

### c.—THERAPEUTICS OF THE NERVOUS SYSTEM AND MIND.

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**ALCOHOL.**—The following are the principal points of a paper on the physiological action of alcohol, by Dr. Lauder Brunton, published in the January and February numbers of his journal, the Practitioner, as summarized by himself.

1. Alcohol, in small quantities, increases the secretion of gastric juice and the movements of the stomach, and thus aids digestion; although unnecessary in health, it is useful in exhaustion and debility.

2. It increases the force and frequency of the pulse, by acting reflexly through the nerves of the stomach.

3. In large doses it impairs digestion by over-irritating the stomach.

4. It may produce death rather reflexly by shock.

5. After absorption into the blood, it lessens the oxidizing power of the red blood corpuscles. This property renders it useful in reducing temperature; when constantly or very frequently present in the blood, it causes accumulation of fat and fatty degeneration of organs.

6. It undergoes combustion in the body, maintains or increases the body weight, and prolongs life on an insufficient diet. It is, therefore, entitled to be reckoned as a food.

7. If large doses are taken part of it is excreted unchanged.

8. It dilates the blood vessels, increases the force and frequency of the heart by its action on the nervous centres to which it is conveyed by the blood, imparts a feeling of comfort, and facilitates bodily and mental labor. It does not give additional strength, but merely enables a man to draw upon his reserve energy. It may thus give assistance in a single effort, but not in prolonged exertions.

9. The same is the case with the heart; but in disease, alcohol frequently slows instead of quickening the pulsations of this organ, and thus economizes instead of expending its reserve energy.

10. By dilating the vessels of the skin, alcohol warms the surface at the expense of the internal organs. It is thus injurious when taken during exposure to cold, but beneficial when taken after the exposure is over, as it tends to prevent congestion of internal organs.

11. The symptoms of intoxication are due to paralysis of the nervous system; the cerebrum and cerebellum being first affected, then the cord, and lastly the medulla oblongata. It is through paralysis of the medulla that alcohol usually causes death.

12. The apparent immunity which drunken men enjoy from the usual effects of serious accidents is due to paralysis of the nervous mechanism through which shock is produced in a sober condition.

GUARANA. The following are the conclusions of Dr. Wurm as to the therapeutic employment of guarana published first in the *Wurtemburger Med. Correspondenzbl.*, No. 30, 1875, and reproduced in the *Allg. Med. Centralzeitung*, Nov. 10.

1. As might be expected *a priori* from its identity with caffeine, guarana is efficacious in the neuralgic and anæmic forms of hemicrania, but not in the congestive form, since it heightens the blood pressure by excitation of the cardiac muscles and even the temperature of the blood by increase of oxidation, so it thus relieves anæmic portions of the brain as well as in other unexplained ways.

2. Nevertheless, I have found in this form also, many cases in which the intoxication symptoms, to be hereafter mentioned, appeared even from quite moderate doses, or where with premonitory symptoms a "katzenjammer" succeeded, to which the patient sometimes preferred the original migraine, and which actually led to a very serious paralysis of the nerve centres and heart. The highest degree of this intoxication was observed by me in 1871 in a gentleman from Berlin, suffering from central paralysis of the facial, to whom a lady, who had taken guarana under my directions with the best results, had given one of the powders for a headache he complained of. I was called in a great hurry by the very properly alarmed friends, and found him with flushed face and glittering eyes, excited, pulse somewhat uneven, but with moist skin, high delirium, in the meantime complaining of vertigo, noise in the ears, deafness, and especially of intestinal and vesical cramps. After a glass of lemonade had been given, and cold compresses applied to the head and cardiac region these alarming symptoms soon quieted down. Perhaps in this the symptoms were especially pronounced on account of the already existing cerebral affection, but they varied very little from those observed in other persons. I have very frequently seen ischuria, often of two days duration, from the use of guarana. I find the best rule to follow in the prescribing of this drug, is to ascertain either by inquiry or experiment, whether the use of strong coffee or tea brings relief in headache in each individual case, and to prescribe guarana only when this is the case, otherwise to withhold it altogether.

