

pine. One very peculiar physiological effect is this: If a dose be given to a dog, subcutaneously, he will walk straight forward, and if he gets into a corner he will struggle and cry for a long time, and paw at the walls, but it appears never to occur to him to turn round. The same thing will happen if he gets mixed up with the legs of a chair; he will fight with them for some time before he gets out, and seems to have no notion of going anywhere but straight forward. On cats, however, it has not this effect.

Another potent substance is *ditain*. It is the bark of the *alstonia scholaris*, a native of Java, and has been found to contain an active principle, the physiological effects of which resemble those of curare. It is said to be an antipyretic, a vermifuge, and a poison. It has the property of paralyzing the intra-muscular terminations of the motor nerves and the spinal cord at the same time.

Without stopping to talk of *goa powder*, which has been several times referred to in the *Reporter*, as a source of chrysophanic acid, we pass on to *chaumoogra oil*. This is a remedy which has been employed for centuries by the natives of India in the cure of leprosy and other forms of skin disease. It is a fixed oil procured by expression from the seeds of the *Gynocardia odorata*, which are now official in the Indian Pharmacopoeia (*Gynocardia semina*). Mr. R. C. Lepage, late of Calcutta, has collected in pamphlet form all that is known regarding both the plant and the oil. The use of the latter was brought under the notice of the profession in 1854, by Dr. Mouat, of the Bengal Medical Service, who had employed it with considerable success in a few cases of leprosy, scrofula, and constitutional syphilis. But though others have found the remedy of service in these and allied affections, its more general employment has been retarded by the persistent adulteration of the oil by the natives of India. Dr. Dymock, of Bombay, however, has recently discovered means for detecting its adulteration, so that it is believed it can now be procured in a state of purity, and it is expected that the remedy will be found of real service in the above-mentioned diseases, and others of a similar nature. The dose of the oil, which is somewhat unpleasant in flavor and smell, is from five to six drops, gradually increased. It is best given after meals, and may be taken in milk, glycerine, or cod-liver oil. The seeds, coarsely powdered, may be given in the form of pills of five or six grains. In skin diseases the oil should also be applied externally, or the unguentum gynocardiæ (I. P.), which is prepared by beating the seeds to a paste along with simple ointment.

Finally the *Pinus Cembra*, or Siberian stone pine, is given as the source of a valuable drug in bronchial affections, popularly known in Northern Europe as "Riga balsam." It is prepared by distillation from the fresh shoots of the tree. —*Medical and Surgical Reporter*.

#### ON THE PHYSIOLOGICAL AND THERAPEUTICAL PROPERTIES OF GLYCERINE.

By M. A. CATILLON.

[Communication to la Société de Médecine Pratique.]

*Observations on the Expired Air after the Administration of Glycerine.*—In a preceding communication M. Catillon established the fact that glycerine, when introduced into the economy, causes a notable diminution in the quantity of the urea excreted during the twenty-four hours, with a coincident elevation of the animal temperature; at the same time the subjects to which it was administered increased in weight. Besides this he proved that it was entirely absorbed, that only a relatively small proportion escaped with the urine, the only means by which it was eliminated, and that notwithstanding this fact it could not be found in the blood. From these facts he concluded that it served as an aliment in respiratory combustion, which consequently spared the fat and nitrogenized compounds of the organism. Thus he explained the augmentation in weight of those subjects who took glycerine, and also the diminution of the quantity of urea excreted coincident with the elevation of temperature. The combustion of azotized material was replaced by another combustion, that of glycerine.

But glycerine gives as the ultimate products of its combustion carbonic acid and water ( $C_3H_8O_3 + 14O = 6CO_2 + 8H_2O$ ) and we should therefore find a much larger proportion of these elements in the expired air after its ingestion if, as he has said, it is burned in the blood in the same proportion in which it enters that fluid. Such was the question proposed to be determined in a series of experiments made in the laboratory of Prof. Vulpian, which gave the following results:

