on the contrary, it enlarges more forward, and in the transverse direction; while the uterus and its lateral folds may assist to break the shock of any external violence applied to the hypogastric region, and to prevent the direct concussion of the bladder against the sacral promontory."[2] Mr. Collis alluded to a case recorded by Prof. R. W. Smith in the twenty-fifth volume of the *Dublin Journal of Medical Science*, of a female aged fifty, who, while intoxicated, had fallen across the edge of a tub, and died at the end of five days. The rent in the bladder was very large, transverse in its direction, and situated in the posterior and upper part of the organ, where covered by peritonæum, and different from what occurred in the case before the Society. In conclusion, Mr. Collis drew attention to the few recorded instances of recovery from this formidable injury; one was related by M. Chaldecott, in the *Lancet* (October, 1846); another occurred in the practice of Prof. Syme; a third in that of Denonvillier; and lately a fourth had been recorded by Dr. Thorpe, of Letterkenny.

12.—*Strangulated Femoral Hernia.* By Joseph Bell, F. R. C. S. [Edinburgh Medical Journal, August, 1869.]

Mr. Bell here narrates briefly the history of fourteen cases which had come under his observation, and in which, taxis

[1] Des Plaies et des ruptures de la vessie. Thèse de concours pour l'aggrégation, Paris, 1857.

[2] Dublin Journal of Medical Science, vol. ix.

having failed, recourse was had to operation. Of these cases nine were women, all of whom recovered; five were men, three of whom died, which affords an illustration of the generally-received opinion that femoral is more dangerous in the male than the female subject. The oldest patient was aged eighty years, the youngest twenty-six years. Mr. Bell calls attention to four points in connection with these cases:

1. That in one case only was I able to feel justified in leaving the sac unopened.

2. That in every case where the bowel was not absolutely gangrenous, I returned it, even though peritonitis had begun, trusting simply to opium, and the avoidance of purgatives, to combat the peritonitis.

3. The very satisfactory result in obtaining a radical cure in the case where, after relieving the constriction and returning the bowel, I at once sewed up the neck of the sac.

4. The extreme danger of delay in every case, but more especially in cases when the rupture is of recent occurrence.

13.—*The Propriety of the Removal of Meckel's Ganglion in Neuralgia of the Second Branch of the Fifth Pair of Nerves.* By P. S. Conner, M. D. [American Journal of the Medical Sciences, October, 1870.]

Dr. Carnochan, in his report of the cure of neuralgia of the second branch of the fifth pair, by exsection of the superior maxillary trunk, says that *the key of the operation is the removal of the ganglion of Meckel, or its insulation from the encephalon.*

Dr. P. S. Conner, of the Medical College of Ohio, has, in an able paper, examined this proposition by the lights of anatomy and physiology, and statistics, and arrived at an adverse opinion. He says:

If surgical interference seems necessary, infra-orbital neurotomy ought to precede deep section of the superior maxillary trunk. When pain returns again and again in spite of the various operations performed, an intra-cranial or constitutional cause of the neuralgia may be accepted, and a recurrence of pain must be expected as soon as the patient recovers from the shock of the operation, and the recognized temporary palliative influence of hæmorrhage has passed off. But "neurotomy is not applicable to certain neuralgias of cerebral origin, such as those of which Trousseau has given so good a description under the name of 'Epileptiform Neuralgia;' nor should it be practised if the neuralgia depends upon constitutional troubles, such as rheumatism, syphilis, and the like." [1]

It is in just those cases, however, that are of intra-cranial origin or of the epileptiform variety, that neurotomy after the method of Carnochan will be thought of; for it is such cases that resist other less violent treatment, and such in which *all* curative measures will very probably, Trousseau says very certainly, fail. If the "Carnochan operation" has been performed, and the pain has returned, surgical interference, so far as the second branch of the fifth pair is concerned, has reached its utmost limit. The other trigeminal trunks and the portio dura at its point of emergence

[1] Follin, Traité Élément. de Path. Ext., tome ii., p. 241.

may be divided (Dr. Schuppert's case shows with some hope of producing permanent relief), but the superior maxillary trunk has been removed as far back as it can be reached with the knife. Recourse then must be had to electricity and narcotics, and by one or both, considerably protracted, relief may often be obtained.[1] As experience has shown that similar relief may frequently be secured by the same means without any precedent operation, the latter should be performed, if ever, only after the most thorough trial of every other recognized means of treatment has failed to secure relief; and when the superior maxillary trunk is exsected back to the foramen rotundum, the "removal of Meckel's ganglion or its insulation from the encephalon" cannot on either anatomical or physiological grounds be considered of importance, much less the "key of the operation."

Of the anatomy he writes:

The spheno-palatine ganglion receives sensitive fibres from the second branch of the fifth pair, motor from the seventh, sympathetic from the carotid ganglionic plexus. It sends out branches to the mucous membrane of the nose, palate, and pharynx, to the levator palati and azygos uvulæ muscles, to the musculo-fibrous capsule surrounding the eyeball and its striated muscles, and to the walls of the internal maxillary artery and its branches.

With regard to the physiology of the ganglion, little is known with certainty, and there is much diversity of views not only as to its office, but even of its nature; whether it is allied to the spinal or sympathetic ganglia. The weight of authority is in favor of its being more allied to the sympathetic than to the spinal. Moreover, it is not always present, hence it is not an essential part of the sensory nervous system. It is quite certain that Meckel's ganglion cannot exert the exaggerating influence claimed for it, and, "if, as Alcock[2] maintains (and there is good anatomical ground for him to rest upon), it does not belong to the fifth pair, but is merely connected with it, in what respect can it be considered the 'key of the operation,' or of what advantage can it be to remove or isolate it, except in cases of neuralgia, resulting from disease of or pressure upon the nerve-fibres in the palatine canals, or the nasal and palatine mucous-membranes; and in these cases only because it is so connected with the sensitive trunk of the nerve-fibres, that section of the latter must necessarily separate it from the encephalon so far as its sensitive root is concerned?"

