MEDICAL NOTES.

Dyspepsia and the Use of Pepsin.

The views of Dr. Schacht concerning digestion have been confirmed by Professor Leube (the inventor of Leube's meat solution) of Jena in a lecture just published on stomach diseases. He says: 1. No condition of the stomach has yet been observed in which pepsin is altogether absent. 2. The cause of indigestion is generally the absence of sufficient acid. 3. The action of pepsin in a solution of albumen resembles that of a ferment, and it will continue so to act without end, merely by the addition of more acid. 4. Alcoholic solutions, especially wine, on account of the tannin it contains, should be avoided as vehicles for pepsin. Finally, he recommends, in case of indigestion, a solution of chopped meat with water, adding a small proportion of pure muriatic acid, and some thickening. He finds such a solution very nourishing, and reports excellent results. These views and experiments are not novel, but exhibit the old doctrine as to digestion, and it appears to be the sound one. The secretion of the pancreas is now thought necessary to the digestion of fatty substances; and where these are used to any extent—as in cod liver oil—it would be best to take the new medicine pancreatin, which acts best with an alkali instead of an acid, or to use a little of the solution of the pancreas of freshly killed animals. We conclude with the recommendation that some good medicine-manufacturing firm should prepare a genuinely pure muriatic acid for the use of dyspeptics. It would meet with a large sale, and should be sold in a moderately diluted state.

Benzoic Acid for Ammoniacal Urine.

Professor Gosselin and M. A. Robin recently read a paper before the French Academy of Sciences, in which they detailed experiments upon rabbits and guinea pigs to show how far ammoniacal urine is poisonous when entering the system by a wounded surface. Subcutaneous injections of carbonate of ammonia solution caused death, preceded by convulsive symptoms; but a solution of ammonia in urine or human ammoniacal urine caused the animals to die with febrile symptoms similar to those of urinary fever, without any nervous effects. Normal human urine so injected produced no injury. The conclusion is that ammoniacal urine is poisonous to animals, and probably to man if absorbed into the circulation. It thus becomes important to correct this state of the urine, not only because it favors the formation of phosphatic calculi, but because, in case of injury to the urinary passages, there is also danger of urinary poisoning. Benzoic acid has been shown by Ure and Keller to be rapidly transformed into hippuric acid, which is harmless. The authors above named refer to three cases in which this acid was used, two of the patients having calculi. In one case, the ammoniacal urine was rendered neutral by one and a half to two grammes of benzoic acid daily, given in water or mucilage. The urine soon became acid, and the patient did well. In another case, where the urine became ammoniacal after a third lithotrity *séance*, two grammes of the acid daily for a week restored the urine to a proper state. The third patient, a subject of stricture, had urine containing from four to six grammes of ammonia per litre. Twenty days' employment of the acid rendered the urine harmless to animals. The authors conclude that benzoic and perhaps other vegetable acids should be prescribed for patients suffering from ammoniaco-purulent cystitis, and especially for those who have to undergo operations on the urinary organs.

Vomiting---Sea Sickness.

The well known physician Brétonneau strongly recommended belladonna in the frequent vomiting of pregnancy. He used frictions of the extract diluted with water, rubbed into the hypogastrium for several minutes two or three times a day. This treatment relieved in many instances when all other means failed. For over 25 years Dr. Guéneau de Mussy has extended Brétonneau's treatment to all descriptions of vomiting; but he has found that a plaster is the best way of use, allowing continuous application. He takes diachylon plaster and theriac plaster, each two parts, extract of belladonna one part, the plaster being 12 centimeters in diameter. It may be applied to the epigastrium for 12 or 15 days without being renewed; and out of the thousands which he has employed, he met with only one case in which an idiosyncrasy caused any trouble. In a great number of cases he either stopped or greatly mitigated the vomiting, from whatever cause. Dr. Mussy has tried this remedy in four cases of sea sickness with good results, and has great hopes of the benefits to be derived from such treatment in that painful affection. His plan certainly looks promising in a disorder which seems to resist all other remedies.