Glycerine administered to dogs, without food, caused an elevation of the proportion in 100 parts of carbonic acid contained in the expired air. This proportion, which was about 4.3 per cent. before the experiment, became increased to 6 per cent. under the influence of a dose of glycerine corresponding to 3 or 4 grammes for every kilogramme of the animal's weight, and to 7 per cent. under the influence of a dose of 6 to 8 grammes to the kilogramme. Not only was the increase in the carbonic acid shown in a proportion raised according as the dose of glycerine was augmented, but even in the latter case it was prolonged for a greater time. The increase commenced about an hour after the ingestion, reached its maximum 3 or 4 hours after, and lasted from 5 to 10 hours after the dose. After the ingestion of glycerine, the number of respirations remaining the same, their fullness increases, and the increase remains even when the proportion of carbonic acid has returned to the normal, probably on account of the exercise to which the organ has been put. This augmentation of the fullness of the inspirations did not increase with the dose taken, for it remained the same with doses increasing to 50, 100, and 150 grammes. At the same time that the proportion in every hundred parts was augmented the absolute quantity of carbonic acid gas exhaled increased in such proportion that, in this form, nearly the whole of the carbon contained in the ingested glycerine could be recovered. The absolute quantity of carbonic acid exhaled per minute, before the experiment, by one of the dogs was about 175 c.c. It was raised to 263 c.c. under the influence of a dose of 150 grammes of glycerine, and to 288 c.c. under the influence of a dose of 150 grammes. This increase of the carbonic acid after the ingestion of glycerine was equally well shown in dogs whose respiration was abnormal on account of affections of the respiratory organs. In one of these in whom pneumonia was recognized the proportion of carbonic acid in 100 parts before the experiment was only 3.2, that is to say, very much below the normal average. It was raised after the ingestion of glycerine to 6.1. In an emphysematous dog the proportion of carbonic acid in 100 parts of expired air was normal, 4.4 per 100, but the fullness of the respirations was small. After the ingestion of glycerine the proportion of carbonic acid was raised to 6 in 100, and the volume of expired air was found doubled, so that the absolute quantity of carbonic

acid exhaled was considerably increased. The transformation of glycerine into water and carbonic acid takes place directly, for there was not found in the blood any of the intermediate products of oxidation—glycerine, formic or oxalic acids. Numerous differences between the properties of glycerine and alcohol have already been pointed out. Contrary to the case of alcohol, which MM. Duroy, Lallemand, and Perrin found was eliminated under its own form, and which they found in the blood, the brain, and the liver, glycerine is not found in any organ, and is eliminated almost entirely under the form of water and carbonic acid. — F. A. L., in *La France Médicale*.

#### LINEAS ON THE SURFACE OF THE NAILS.

MR. J. HUTCHINSON says, in the *Medical Times and Gazette*: It has been observed that during febrile ailments and various other more or less acute derangements of health, the nutrition of the nail suffers. A record of each relapse or exacerbation, permanent during the life of the nail, is left on its surface in the form of a transverse furrow. As the age of an oyster may be reckoned by counting the ridges on its convex shell, so in these cases may the number of relapses and the relative duration of the intervals be estimated. Dr. Wilks, in his original short article on this subject (*Lancet*, January 2d, 1869, page 5), infers, from the known rate of growth of the nail being equal to two full lengths a year, that furrows on the middle of the nail indicate an illness three months before. He mentions the case of a gentleman in whom the furrow formed on the nails as the result of a very severe diarrhoea attended by much prostration. Another patient with heart disease showed the markings after the occurrence of an illness. A third showed some distinct lines on his nails a few weeks after an acute attack of chest disease, which ended in phthisis. The markings are caused, writes Dr. Wilks, "by a slight furrow, which is found more especially on the middle of the nail, and more distinct on that of the thumb. They point, no doubt, to a sudden arrest of the nutritive process during the time of the illness, and herein lies the interest of the observation." My colleague, Dr. Langdon Down, in 1870, communicated to the Pathological Society the case of a gentleman on whose finger and toe nails two distinct sets of transverse *white* lines appeared, after he had been twice much out of health from severe overwork; the symptoms were great prostration, intermittent action of the heart, and ulceration of one cornea. The nail marks corresponded in position to the respective dates of these two attacks, which occurred within a few weeks of each other.

#### HEMIPLEGIA FROM CEREBRAL HEMORRHAGE.

Clinic of Prof. AUSTIN FLINT, Sr., M. D., Bellevue Hospital, N. Y.