The exsection of the superior maxillary nerve back to the foramen rotundum would only be thought of in the most aggravated form of this neuralgia, particularly in the epileptiform variety. But these cases, in which the operation might seem justifiable, are the very ones in which, from the cause of the neuralgia, there is little or no prospect of any other than very temporary relief. If it were local disease of the

[1] As, for example, in the case operated on by Billroth, and reported by Wiesner (No. 9 above).

[2] Cycl. Anat. and Phys., vol. iii., p. 285.

infra-orbital nerves or its branches that was the *fons et origo mali* there might be good reason for the exsection of the nerve, from before its entrance into the infra-orbital canal. But notwithstanding the enlarged and congested nerve-trunks that have at times been removed, in at least the great majority of cases, the real cause of the neuralgia is either constitutional or of centric origin. If permanent relief followed the operation, it would little matter whether the lesion were peripheral or central. But if it is a fact that the relief is only temporary, and in a considerable proportion of cases of not longer duration than the intermissions secured by less formidable operations, then it becomes a serious question if the "Carnochan operation" is not an "act of desperation." The clinical record of this operation seems to support this view:

1. Carnochan. "Entirely free from neuralgic pain" at date of report, *fourteen months* after operation.

2. Carnochan. "Free from pain" *two months* after operation.

3. Carnochan. "Progressing favorably" *twenty-eight days* after operation.

4. Weinlechner. "Result *dubious*."

5. Nussbaum. "Pain had entirely ceased up to time of publication," *several months* after the operation.

6. Wagner. "Recurrence of pain after *three months*."

7. Schuppert. "The pain returned, and before I finally succeeded in relieving the sufferer permanently I performed several other operations, tying the carotid artery and resecting the facial nerve at the foramen styloideum. It is now over one year since I performed the latter operation, and the man has never since been afflicted with the slightest pain."

8. Schuppert. "After the lapse of *several years*, no return of the pain has taken place."

9. Billroth. Pain recurred in about *six weeks*.

10. Blackman. Pain returned in *sixteen months*. At times as severe as before operation.

11. Mussey. "While relieving greatly, it did not release me from suffering, until a section of the inferior dental nerve was taken out. After this for quite four months I enjoyed perfect immunity from pain. The pain returned again, and has been constant ever since." The second operation was performed three and a half months after the removal of Meckel's ganglion.

12. Podrazki. Pain *very soon* felt in the supra-orbital branches. Supra-orbital trunk exsected in its course along the upper part of the orbit, *eleven days* after first operation. Pain had not returned *fourteen days* later.

13. Foote. Pain returned in *three months*. As yet of moderate severity.

Whole number of operations	13
" " in which pain is known to have recurred	7
Of these *seven* the return was—	
at time not stated (No. 7)	1
within *one month* (No. 12)	1
within *two months* (No. 9)	1
in *three months* (Nos. 6, 13)	2
in *eight months* (No. 11)	1
in *sixteen months* (No. 10)	1

Of the *six* in which return of pain has not been reported, the history is known for—

"*several years*" (No. 8)	1
"*several months*" (No. 5)	1
fourteen months (No. 1)	1
two months (No. 2)	1
twenty-eight days (No. 3)	1
The result was at time of report "dubious" in (No. 4).	1

Granting that, in all the six cases in which we have no knowledge of return of pain, there was no such return, the operations were successes, and the neuralgia was in each *permanently* relieved by the exsection of the superior maxillary nerve back to the foramen rotundum; yet in at least fifty per cent. of the operations the freedom from pain afforded did not continue a year and a half. It may with propriety be supposed that the percentage of failures much exceeds the fifty per cent. just stated. In accepting as successful cases all in which the result of the operation has not been fully given, we cannot certainly be accused of a want of liberality. Is a few months' freedom from pain to be considered indicative of the success of the operation, and is this operation the only means by which such freedom has been or can be secured? In Stromeyer's opinion, "fourteen months is no success;" and there are numerous cases on record of prolonged relief secured by medical treatment, and by section of the nerve in the infra-orbital canal, or just external to it. For example, Fothergill reports[1] (and reference is made to his case not so much because of the length of time as because of the connection that his name has with trigeminal neuralgia) at least a year's relief secured in a "most obstinate" case by the persistent use of the "ext. hemlock." Again, Wagner[2] secured not less than fourteen months' relief in at least eight cases by excising portions of the infra-orbital nerve, varying from eleven to eighteen and a half lines in length; in five of these eight the relief being for at least two and a quarter years. Patruban, by excising three-quarters of an inch of the nerve in the infra-orbital canal, procured fifteen months' relief for the patient upon whom Podrazki afterward operated (No. 12 above).

Prof. George C. Blackman, in the same journal, reporting the sequel of his case, mentioned above, writes of four cases:

Of four cases in which to my knowledge exsection has been performed by other surgeons in Ohio, but one remains free from pain, and in this case only some three or four months have elapsed since the operation. I am informed by Dr. Carson, of Middletown, that in his case the patient was relieved for one year.

14.—*Excision of the Tongue for Epithelioma.* By J. T. Gilmore, M. D. [From Report on the Surgery of Mobile, Alabama, for the Year 1869.]

During the month of August last, a gentleman from the interior of Mississippi, Mr. High by name, came to this city seeking advice for an ulcer that occupied the left portion of the tongue, in size as large as a silver half-dollar. The disease extended far back upon the organ, occupying the entire arch. The ulcer was excavated, and would contain at least a dessert-spoonful of fluid in its cavity, and was surrounded by an induration characteristic of its nature. His history, as given to me, was that he was