While on the subject of vomiting, let us note the method of Dr. Woilliez, who recommends swabbing the pharynx before eating with a concentrated solution of bromide of potassium: this in cases of consumptives and others who vomit their food in paroxysms of cough. The patient is warned not to cough for a few minutes after the application. The same treatment is said to be successful in the vomiting of pregnancy.

Poisoning by Shot.

It is often the case that bottles to be used for wine, cider, and medicines are cleaned by shaking shot and water in the bottle. It has been found that a crust of carbonate of lead adheres to the sides of the bottle where there is much shaking, and especially where the shot and water are left to stand in the bottle. To make the matter worse, arsenic is always present in shot in a poisonous quantity. If people will clean bottles in this way, they should pour out the shot soon, and rinse with vinegar or nitric acid solution.

Hay Fever.

Dr. T. C. Hoover, of Bellaire, Ohio, in the *American Journal of the Medical Sciences*, relates his successful treatment of this curious disease, so baffling to the profession. The first patient was a lady who had fits of sneezing which lasted several hours. She also had a slight cough, and suffered much at times from difficulty of breathing. The doctor made the following solution: Chlorate of potash 20 grains, sulphate of morphia 4 grains, pure water 2 fluid ounces; mix. He used this solution by means of an atomizer. Relief was instantaneous. Continued application kept the patient well for five days. Then the sneezing returned, and the Doctor ordered the use of the following solution through the same instrument: Bromide of potassium one drachm, water two fluid ounces. This also stopped the paroxysms. She was ordered to use these preparations alternately, from 6 to 10 inhalations three times daily, or about one fourth of a drachm. She continued to improve till she discarded the spray, being entirely well. Several other cases were similarly cured, some in a short time.

Chloral for Headache.

Dr. E. M. Nolan, in the Atlanta *Medical and Surgical Journal*, describes the following cure of a very painful headache in a lady. He dissolved 15 or 20 grains of chloral in very little water, and with the tip of a finger rubbed it upon one of her temples until she could sensibly feel the burning, and the skin was reddened. The part rubbed was no larger than a silver dollar. The pain was entirely relieved and remained so. The Doctor has also used this method of applying chloral for headache with success in many other cases, sometimes rubbing on one temple, and sometimes on both. No permanent sign is left.

Etherole of Sulphur.

This is highly recommended as a remedy for Asiatic cholera. It is made by adding one part of washed sublimed sulphur to ether, 65° Baumé, specific gravity, 0·722. The flask may be held a few seconds in warm water to increase the dissolving power of the ether. Well rectified ether dissolves one eightieth of its weight of sulphur. It is given as follows: At the immediate time for exhibition, a glass half full of sugared water has a small piece of ice added, and 25 or 30 drops of etherole are poured in, then the tumbler is filled with seltzer or soda water; the patient drinks this by small mouthfuls. Before adding the etherole, shake the flask well, but let the heavier particles of sulphur settle.—*C. C. Boutigny.*

Lockjaw and Quinia.

Several cases of tetanus have followed hypodermic injections of sulphate of quinia, which will render medical men more careful in thus employing it. M. Bourdon says the following preparation is not irritating, and may be injected without danger: By weight, sulphate of quinia 2 parts, tartaric acid 1 part, water 40 parts; mix.

Iodide of Potassium Improved.

Sir James Paget first called attention to the fact that carbonate of ammonia greatly increases the therapeutic action of iodide of potassium. Mr. J. P. McSweeny states, in the British *Medical Journal*, that he has tried this combination extensively in syphilis with the best results, and finds that 5 grains of iodide combined with 3 grains of carbonate are equal to 8 grains of the potassium salt as ordinarily used.

Prevention of Mistakes in Giving or Using Medicines.