HERE is a patient, you observe, whose eyes are open, but, as Shakespeare would say, there is not much speculation in them. The woman is in a semi-comatose condition, and I may as well say at once that she is suffering from an attack of hemiplegia following apoplexy. If we examine the face for paralysis, we find that the left angle of the mouth is somewhat drawn, and that there is a little difference in the expression of the two sides of the countenance. If she were able to put her face into action, however, the paralysis would be much more marked than it at present appears. I would also call your attention to the fact that there is a sudden flushing of the face, amounting to intense congestion, whenever she coughs or makes the effort of swallowing.

The hemiplegia is on the right side of the body, and you notice that when I raise the arm on that side from the bed, it is perfectly powerless, and falls, when released, like a heavy and inert body. The left arm, on the contrary, is entirely unaffected. The right lower extremity is also paralyzed, but she is still able to move it a little. Thus, for instance, you observe that she moves the toes now, when the sole of the foot is pricked with a pin. It is a question here, however, as to how far such movements may be voluntary in their character, and how far reflex. As a rule, you will remember, sensibility is not affected in such a hemiplegia as this, or if it is, that this is the case for only a comparatively short time. The paralysis remains motor and not sensory.

Let us now run rapidly over the history of this case, and in it I would incidentally direct your attention especially to two points. The first is as to the light which the history may throw upon the causation of the apoplexy, and the second is as to the effect of apoplexy and hemiplegia upon temperature.

The patient was admitted to the hospital four days ago. She is said to be seventy years of age, but no personal or family history could be obtained from her. As far as we are able to make out from the account given of her at the time of her admission, she was quite well up to five days ago. Then, while sitting in a chair, toward evening, she suddenly fell to the floor and was found to be paralyzed, as at present. She was also apparently aphasic, though there is room for some doubt on this point, as the speechlessness may have been due to the partial unconsciousness resulting from the attack. One unusual and interesting feature of the case was that she was totally unable to swallow.

When brought to the hospital the following day she was found to be in a semi-comatose condition, with the upper and lower extremities on the right side partially paralyzed. As is generally the rule in such cases, the paralysis was more complete in the arm than in the lower extremity, while there was considerable rigidity about the muscles of both members. The mouth was somewhat drawn to the left, and the right cheek was more flaccid than the left. The intellect was found to be markedly impaired, but it was observed that the patient frequently put the hand of the paralyzed arm up to the left side of the head, as if she suffered some pain there. The head was turned toward the opposite side of the body from that on which the paralysis occurred. This is ordinarily the case for the first few days after an attack of this kind, and then the symptom disappears. At present you notice that the patient still holds her head in this position, though it is not turned to the side to such an extent as at first. The pulse was slow, the respiration normal, and the temperature 100°. The heart, liver and spleen were normal, and nutrition was good, but she had some general bronchitis. It was observed that the patient groaned quite frequently, and this is found still to be the case.

In the way of treatment she was given at first two drops of croton oil, and that night she had two free evacuations of the bowels. Being entirely unable to swallow, a pint of milk, with two ounces of whisky, was given her, by means of the stomach-pump, soon after admission. A nutritive enema was also tried, but was not retained. Subsequently, however, a tannic acid suppository was inserted into the rectum, and after that there was no further trouble about the

retention of such enemata. The inability to swallow has continued up to the present time, and so it is still necessary to keep up the nourishment of the patient in the same manner.

During the first day and evening after admission, the temperature in the right axilla, taken at different times, was respectively 101°, 100° and 100°; while that in the left axilla, taken at the same periods, was respectively 97°, 95° and 97°. On the second day the observations were 100½°, 100° and 100° in the right axilla, and 99°, 98½° and 98° in the left. On the third day, 100°, 100° and 100° in the right axilla, and 96°, 98° and 98½° in the left. On the fourth day (yesterday) there was a marked change in the relative degrees of temperature of the two sides of the body. In the morning the temperature in the right axilla was 100°, while that in the left was 98½°. In the afternoon, however, the temperature in the right axilla was 99°, and that in the left 100°, while later in the evening it had fallen to 97° in the right axilla and risen to 100½° in the left. This, you perceive, is just the reverse of what took place at first.