[1] Elliott's Fothergill's Works, 1782, p. 436.
[2] Schmidt's Jahrbücher, B. 146, p. 64, *et seq.*

by profession an apothecary, and up to the previous Christmas had been in possession of uninterrupted health, being now in his fifty-fifth year. At the time mentioned, his attention was attracted by a slight soreness experienced from the movements of his tongue, and examining carefully, he found a small lineal crack or fissure situated near the left margin, on the dorsal surface, opposite the last molar tooth. As it did not disappear after using several simple applications that occurred to his mind, he consulted a physician, who applied solid nitrate of silver several times weekly. Under the influence of this application the ulcer rapidly enlarged, until it attained the dimensions designated above. His physician, recognizing his malady as malignant, advised him to place himself under my care. When he came to the city, before consulting me, being very timid, he thought it prudent to ask the advice of several prominent physicians, who advised him adversely to operative interference. But at our first interview I told him that the operation was feasible, and judging from the experience of Mr. Paget, as recorded in the London *Times and Gazette*, of February 10, 1866, that the risk in his case would be trifling. At this time the flow of saliva was very great, and he suffered intensely. The pain was mostly confined to the temporal region. His general appearance exhibited emaciation, and his vital powers were evidently fast yielding to the ravages of his disease, and the effects of his mental agony and physical suffering. I at once proposed removal, as advised by Paget, with the écraseur. This his timidity caused him to decline, and, knowing there was no other mode through which he could be relieved, I replied, "I have nothing more to offer." I saw nothing more of him for nearly two months, when he again made his appearance at my office. The disease was steadily and rapidly progressing. A peculiar fact was observed in his case which he himself ascertained, viz.: that his pain was allayed more effectually by filling the ulcer with quinine than by any other local application. He occasionally visited me at my office, until the first day of January. By this time the disease had extended as far down as the tongue was visible. It had also involved the superficial portion of the left tonsil, and the anterior half arch on the same side; and at this stage of the disease, deglutition, even of fluids, was accomplished with difficulty, and the effects of inanition were growing very manifest. His starving condition forced him to inquire whether or not an operation was possible. By passing the finger down into the pharynx behind the tongue, I ascertained that the removal of the organ down to the hyoid bone, the removal of the left tonsil, and the diseased half arch would at least for a time, if successful, rid him of the disease. There was no enlargement of the cervical glands. I stated to him that I would undertake an operation, if he requested it, after fully appreciating the hazard attending it, augmented by his physical condition at this time, being bent over and worn out by hunger and pain. The disease had penetrated into the substance of the tongue so deeply that I determined to do a modified operation of Prof. Syme, recollecting his famous case. In the presence of the class at the City Hospital, on the 22d day of January, 1870, I removed the entire structures. By carrying an incision down through the central portion of the lower lip to the upper border of the hyoid bone, and then carefully separating the genio-hyoid muscles, I introduced a chain-saw through this separation, and, after extracting one of the central incisors, the symphysis was readily divided. I then detached the genio-hyo-glossi muscles from the jaw, and, seizing the tongue with my Musseux forceps, pulled it forward and upward. I then passed my finger between the tongue and mylo-hyoid muscle, carrying it back until I arrived at the anterior portion of the middle constrictor of the pharynx, and on my finger I passed a curved needle, carrying the chain of an écraseur, pushing it through the constrictor into the pharynx. I then effected the

same separation of the organ on the other side, and introduced on the point of my index-finger the needle at a corresponding point, and brought the chain out at the central incision, thus completely encircling the tongue at its base, then with a scalpel I liberated it laterally from the body of the inferior maxillary bone, and removed the diseased half arch and tonsil, and carrying my incision around the tongue until the chain was reached, and then following the advice of Chassaignac, operating with his instruments, I effected the separation of the organ by tightening the chain one notch every two minutes. The operation consumed something over half an hour, the loss of blood being trifling, not exceeding half a teacupful. After the removal of the écraseur there was a slight hæmorrhage from the left lingual artery, which was ligated. The separated bone was then approximated and wired together with a silver wire passed through perforations made in each half with Hamilton's drill, near the cut surfaces of the bone, below the course of the dental foramen, the ends of which, after being twisted, were left hanging out beneath the chin, and the contiguous teeth were also fastened by a silver wire passed around them. The operation was borne without shock, and was not followed by febrile reaction. In twenty-four hours the patient expressed himself as entirely comfortable. His recovery has been uninterrupted, save by some troublesome exfoliation of bone occurring from the wire passed through the perforations. It would have been better to have relied on the ordinary cup-splint, aided by an internal splint as practised by Mr. Syme, in his case. My experience in this case convinces me that extirpation of the tongue is as justifiable as any other operation for cancer. In examining the literature of this operation, I find that Prof. Gross speaks of it as a "remarkable feat," that has been performed several times in Europe. Erichsen, in his article on tongue diseases, condemns operative interference when the disease penetrates so deeply as to affect the floor of the mouth. Holmes speaks of one case, by Chassaignac, of entire removal with écraseur introduced between the genio-hyoid muscles, passed over the dorsum, then in front to separate the genio-hyo-glossi muscles; one case of separation with ligature, by Mr. Nunnely; one by Mr. Syme; and two by Mr. Fiddes. By all these authorities the operation is discountenanced. Indeed, I was surprised at the manner in which Mr. Paget speaks of the operation in the article referred to. He says: "The motive to operate here, as in other cases, is either to prolong life, or, without shortening, to comfort what remains." For the first, I believe there is some advantage, not a great prolongation of life, yet enough to justify an operation which is attended with very little suffering or risk. But the chief motive is in the hope of comfort; and the comfort that may be gained is in many cases so great as to justify a greater risk of life than is incurred in any ordinary operations, for removal of cancer of the tongue. The risk is really very small. I have not had a fatal case, or witnessed one. There are few of even the minor operations of which I could say so much; and the comfort given is, that the patient is delivered for the time from all the misery of one of the most distressing and disabling conditions of disease, and, until the cancerous growth is renewed, may enjoy complete health and do all his work. For the method of operating the choice lies between cutting and the écraseur. Caustic is not to be thought of unless in a case of the smallest extent; and the cases in which the ligature should be used must be extremely rare. I have never employed it; for the only advantage which it offers (that of avoiding hæmorrhage) is just as well, and much less offensively, obtained by the écraseur. The risk and troubles of hæmorrhage are, however, much overrated, and I believe the knife may be preferred to the écraseur in all but the largest operations, such as those for the removal of the entire tongue. In looking over my journal of literature upon this subject, I find one case