3. The preparation is certainly of very variable purity and perhaps also efficacy, and I cannot understand why by the German pharmacopœia doses are allowed of four and a half grammes ( $-67\frac{1}{2}$  grains), and by others as high as seven grammes, ( $-105$  grains), when I myself have seen vertigo, deafness, difficulty of urination, and insomnia, to follow single doses of half a gramme in men, and therefore I prescribed it in quantities of from a quarter to half a gramme, ( $-3\frac{3}{4}$ — $7\frac{1}{2}$  grains,) generally to be given every two hours till three doses have been given. After the pharmacopœia has received the drug it should control its quality, and with the greater reason since the form of the commercial article actually tempts adulteration.

4. I generally give the powder pure and unmixed, but quinine or morphia or both, may be added as specially indicated. The Kriebel's nostrum advertised in the newspapers for the cure of "Head colic" seems to be nothing else than some such mixture.

5. Of the adjunct treatment I name only the regulated diet, which as is well known does not always signify abstinence, rest and quiet, darkness, and also compression of the head. In most cases where guarana is indicated, the applications of dry warmth will give much more relief than cold water or ice compresses. That form of hemicrania for which according to the testimony of many husbands, the principal remedy is the present of a new shawl or dress, a box at the opera, etc., is of course another thing.

The asserted relations of Paullinia to the chemical constitution of the muscles, ("Myosic-Rheumatism") and to the innervation and blood supply of the brain, the intestine and the bladder make further pharmacodynamic researches desirable, but in the obstinate diarrhea and dysentery of children for which it has been recommended they make special care necessary.

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TREATMENT OF NEURALGIAS BY BLISTERS ON THE SPINE. The *Bulletin Gén. de Thérapeutique*, January 30, contains an abstract of a recent paper in the *Berdeaux Medical*, by Dr. Dupluousy, on the treatment of neuralgias by vesication over the apophysary point, described by Trousseau and other authors. It quotes three observations, one by Dr. Dupluousy, on himself, when suffering from sciatic and bronchial neuralgia of apparently malarial origin—another of a man with lumbo-abdominal neuralgia, similarly caused, and a third, of a woman with cervico-brachial neuralgia. In all these the ordinary resources had failed, yet they completely succumbed to treatment by blisters over one or more painful vertebrae. It would seem that this method is worthy of trial in such cases, where the spinal tenderness exists.

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PICTROTOXINE.—At the session of the Soc. de Therapeutique, Nov. 10, 1875, (rep. in *Bull. Gén. de Thérap.*) M. Gubler gave an account of his experience with the use of picrotoxine in a case of bulbar paralysis. Before the administration of the drug, the patient could not swallow or pronounce words distinctly. It caused a sensible amelioration. He became able to swallow and pronounce distinctly. This latter, however, was only temporary, the deglutition continued improved.

The picrotoxine was given in a dose of 1 milligramme in solution, by the hypodermic method; the injections were not painful, but they produced a rather persistent induration of the cellular tissue about the size of a hazel nut, so that the skin was full of them.

M. Dujardin-Beaumetz stated that he had also employed picrotoxine in a case of epilepsy in a butcher, addicted to liquor, the attacks recurring nearly every day. He gave it in granules of  $\frac{1}{4}$  milligramme and increased the dose gradually to 14 granules a day— $3\frac{1}{2}$  milligrammes. This treatment lasted from July 12, to August 22, the attacks appeared first every two days, then every three and every five days, and so on till they ceased entirely August 22, and from that time till the patient left the hospital September 27, though closely watched he had had no recurrence of them.

M. Dujardin-Beaumetz cautions against too much confidence in this

observation, the epilepsy was in this case clearly alcoholic in its origin, and the severe regimen under which the man was kept during treatment, must have contributed to his recovery, if indeed it was complete, though as to that, there is no information, since the man did not return to the hospital.

M. Dujardin-Beaumetz has also tried this on a woman, forty-three years old, affected for over three years with paralysis agitans. No result was observed from the treatment.

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PHOSPHIDE OF ZINC.—P. Vigier, *Bull. Gen. de Therap.*, January 15, discusses the therapeutic usage of phosphide of zinc. His experiments performed with the aid of Dr. Curie, showed the presence of phosphuretted hydrogen in the intestines of rabbits poisoned with phosphorated oil. This fact, with the other one previously determined, that phosphide of zinc is transformed in the stomach into phosphuretted hydrogen, indicates that the action on the economy of the two substances may be identical. It is well to note also that phosphide of zinc is more prompt in its action than phosphorus, as easily shown by experiments on animals. Phosphide of zinc contains one-fourth of its weight of phosphorus, as is indicated by its formula,  $\text{Ph. Zn.}^3$  and its therapeutic and toxic action is one-eighth of that of phosphorus. That is eight milligrammes (= 0.12 grain,) has the same effect as a medicine or a poison, as one milligramme (= 0.015 gr.) of phosphorus. These figures should be kept in mind by the physician, as they are of capital importance.