To-day, again, still another change has taken place in the relative temperature of the two sides. Early this morning much the same state of affairs was observed as last evening, but since then the degrees of temperature have become more and more nearly approximated, until now they are almost identical. The following is the record of the observations to-day: In the right axilla, 99°, 98½° and 98°. In the left axilla, 100½°, 100° and 98°. The phenomena observed here in regard to the temperature are certainly of exceeding interest, though they may, perhaps not be of great importance in a practical point of view. As a general rule in such cases it is found, as in the present instance, that at first the temperature is comparatively high on the affected side, while upon the unparalyzed side it falls considerably below the normal standard. After a few days the relative temperature of the two sides is completely reversed, and then, as we have seen here, it becomes uniform in both.

We are now to examine what the probable cause of this attack has been. The phenomena observed, in general terms, are those of apoplexy and hemiplegia, and it is therefore necessary for us to place before our minds the different conditions which are capable of producing such results. In the first place, I may observe that the circumstance of the apoplexy coming before the hemiplegia enables us, in this case, to entirely exclude meningeal hemorrhage, which would indeed give rise to apoplexy, but would not be followed by paralysis.

A tumor of the brain, on the other hand, might explain the paralysis, but could scarcely occasion such an apoplectic seizure as occurred here, though these intracranial growths not infrequently give rise to epileptiform convulsions.

In reality, however, the diagnosis lies chiefly between two conditions, viz., cerebral embolism and cerebral hemorrhage. Let us therefore ask ourselves what points in the case form one and what the other affection. In both it is well to remember we might have loss of consciousness, either complete or partial, and in both we would expect to find hemiplegia.

Now as to the points of difference. In the first place, embolism can ordinarily only occur as a result of cardiac disease, and as we have seen that the heart is in a healthy condition here, this is certainly a very strong point against embolism. Secondly, the age of the patient is against the supposition of embolism, which almost always occurs in early or middle life. Cerebral hemorrhage, on the other hand, occurs, as a rule, in advanced life.

Next let us inquire if the side which is paralyzed has any bearing on the causation of the hemiplegia? Yes, this point would seem to favor embolism, for in the larger proportion of cases hemiplegia due to this condition is on the right side, as in the present instance. Still this does not, of course, exclude cerebral hemorrhage, which is liable to produce paralysis of either side of the body.

Another point to be taken into consideration is whether the patient has improved or not since the onset of the attack. It is now five days since she was stricken down with the paralysis. The ordinary rule is that in hemiplegia from embolism more distinct improvement, both as regards the intellectual faculties and the paralysis, take place within such a period than is the case here. Indeed, it can hardly be said that there is as yet any appreciable change at all in the patient's condition.

These are the more important points to be taken into consideration in making up our minds as to the diagnosis, and, in view of the evidence which they afford, I think we are justified in excluding embolism and regarding cerebral hemorrhage as the cause of the trouble here. Perhaps it may be as well, however, to mention two additional points which go to corroborate this opinion. The first is that the patient, from time to time, puts her hand to the left side of the head, as though she felt pain there. If there is a clot present, it has no doubt acted as a foreign body, and excited a certain amount of cerebritis in the tissue surrounding it. The carrying of the hand to the head, which indicates that the patient feels pain or at least a sense of discomfort there, is a symptom to which I am accustomed to attach considerable importance in such cases.

And this brings me to the second point alluded to. Not only has this inflammatory action given rise to pain, but also to some increase in temperature. Yesterday and to-day, as we have seen, the temperature has been abnormally high upon the left side of the body, which is the unaffected one. The increase in temperature, for the first few days, on the right side, was unquestionably due to the direct influence of the paralysis on that side, and ought not, therefore, to be considered as indicative of fever in the system.

It is then pretty certain that we have a clot to deal with here, and if you ask me where it is located, I can answer, with a considerable amount of assurance, in the *corpus striatum* of the left hemisphere of the brain. The *corpora striata* are the usual seats of such cerebral hemorrhage, and there is nothing to indicate that it is located elsewhere in the present case.

The indications for treatment are exceedingly simple here. The patient's bowels have been moved, and we have only to keep her perfectly at rest and supply her with appropriate nourishment. As has already been mentioned, there is one peculiarity about this case, and that is that the woman is unable to swallow. Consequently, it will of course be necessary to continue feeding her, for the present at least, in the same manner hitherto resorted to. I may also mention that she does not pass her water of her own accord, so that the bladder has to be emptied from time to time by means of the catheter. It is possible that the patient may never emerge from the semi-comatose condition in which she has remained ever since her admission to the hospital, but the probabilities are that a gradual improvement will take place in her condition. —*Med. and Surg. Reporter*.