operated upon by Christopher Heath; one by Dr. Fenwick, of Montreal; five cases by Mr. Nunnely, reported in the *British Journal*, for November 5, 1866; seven others by his peculiar method described in the London *Lancet*, 1869. After performing my operation I received the January number of the London *Lancet*, containing the report of a case by Mr. Reid, of the Geelong Hospital, Victoria. He divided the symphysis, it seems to me, to do what could have been accomplished through the mouth as advised by Mr. Paget. In my case the disease could not have been removed by carrying the chain over the dorsum of the tongue even after the division of the symphysis, for the disease had penetrated so deeply that every thing above the elevators of the hyoid bone had to be removed. Nor was it a case for Mr. Nunnelly's peculiar method, for it was necessary to make a clear dissection of the left tonsil. To sum up the experience with the result of those cases which the material at hand enables me to know, the operation is comparatively a safe one. Paget sustains it in two cases, Syme one, Fiddes two, Nunnely twelve, Heath and Fenwick each a case, Reid and McGillveray, number not mentioned. Mr. Syme seems to have led the way in popularizing the operation, and, judging from Dr. Gross's declaration, continued in the third edition of his Surgery, published in 1864, no successful cases had been operated upon in this country up to this time.

Miscellaneous and Scientific Notes.

The Famous Carlisle Life-Tables are well known to all concerned in life assurance. They were formed on the vital statistics collected and arranged by the late Dr. Heysham, a celebrated physician of Carlisle, who died a little while ago, at a very advanced age. His life has recently been written by Dr. Lonsdale, and published in a very costly volume. He is described thus by a contemporary: "How noteworthy a figure he was—how lusty, vigorous, and well-chiselled his character and life! There stands the man—'a three-bottle man,' a hearty liver, a vigorous politician, a laborious statist, an enlightened practitioner, an unaffected philanthropist, an eccentric magistrate, the friend of Paley, Milner, and Law, a man to be liked and relished.'"

The Health of Paris.—The *British Medical Journal*, for October 29th, has a Paris letter, *par ballon monté*, which says that the health of Paris, under the circumstances, is remarkably good, with the exception of the prevalence of small-pox among the *gardes mobiles* from the provinces. There was no scarcity of food, though butcher's meat was distributed in rations, the quantity allowed to each adult *per diem* being 100 grammes, a family of five, say, getting about one pound.

Horse-flesh is given without stint, for from 30 to 36 cents (gold-rate) per pound. Beef, mutton, and milk, were at fair prices fixed by the Government (?). Milk at famine rates, and vegetables very dear. The American ambulance (field hospital) is styled a model institution.

The Influence of the Doctrine of Infinitesimal Doses on Legitimate Medicine.—Mr. Robert Hamilton, in an address delivered before the Liverpool Medical Society, referring to the doctrine of "infinitesimal doses," remarks that it is not nearer verification than when first propounded by its author nearly fifty years ago. And, speaking of the asserted influence of homœopathy on legitimate medicine in lessening the amount of drugs given, says: "But would it not be truer reasoning to point out how greatly the homœopaths have retarded the advance of true science, and, by the substitution of a sham, prevented the proper position of drugs, as a part of therapeutics, being found? The more humble place which in future the *materia medica* will hold in relation to medicine will not be due to homœopathy, but to that large host of searchers after truth, not one of whom is to be found in homœopathic uniform."

Elizabeth Garrett, M. D., and Prof. Huxley, are candidates for the London Education Board for the parish of Marylebone. Both candidatures are warmly approved by both the medical and scientific journals of London.

Case of Quadruplets.—Dr. J. W. Miller, of Dundee, Scotland, reports in the *Edinburgh Medical Journal*, for October, the following rare case:

On June 6, 1870, about 2 P. M., I was called to Mrs. W. M., in her fifth labor. Her pains had commenced early in the forenoon. Her last menstruation occurred about the middle of October, so that she was now about the middle of the eighth month of her pregnancy. She was very big, and for a month or two back had been "very frail," and had suffered from considerable œdema of the lower extremities. At 2.30, the os was almost fully dilated and the membranes protruding. The pains were languid, and after a dose of ergot, at 3.15, I ruptured the membranes. The head presented. A male child was quickly expelled at 3.30. I had barely time to tie the cord and remove the child, when a second bag of membranes protruded at the vulva. These having been ruptured, the breech of a second child was found presenting. I extracted it

easily, about three minutes after the first; it also was a male. A third bag of membranes came almost immediately outside the vulva, and burst spontaneously with a great gush of liquor amnii. The feet presented, and the third child, a female, was extracted about five minutes after the birth of the second. On passing the hand over the abdomen the uterus was found still large, and examination revealed a fourth bag of membranes, which I ruptured. The head presented. The uterine contractions being very feeble, I administered another dose of ergot, with about a glass of whiskey, but the head continued to make very slow progress. The patient being rather exhausted, and moreover somewhat panic-stricken under the very extraordinary nature of the event, I sent for the forceps, and with one blade over the occiput scooped out the head. This child was born at 4.10, about half an hour after the third; the delivery of the four children thus being completed in about forty minutes. The first three were born in a fairly vigorous condition; the fourth was dead. One of the placentæ was single, and came away almost immediately; the other three were in one large mass, and were extracted about ten minutes after the birth of the last child. The uterus contracted well, and there was no hæmorrhage. The patient's pulse was 70, and of fair strength. The female child died during the ensuing night. At my visit next day one of the others seemed to be dead, revived a little toward evening, but died during the night. The other, and last, died next day. I was allowed to weigh two of the children, and found each to weigh about 3¼ lbs.; the four together would weigh about 13 lbs.

The mother for a few days had considerable œdema of the face and legs, but this quickly disappeared, and she made an excellent recovery.

The *Lancet*, November 5th, states that the Princess Louise, whose approaching marriage with the Marquis of Lorn has excited so much attention lately, is suffering from the same disorder which two years since afflicted the Princess of Wales—an irritation of the knee-joint, the result of a strain and over-exertion. Prof. Lister, of Edinburgh, had visited Balmoral professionally in the case.

The Obstetrical Lectures at Bellevue.—Prof. George T. Elliot, being incapacitated, by his illness, from delivering the lectures during the present session, the course has been given by Prof. James P. White, M. D., of the Buffalo Medical College.