The reason why only one-half of the contained phosphorus of this drug is active in the human economy is given as follows: In the decomposition of phosphide of zinc by the hydrochloric acid of the human stomach, a part, probably as much as one-half, passes into the state of hypophosphite of zinc, a salt absolutely inactive in that quantity, while the remainder decomposes into chloride of zinc and phosphuretted hydrogen.

M. Vigier has seen excellent results from the usage of phosphide of zinc in cases of chloro-anaemia and metrorrhagia, and especially in hysterical affections: Others have given similar testimony. The dose he considers sufficiently large for all cases, is from two to four pills of four milligrammes (= 0.06 grains) of phosphide of zinc in a day. He has never seen large doses succeed when small ones have failed.

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ACONITE.—M. Oulmont, at the session of the Acad. de Medicine, Paris, Dec. 7, (rep. in *Bulletin Gén. de Thérap*) made a communication in regard to the different preparations of aconite. He was led to the investigations which he reports by the unevenness of the action of the different preparations of this drug, used in France, and, hence, he sought to find what were the active parts and preparations and the degree of their activity and fitness for therapeutic use. He found that the effects varied, (1) according to the part of the plant used in the pharmaceutical preparation administered, without regard to the place of its derivation, the

climatic conditions under which it was raised and the mode of preparation; (2) according to the locality of origin of the plant; and (3) according to the preparation. He found that the leaves, stems and seeds, were much less active than the roots, that these latter varied, according to the region in which they were cultivated. Thus cultivated aconite of the gardens was much less powerful than that of mountain regions, such as Vosges and Switzerland. The tinctures of the fresh leaves, flowers, stems, and seeds, are weak and uncertain in their effects; that of the fresh roots is much stronger, but must be prescribed with caution, in very small doses, on account of the variability of its action due to the retention of the water of vegetation. The tinctures of the dried leaves and roots are active preparations, especially the latter, but both are uncertain in their action.

The extract of the leaves of the French codex, is an unreliable preparation, that of the roots, prepared from the Vosges aconite is much stronger and is the one preferred above all the others by M. Oulmont, since it is most uniform in its effects. The Dauphiny and Swiss aconite, he says: should be rejected on account of the violence of their action.

In regard to the alkaloid aconitia, he says:

"It is an extremely energetic medicament. It is a crystallized fixed substance of a very definite and regular action. But, on account of the violence of its effects, and perhaps, also, on account of some undetermined varieties of this alkaloid, it should be given to patients only with extreme caution.

"Aconitia exercises its physiological and therapeutical effects in the dose of one-fourth of a milligramme; it can nevertheless, when proceeded with, gradually be carried as high as one, or even two, milligrammes in a day without causing serious accidents.

Whatever preparation of aconite is employed, with the exception of the tincture of the fresh leaves, should always be administered in small doses, and should be increased only gradually and in fractional quantities.

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BROMOHYDRATE OF QUININE.—Gubler *Jour. de Thérap.* No. 18, 1875. (abstr. in *Allg. Med. Central Zeitung.*)

After Latour first combined bromohydric acid and quinine, Broil expressed the formula of the neutral quinine salt as  $C^{40} H^{4} N^2 O$  (HBr.) 2 HO. This combination crystallizes in long white, sometimes yellowish, crystals, with rectangular faces, and is more soluble than the sulphate.

The greater solubility and alkaloid contents, gives this combination the preference over the other salts of quinine, making it suitable for hypodermic administration; moreover, both constituents, the quinine as well as the bromine, act as neuro-tonics.

The author recommends doses of as much as 0.1,—0.4, or even 0.8 grains daily.

The effect of large doses is, that of quinine, namely, headache, tinnitus, deafness; and that of bromine, muscular weakness and drowsiness.

For hypodermic use, the author recommends a solution in the prepara-

tion of 1-10 of alcoholized water, and uses one-third less to produce curative results than of the sulphate of quinine.