We need not say that the utmost satisfaction has been manifested on all sides with the success of Prof. White's labors. The subjoined correspondence, however, will convey a better appreciation of the estimate put upon his magnanimous act, than can be expressed by any words of our own:

BELLEVUE HOSPITAL MEDICAL COLLEGE,
FOOT OF TWENTY-SIXTH STREET, EAST RIVER,
NEW YORK, *November* 9, 1870.

PROF. JAMES P. WHITE—

MY DEAR SIR: I have been directed to respectfully request you to name a day when it will be agreeable for you to meet our Faculty at dinner. We are anxious to have an opportunity of meeting you socially, as a Faculty, to express our appreciation of your noble and generous act, which has given us the advantage of your large professional experience and wide reputation, in our course on Obstetrics. With sentiments of the highest esteem and respect,

I remain your obedient servant,

A. FLINT, JR., *Secretary*.

FIFTH AVENUE HOTEL, *November* 11, 1870.

MY DEAR DOCTOR: Your kind note, requesting me "to name a day when it will be agreeable for me to meet the members of the Faculty of Bellevue Hospital Medical College at dinner," is received.

One of the inducements in accepting your invitation to supply the place of Prof. Elliot, was the pleasure anticipated, during a brief absence from home and its pressing cares, in the society of the gentlemen composing the Faculty, for each of whom I entertain the highest respect and admiration. It therefore affords me great pleasure to accept your hospitable invitation, and I would name Wednesday the 16th inst., if agreeable to yourself and our *confrères*, as the time most convenient to myself.

Thanking you most sincerely for the complimentary language in which your note is couched, and wishing to express through you my grateful appreciation of the considerate attention thus extended to me by the Faculty,

I remain your friend and servant,

JAMES P. WHITE.

Prof. AUSTIN FLINT, JR., M. D., *Secretary, etc., etc.*

Reception of Sir James Simpson's Successor by the Medical Class of the University of Edinburgh.—The induction of Dr. Alex. Russell Simpson into the chair of Midwifery at Edinburgh, on the 2d November, was the occasion of a riot. Our readers will remember that, at the time of his appointment, considerable dissatisfaction was felt at the decision of the electors. But the modes in which that feeling found expression were at

least legitimate compared with the lawless behavior of the Edinburgh students on Wednesday. That afternoon Prof. Simpson, accompanied by the principal, Sir Alexander Grant, Prof. Christison, and several other members of the Senatus, as well as the Town Councillors, entered the chemistry class-room, but were forthwith received with a perfect whirlwind of hissing, howling, cock-crowing, throwing of pears and crackers, etc. The professor stood at his desk for a considerable time, endeavoring to get a hearing, till at length the Principal rose, and expostulated with the students on their riotous behavior. His intercession, however, produced small effect; the din again grew fast and furious, and was increased by one of the ringleaders shouting through a grating on the roof. Here, however, he was caught, and taken into custody. At last Prof. Christison rose, and his great popularity with the students procured immediate silence. He said that since he first entered the University, in 1811, he had never witnessed such a disgraceful scene as that before him, and appealed to the students to conduct themselves like gentlemen, were it only for their own interest, to say nothing of the credit of their Alma Mater. The effect of their proceedings, when they came to be reported, would be most injurious to Edinburgh. If a fair hearing were not accorded to Dr. Simpson, he would advise that gentleman to stop his lecture, and confine himself to his own students in his own class-room. A brief pause in the hubbub then ensued, but Dr. Simpson had not proceeded far when it again broke out, and continued at intervals to the close. He then left the room amid a volley of hisses.—*Lancet, November* 5, 1870.

Sulphate of iron has been very successfully employed as a disinfectant of all discharges from the patients of the hospital, and it has been regularly put into the latrines, etc. This salt has the advantage of cheapness, as well as most undoubted efficiency. It is extensively made in some parts of China by mixing together small coal and iron pyrites, covering over the mass very securely, and allowing decomposition to take place. After the violent chemical action has ceased, the mass is broken up, dissolved in boiling water, and crystallized out in shallow vessels. It is used in various chemical processes, such as the making of the beautifully-crystallized K'ing Fen, or calomel, produced by chemical manufacturers in Hankow, but ingeniously adulterated with selenite. Diluted iodine tincture, and the ethereal preparation of iodine, have been found the best disinfectants and stimulants for unhealthy surfaces.—*Annual Report of the Hankow Medical Mission, by F. Porter Smith, M. B.*

Edinburgh Infirmary.—The managers of the Royal Infirmary at Edinburgh have refused to admit female medical students to the wards. The same body have just appointed a committee to decide whether beds can be set apart for Dr. Thomas Keith, so as to enable him publicly to perform the operation of ovariotomy with which his name is associated. Dr. Keith, it appears, has for many years kept up, at his own expense, a hospital for the performance of that operation, which he has achieved in one hundred and one cases with signal success. —*Lancet.*

Pathology of Leucæmia Lienalis.—Dr. Hofmann, in a paper on this subject in the *Wiener Medizinische Wochenschrift*, from a careful examination of the urine, and especially of its coloring matter, appears to have demonstrated that in this affection there is not only a diminished formation, but an increased disintegration, of red corpuscles—at least if the coloring matter of the urine is to be considered as a derivative of that of the corpuscles; if not, it must proceed from some other substance having strong coloring capacity.

The Sayre Malpractice Case.—We have already referred to this case in a somewhat pointed manner, and our remarks have been copied approvingly in the English journals. The importance of the principle established by the decision of the Court, however, induces us again to call attention to it, which we do by copying from the *Citizen*, of this city, the following note, which sums up the whole case very succinctly:

Dr. Lewis A. Sayre, the well-known surgeon of this city, has just succeeded in bringing to a close a suit against him for alleged malpractice, and vindicating his reputation triumphantly against the slanders sought to be cast upon it. It seems that a mother brought a child to him, suffering, as was supposed, from hip-disease. This idea the doctor quickly ascertained to be an error, and with his accustomed promptitude he opened the swelling, which proved to be a scrofulous abscess, and discharged the matter. The child, however, began to cry; the mother became frantic, carried it away at once, and failed to bring it back, as she was directed, for subsequent treatment; it was unhealthy, and the sore remained open several months. The attending physician, an ignorant pretender who could not answer the simplest questions in anatomy, started the foolish charge that Dr. Sayre had punctured the hip-joint and let out the synovial fluid which lubricates that important articulation. Other doctors were induced by misrepresentation to accept

this view rather hastily, and a lawsuit was the consequence. The absurdity of the charge, however, was made so manifest on the trial that the plaintiff's lawyer practically abandoned the case.

So far so well, and we were pleased to receive a copy of the testimony and proceedings, which the defendant has caused to be printed in pamphlet form, and to observe how clearly he had freed his skirts from the damaging accusation. That was, however, mainly a private concern of Dr. Sayre, and only interested us as one of his friends. The point of public importance is, that in the course of the suit a new precedent was established. The defendant demanded that the child should be subjected to a personal examination by experts, as access to it had been denied. This application was strenuously resisted, but was finally granted in an able decision rendered by Judge Jones of the Supreme Court. He reasoned from analogous cases, such as alleged impotence or pregnancy, and traced back the origin of bills of discovery, and placed this upon the same footing. His ruling, in this instance, is one of the greatest advances in jurisprudence made by the Court during half a century, and will do much to discover the truth and to prevent malicious attacks upon medical men. It puts an end to pretended injuries and trumped-up sufferings which disappear as soon as the trial is over and the damages secured. Dr. Sayre deserves the thanks of his medical associates for securing this result, and for the vigorous way in which he defended this case, and so helped to discourage groundless and extortionate actions.

The *British Medical Journal*, in commenting upon this case, reproves very sharply the action of several of the physicians engaged in this case, and indorses most heartily our own comments made several months since.

Transatlantic Courtesies.—Under this title, the *Lancet*, of October 29th, thus comments on the suit brought against Dr. Sayre for alleged malpractice:

We have been favored with the receipt of a pamphlet containing some 190 pages of small type, wherein are set forth particulars of a suit instituted against Dr. Lewis A. Sayre, of New York, for alleged malpractice. Two other well-known surgeons are said to have stated that an opening made in the gluteal region of a child (the subject of the action) communicated with the joint, and that synovia had escaped. But the sum and substance of all worked itself into the fact that Dr. Sayre had diagnosed a chronic abscess, had immediately opened that

abscess, and had incurred the grave displeasure of the mother in so doing. Thereupon the action was brought, a verdict in favor of Dr. Sayre was recorded, and the plaintiff was ordered to pay an extra allowance of one thousand dollars, in addition to the ordinary costs of the suit. We call attention to this trial for the purpose of congratulating Dr. Sayre. The courtesies of the profession appear to need cultivation in New York, as well as on this side of the Atlantic.

Prof. Willard Parker has resigned his chair of Surgery in the College of Physicians and Surgeons of this city, and is succeeded by Prof. Markoe, formerly Adjunct Professor of the same branch. Prof. John T. Metcalfe also retires from the chair of Clinical Medicine in this institution. We also learn that Dr. F .N. Otis will lecture this winter for Prof. Bumstead, whose health will not permit him to undertake the course during the present session.

Enlargement of the Long Island College Hospital.—The Regents of the Long Island College Hospital, finding their present accommodations insufficient for the growing demands of the city, have contracted for the erection of a new wing to the present hospital buildings, to be completed and ready for the reception of patients by the first of the February ensuing.

The new building will occupy nearly the entire south front of the present hospital grounds, on the corner of Henry and Amity Streets. It will have a frontage of one hundred and forty-eight feet on Amity Street, by thirty-two on Henry Street, and is to be three stories high.

The basement rooms will be occupied mainly by the *attachés* of the hospital. It will also contain a library and reading-room for patients, the rooms to measure fifty feet by eighteen. The second and third stories will be occupied principally as hospital wards proper, and will be thoroughly ventilated and lighted, and also supplied with water-closets, etc. Each room is to be thirty by fifty feet in dimension.

In erecting the eastern portion of the new wing, the opportunity has been embraced of improving the facilities of the College by the construction of a new Amphitheatre and operating-room, forty-four by thirty feet, and twenty-eight feet high. This will be arranged according to the most improved models of such rooms, and will seat for the present about two hundred and fifty persons. It can, however, be readily enlarged, when necessity requires it. Immediately in connection with the amphitheatre, there are several private rooms set apart for medical gentlemen connected with the college and hospital. The

entire building is to be constructed on the most improved principles of modern hospital structures.

The enlargement of the Long Island College Hospital appears to be demanded by the growing necessities of the part of the city in which it is located. In close proximity to the immense shipping interests of New York, and to the numerous factories and machine shops which crowd the southwestern portion of this city, this hospital is of easy access in all cases of sudden injuries, where many of the sufferers in such cases would die if removed to points more distant.

Two years ago the Regents felt impelled, by the constant demands made upon them, to erect a new wing for a lying-in department, and for the treatment of diseases of females. This was done upon the north side of the grounds, fronting on Pacific Street. The new buildings, now in process of erection, will be somewhat similar in construction, but greater in capacity, and when finished will add greatly to the appearance of the hospital grounds, and to the capacities of a noble charity.

The hospital grounds comprise fourteen full lots, extending on Henry Street from Pacific to Amity Street, and are elevated above the surrounding region, with the rear fronting on the New York Bay.

Connected with the hospital there is also a dispensary for the poor, which treats between eight and ten thousand patients a year.