The author cured with this agent a case of very severe hysterical vomiting which had been resistant to all remedies, the symptoms appearing after the cessation of the medicine, and again disappearing on its resumption. Similarly this agent should prove efficacious in other neuroses of the stomach, in regard to which it will be reported after further observations have been made in other cases.

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**TRI-NITRO GLYCERINE.**—Dr. A. J. Minor, *Am. Psychological Journal*, January, calls attention to the physiological and therapeutic properties of this compound, which has lately been so much used as an explosive in engineering operations. He quotes the various authorities on the subject who had had experience with its poisonous effects, and details some experiments performed by Dr. A. McL. Hamilton on dogs and frogs, and also on himself. He found the symptoms produced by it to vary somewhat, but it always induced severe headache, and decided phenomena of cerebral congestion. Dr. Minor suggests that it acts on the medulla either through the circulation or direct nervous stimulus. The experiment with a frog rather points to this latter mode of action; but, on the other hand, the slowness of action in the case of the dog is somewhat contradictory. It undoubtedly has a powerful influence upon the pneumogastrics, and the congestion of the brain is not only the result of such stimulation, but of paresis of vaso-motor fibres as well.

As regards its therapeutic use, Dr. Hamilton thinks it will do well as a prophylactic in epileptic seizures; better than nitrite of amyl, as it is more continuous in its action.

Another indication is in cases of spasm of the cerebral vessels.

It also appears useful in some cases of neuralgia.

To counteract the intense headache it produces in those who are obliged to handle it, Dr. Minor recommends pretty full doses of the dilute hydrocyanic acid, and also copper in certain cases.

Ergot has likewise been used, but is hardly recommended. The bromides seem to offer, on the whole, the best results in counteracting these effects.

The best preparation for administration, according to Dr. Minor, is a solution in alcohol one part in twenty, five minims of which would thus contain one quarter of a minim of nitro-glycerine.

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**IODIDE OF SILVER IN PERTUSSIS.**—Dr. Robert Bell, of Glasgow, has treated over one hundred cases with this substance and with uniform success. He uses no other remedy, except occasionally ten or fifteen grains of bromide of potassium at bed-time. In almost every case treated by the iodide of silver, the cough lost its whoop in four weeks and was well in six weeks. Similar results were observed where two or more cases occurred in the same family. One-eighth of a grain doses three times a day were given, in a case illustrative of the treatment. He says he does not

attempt to explain the precise action of the iodide, but that whooping cough being a disease of the gastric periphery of the pneumogastric nerve, the silver salt acts as a sedative to this morbidly sensitive nerve preventing reflex irritation being conveyed to its pulmonary ramifications. (*Obstetrical Jour.* Dec. 1875, *N. Y. Med. Record*, Feb. 26.

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EMETICS AND VOMITING.—Grasset, *Archives Gén. de Médecine*, (abst. in *Allg. Med. Central-Zeitung*), divide sometimes into three classes, as follows:

1. Peripheral emetics, which produce vomiting by irritation of the terminations of the vagus. This irritation takes place at once when the emetic is introduced into the stomach, or when it begins to be eliminated from the digestive passages, after it has been introduced directly into the blood. Ipecacuanha belongs to this class.

2. Central emetics, of which apomorphia may be considered as the type, which produce vomiting by directly irritating the reflex centre for emesis in the medulla.

3. Mixed emetics, which excite at once the vagus and the reflex centre; tartar emetic belongs to this class. These last also possess an action on the skin and mucous membranes; they modify respiration, circulation, temperature, increase the secretions and diminish and paralyze the excitability of the striated muscles.

The reflex centre for vomiting is situated in the medulla, near that for respiration. It can also be aroused to action either through various nerves in the pharynx, or by the sensory nerves of sight, smell, or other cerebral irritation. If the cause is gastric the vagus, and not the sympathetic, is the nerve through which the irritation acts.

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STRYCHNIA POISONING. At the meeting of the Soc. de Thérapeutique, Nov. 24, 1875, (*rep. in Bull. Gén. de Thérap.*) M. Constantine spoke of the means of combating poisons by strychnia. This treatment includes three indications.

1. To evacuate from the patient all the poison, if it is not too late, or at least all that has not been absorbed.

2. To administer inoffensive substances that will render the poison inert, *i. e.* insoluble in most cases.

3. To combat the symptoms of poisoning.

These three indications are met by evacuants, counter poisons and antagonists.

Among the evacuants M. Paul specially mentioned apomorphine as affording good results. Among the counter poisons he recommended iodine and tannin. The preparation advised by M. Bouchardat is as follows:

Iodine 50 centigrammes ( $=7\frac{1}{2}$  grs.); distilled water, 40 $\frac{1}{2}$  grammes ( $=1.54$  oz.); iodide of potash 1.6 grammes ( $=24$  grs.). Dissolve. Four grammes and seven tenths ( $7\frac{1}{2}$  grains) are required to precipitate five centigrammes of strychnia.

But in this case the precipitate itself is not inactive, and should be evacuated soon.

Then M. Paul reviewed the various proposed antidotes.

In the discussion that followed, the question as to the value of the various preparations of nux vomica was raised between M. M. Moutard-Martin, Mialhe, Delpech and others. The result they reached was, that though they were rather stable, they still presented some inconveniences and contained a very variable quantity of the alkaloid. There was therefore more advantage in the employment of the salts of strychnia.

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**LUPINE.** The following are the conclusions of an experimental study on the action of the seeds of lupine, by R. Bellini, published in *Lo Sperimentale* during the past year, and abstracted in the *Bull. Gén. de Thérapeutique*, Dec. 15th.

1. The seeds of lupine contain an active principle, soluble in water, which can be driven out by boiling.

2. This principle is toxic, not only to the lower animals but also to man.

3. It does not directly irritate the surfaces to which it is applied.

4. Passing into the circulation it exerts its action on the brain, the vaso-motor nerves, the sensory nerves, the motor nerves of the voluntary muscles and even on the muscular fibres themselves.

5. From the character of the morbid phenomena it produces, we may conclude that this action is enfeebling.

6. The sensory nerves are the ones most affected, and the toxic action is exercised more on their peripheral expansions than on their trunks.

7. Nevertheless, it appears that this principle does not produce any profound change in the nervous or muscular structure, since the effects of the depression last only while the poison is still in the organism and are counteracted by excitants.

8. From these facts it appears that the decoction of lupine should be excluded from therapeutics either as a bitter, a stomachic tonic, or a vermifuge.

9. It may be employed externally as a parasiticide without fear, either in man or the lower animals.

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**SQUILLS.**—The following are the conclusions of a recent article running through several numbers of the *Deutsche Med. Wochenschrift*, Nos. 9, 10, 11, 12, and 13, by Dr. Th. Husemann, of Goettingen, on the physiological and therapeutic action of squills.

1. The extract of squills prepared according to the directions of the Pharmacopœia Germanica is a very constant preparation in its action on the animal organism.

2. It affects the innervation of the heart and the cardiac muscle in a very similar manner as do digitalin, digitalein, helleborein, antiarin, thevetin, and all those glycosides which are known as cardiac poisons.

3. The diuretic action of this extract can be explained only by the in-



crease of blood pressure connected with its effect as a cardiac poison; it acts in no other way, and produces neither a local irritant action on the urinary passages nor does it have an eliminant effect from irritation of the kidneys.

4. The indications and contra-indications of extract of squills as a remedy in dropsy are apparently not different from those of digitalis.

5. It does not have an expectorant effect by any eliminant action on the bronchial nervous membrane.

6. It is also not an antipyretic, it rather in large or small doses causes a constant increase of temperature.

7. The commercial scillitin, on account of the uncertainty of its action which prevents an accurate judgment of the dose, cannot be recommended as a substitute for the extract.

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The following are some of the recent articles on the Therapeutics of the Nervous System and Mind.

VOISIN.—New observations on the curative treatment of insanity by sub-cutaneous injections of morphia. *Bull. Gén de Thérap* Feb. 15; MASSA. On the action of tartar emetic. *Lo Sperimentale* Dec. 1875; CURCI. The action of silver on the nervous and muscular systems. *Ibid*—MEYER. On the hypnotic action of lactate of soda. *Virchows Archiv* LXVI. 1. Jan. 26; SCHUMACHER. On the therapeutics of pathological conditions of the pneumogastric. *Berliner Klin. Wochenschr.* Jan. 17; DOUGLAS LITHGOW. Nitrite of amyl in nervous cephalalgia. *Lancet*, Dec 1875.

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