Locality of the Sense of Taste.—Dr. Camerer gives, in the last number of the *Zeitschrift für Biologie*, the results of his experiments on the locality of the sense of taste. He finds that the sensitiveness of different parts of the tongue depends essentially on the presence and number of the fungiform papillæ. These are most abundant near the apex of the tongue; they are less numerous at the edges of the organ, and disappear near the circumvallate papillæ. There are no papillæ on the under surface of the tongue. The mode in which Dr. Camerer conducted his experiments was to press a tube of about a third of an inch in diameter over different parts of the tongue and adjoining mucous membrane, and then to pour in a solution of the sapid substance to about the height of a quarter of an inch. Nine persons were experimented on, and the subject of the experiment did not in any instance know beforehand the nature of the solution, the taste of which he was called upon to determine. The substances employed were common salt, sulphate of quinine, sugar, and sulphuric acid. From his experiments it appears that the parts of the tongue that are free from papillæ possess no sensibility; also, he finds that a weak solution of a salt is more readily per-

ceived after pure water has been tasted than after a strong solution has been tasted during the previous twenty-four hours. By touching the fungiform papillæ with a fine spiculum of salt-crystal, he was able to show that the gustatory sensibility resided in the fungiform papillæ themselves, and not in the adjoining mucous membrane.—*Lancet.*

The Public Health in England.—The Registrar-General's quarterly return of deaths for the three months ending 30th September, exhibits an unsatisfactory state of the public health. The mortality was nearly 2 per 1,000 in excess of the average for the season, and it is worthy of note that the country and small town districts appear in a more unfavorable light than the larger town centres of population. The increased mortality is ascribed mainly to the prevalence of diarrhœa and scarlet fever. From the former of these causes 17,647 and from the latter 7,498 deaths were registered; while of different types of fever 4,635, of whooping-cough 1,712, of measles 1,390, of diphtheria 581, and of small-pox 500, fatal cases are stated to have occurred. Scarlet fever seems to have permeated almost every nook and corner of the land, and, in view of the fact that during the three-quarters completed of the present year not less than 20,000 fatal cases have been already returned by the registrars, there is but too much reason for supposing that the aggregate scarlatinal fatality of the year will equal, if it does not exceed, that of either 1858 or 1863—the two years of severest prevalence of the disease on record.—*Lancet.*

Solvent for Ear-Wax.—Dr. Pétrequin, of Lyons, has published, in the *Bulletin de Thérapeutique*, the results of a large series of experiments made by himself to determine the best solvent for cerumen. He comes to the conclusion, after trying very many different agents usually recommended for this purpose, that simple tepid water is the most efficacious and least irritating.

The *Lancet* of October 15th has an able leading article reflecting very severely on the noisy and self-asserting school of would-be reformers, who evidently consider themselves afflicted with a mission to convince the world that the birth of children is a source of national weakness. In this article the ground is taken that no small share of the disorder and disaster that are now reigning in unhappy France may be traced

to the perversion of the sexual instinct which so eminently characterizes that people. "Alternations of vituperation and panic," it says—and how pointedly this expresses the predominant features of the Frenchman of to-day!—"are natural enough in a people who for three or four generations have used the relations of the sexes chiefly as a means of stimulating and gratifying lust; and whose nervous organizations have been unstrung by their habitual recourse to unnatural and demoralizing practices."

Fungous Food.—There was a show of fungi last week at the Horticultural Gardens, which was attended by a large number of visitors. Many of these doubtless learned for the first time that the swift-growing ephemeral vegetation familiar to them in the autumn woods deserved a very careful recognition, and found that their merits could not be exactly summed up by dividing them into "mushrooms" and "toadstools." According to Badham, there are thirty species of esculent fungi in England. The only kind which we ordinarily eat, the *Agaricus campestris*, is thrown away in Italy as unfit for food; and we, in our turn, kick down and destroy the *Agaricus prunulus*, the most delicious of all, and the kind to which the French title "mousseron" (whence our word "mushroom") was originally applied. Nor does the *Agaricus oreades*, the "champignon," so extensively eaten all over the European Continent, fare much better with us. Ninety-nine times out of a hundred it is denounced as a toadstool, and shivered by a blow of a stick, or crushed under the heel with disgust. There must be many tons of good, nutritious food thus wasted annually in England, for want of the knowledge to discriminate the esculent from the poisonous fungi. When we remember the weary and profitless lectures often delivered by professors of botany to medical students, it seems very wonderful that no attempt is ever made to enlighten the class upon what would really be useful information—the selection of esculent fungi. If medical men generally were acquainted with the subject, they might readily spread this knowledge throughout the community, and receive the thanks, not only of the poor, who would be the gainers of many a cheap and savory meal, but of the gourmand, whose existing resources for palatal enjoyment would be somewhat largely increased. —*Lancet.*

A Card from the Long Island College Hospital.—It has recently come to our knowledge that a *quack advertisement* has

been distributed under cover and stamp of the Annual Circular of the Long Island College Hospital.

The Regents and Faculty of the College embrace the earliest opportunity to state that this was done without their knowledge, and after the circulars had been committed to the newsagent for distribution.

They deeply regret the necessity for publishing this eard; but duty to themselves and the profession requires that this statement be made public.

J. J. Van Nostrand,
President Board of Regents.
S. G. Armor, M. D.,
Dean of the Faculty.

Death of Thaddeus M. Halsted, M. D.—At a stated meeting of the New York Medical and Surgical Society, held on the 8th instant, Dr. Adams announced the decease of Thaddeus M. Halsted, M. D., as having occurred during the summer recess, and stated, as a remarkable fact, that but four deaths had occurred in the Society since its organization in 1836. Drs. Adams and Buck were appointed to prepare a minute in connection with this event.

On the 22d instant the committee reported the following resolutions, which were ordered to be entered on our minutes, and a copy thereof to be transmitted to the family of the deceased:

Resolved, That the New York Medical and Surgical Society do enter upon their records the recent death of Thaddeus M. Halsted, M. D., for a long series of years an active and valued member. In discharging this melancholy duty, your committee cannot do justice to their own feelings, nor to the memory of the departed, without bearing testimony to the loss which this Society has sustained in the removal of one so beloved as a man, so greatly respected as an honorable and successful practitioner, and so sincerely devoted to the interests of our Society. Ever kind and genial in his spirit and intercourse, highly conservative in his views and influence, in his official trusts diligent and self-sacrificing, he was an honored member of an honorable profession, and has left a void in our number which is deeply lamented.

We desire, also, to express our sympathy with the bereaved relatives of the departed, and we recommend that one of our number be appointed to prepare (in accordance with our usage) a memoir of the life and character of the deceased.

Resolved, That these proceedings be published in the medical journals of this city.

Death of Prof. Matthiessen.—This young chemist, of great promise, committed suicide, by taking prussic acid, recently in London. He was one of the examiners of the University of London, and Lecturer on Chemistry at St. Bartholomew's

Hospital. By the original work he had already done, he had acquired a high reputation.

Last year the Council of the Royal Society awarded him the Royal Medal for his researches on the "Electrical and other Physical Properties of Metals and their Alloys." Over-mental strain is the cause assigned for the act. Dr. Matthiessen was in his thirty ninth year.

Count Moltke, aged 70.—The most potential man in the world just now is General Moltke, and the days of his years are threescore years and ten. We will leave military critics to do justice to the military genius of Moltke, and to say where he is to be placed in comparison with Grant, and Wellington, and Napoleon, and Marlborough, and the older heroes of the world. What we design now is much more simple, but equally interesting. The "still strong man," about whom one hears so little, who can be "interviewed" only by Bismarck and by the royal family of Prussia, and without whom all Bismarck's grand designs might have been unavailing, the man who is renewing the art of war, and concentrating with such terrible efficiency the whole force and manhood and discipline of Germany, is seventy years old. The King of Prussia, himself seventy-three, has made him a count in honor of his seventieth birthday; but to us it is far more interesting to know that he has reached that age, than to hear that he has become Count Moltke. Grant is not yet fifty years old. Marlborough was all done with war by the time he was about sixty. Napoleon died at the age of fifty-two. Wellington's military career was over before the age at which Moltke began to distinguish himself. Indeed, before the war with Austria, Moltke had kept his power and his genius very much to himself.

Here, then, is a point for physiologists, that a man of seventy may alter the complexion of the world, and the relation of nations, and the history of civilization; that he may at this age have physical power for going through arduous bodily exertion, and mental power for solving the most tremendous military problems. Meantime let the example of Moltke cheer old men, and make many young men more modest.—*Lancet.*

Metz.—The condition of the garrison and inhabitants of Metz appears to have been deplorable during the siege. There was, according to the correspondent of the *Daily News*, an absence of chloroform, ether, and carbolic acid, for five weeks before its surrender. Thirty-five thousand persons are said to have perished during the siege in the town alone, the greater

part from want of proper care. Upward of 19,000 sick and wounded were present in the garrison.—*Lancet.*

Local Treatment of Cancer with Pancreatic Juice.—The subject of the second question for discussion before the recent Medical Congress of Florence was the local treatment of cancer. In addition to removal by surgical interference, which was sustained by the majority of surgeons as the only efficacious means of cure, attention was called to two communications: the first, from Dr. Neftel, of this city, upon the effects of electrolysis; the second from Prof. Schiff, upon the action of pancreatic juice. This physiologist has experimented, upon two fragments of the same cancer, with gastric and pancreatic juice. He concludes by attributing a greater value to the last, which, according to his investigations, digests the tumor without attacking the blood-vessels and exposing the patient to hæmorrhages. The gastric juice destroys all the tissues, while the pancreatic juice attacks only the cancer-cells.

Complete Absence of the Uterus.—Mr. A. Dumas reports (*Montpellier Méd.*, October, 1869) a case in which the diagnosis could not be confirmed by autopsy; and as we know how often, even in the dissecting-room, simple cases of bifid uterus with atrophied neck have been taken for a total absence of the organ, it is well, in the case related, to be reserved as to the diagnosis.

The patient, twenty-three years old, had never menstruated, nor had any supplementary hæmorrhages. She had suffered from no lumbar or abdominal periodic pains. She has an instinctive repugnance for marriage; and has never experienced the least sexual desire, nor been attracted by men's company. There is complete absence of the breasts, in the place of which is seen a minute nipple, surrounded by a pale and narrow areola. Her general appearance as to contour, delicacy of integument, expression, voice, walk, etc., is thoroughly feminine.

On examination of the genital organs, the mons veneris was found almost entirely devoid of hair; labia majora thin and compressed; the hymen was perforated; vagina narrow; and the meatus urinarius normally situated; the clitoris is provided with its hood, and is of normal size. At the *cul-de-sac* of the vagina there is a slight, imperforated prominence, conoid in shape, of pale color, and of the size of a small pea. The finger, introduced into the rectum, comes readily into contact with a catheter, which had been passed into the bladder. On inserting a cylinder or plug the full length of the vagina, the hand easily brings the end of the catheter in contact with the extremity of this vaginal cylinder. The finger in the rectum

can also be readily placed upon the same point, thus proving that the uterus is entirely wanting.

The author is inclined to believe also in the absence of the ovaries and other annexæ, on account of the negative signs furnished by the rectal touch and hypogastric palpation, and from the entire absence of the menstrual molimen. However, he is less positive on this point than upon the absence of the uterus.

The Wine-Supply of Paris.—The *Pall Mall Gazette* says that, if all the fermented liquors that pay the *octroi* duty are consumed in Paris, the inhabitants manage to dispose in the course of the year of no less than 365,000 tuns of wine—equal to forty-four gallons per head of the population, or almost a pint a day for every man, woman, and child, in the French capital; and this, too, in addition to 225,000 barrels of beer, nearly a couple of million gallons of cider, and more than that quantity of spirits. The authorities in Paris state that the water-supply of the city cannot be stopped by the Prussians; and the two immense depots which furnish France with wine are both within the line of the fortifications, and quite full. There appears, therefore, to be little fear of suffering from thirst, whatever prospect there may be of misery from starvation.

Dr. George Johnson reports (*British Medical Journal*) a case of lead-poisoning in which the source of the lead was traced after much trouble to the material in which the patient was a worker. He was a portmanteau-maker, and it appears that the cloth used in the manufacture was glazed with some preparation of lead. These cloths are largely employed in making trunks, valises, etc.

The library of the late Professor von Gräfe is in the possession of Hirschwald, the well-known Berlin publisher and bookseller, who is about to publish a catalogue of it.

The subject of the introductory lecture of Dr. Mapother, at St. Vincent's Hospital, Dublin, delivered October 31st, was "American Medicine."