The many deaths that occur through the lack of a proper system in the apothecary business demand a speedy reform. There will be ignorant and careless young men in that as in every kind of employment, and also plenty of ignorant or careless people among the sick or their friends, who, without some better warning than they have at present, will mistake one drug for another. They have a stricter system as to this matter in Germany, and one still more strict in Sweden. In those countries, the poisonous medicines are locked up by themselves in a special closet. We cannot see why this should not be done here. If morphia or any two or three dangerous substances are so much used that they must be handy, let each have its own place and package, so as not to be mistaken for anything else. Some have suggested triangular vials for poisons, so that nurses and patients, as well as clerks, may know the danger by the touch; and the suggestion is a good one. But best of all, we think, is the plan of having every proprietor or chief clerk of a drug store make out a complete list of poisons that he sells, and place it in a conspicuous position on his prescription counter, and compel every clerk who waits on customers to learn the list by heart. The list must of course include the dose within which safety lies. If druggists performed their duties properly, there would be no need for protective legislation.

An Optical Delusion.

The following is an optical delusion which is none the less interesting for being very easily explained.

Let a person, standing before a looking glass, look attentively at the reflection of the pupil of one of his eyes, and then at that of the other—let him look at different parts of the eye, and from one eye to the other, first at one and then at the other. Knowing that thus, in changing the direction of his gaze, his eyes must move about in their sockets, he will expect to see that they do so in the glass. As a fact, they will appear perfectly still.

If he looks at the eyes of another person trying the experiment, the peculiar fixedness of his own will be still more striking, when he looks at them again.

I will not spoil the riddle by giving the answer at the end. —*Nature.—J. H.*

Compressed Air as a Motor.

The use of compressed air as a motive power is destined to receive an enormous development as its capabilities and advantages become better understood. What countless wealth is thrown away in the unheeded fall of our rivers and the flow and the ebb of the ocean tides, simply because few consider that the power thus wasted could be conveyed to almost any distance, at very trifling cost, by means of compressed air, or rope transmission! As long ago as 1837, a series of experiments were made in Coscia, by order of the Italian government, to determine the resistance of tubes to the flow of air through them; it was found that:

1. The resistance is directly as the length of the tube.
2. It is directly as the square of the velocity of the flow.
3. It is inversely as the diameter of the tube.

And as the volume is directly as the square of the diameter when the velocity is given, it follows that, under a given pressure and velocity, the relative resistance, that is to say, the resistance divided by the power, will vary inversely as the cube of the diameter.

There is, consequently, a great advantage in making the tubes and openings through which the air has to pass as large as possible. Experience has shown that tubes can be made so as to allow of very little leakage. At the Mont Cenis tunnel, no leak was ever found in tubes nearly a mile and a half in length, nor did the expansions and contractions of the tubes, due to changes of temperature, appear to affect sensibly the firmness of the joints. On one occasion it became necessary to leave the receivers of compressed air for twenty-four days; the loss in all that time did not exceed 5-1000 part of the daily supply.

It is therefore possible to transmit power by compressed air to very great distances, with scarcely appreciable loss in its transmission. There is, however, a much more important loss than that just mentioned. When air or any other elastic fluid is compressed, there is generated an amount of heat which is the exact equivalent of the force employed in the compression. This heat, in practice, is radiated from the compressor, the reservoir, and the tubes, and is lost; when the compressed air has attained the temperature it possessed before compression, it has lost in cooling exactly as much power as was expended in compressing it; but since the air still remains under a considerable pressure, if allowed to expand its temperature falls below that of the atmosphere, and in so doing it develops work; but inasmuch as the temperature in expansion will not be depressed nearly as much as it was increased in compression, the loss of work will always be considerable, increasing with the pressure to which the air has been subjected; the loss is moreover susceptible of exact calculation. Taking the case of the Mont Cenis tunnel, where a pressure of six atmospheres was attained, the air, instead of being compressed to one sixth of its volume, as would have been the case were no heat generated, actually entered the reservoir when its volume had been reduced but 3·6 times, and, theoretically, the power available would have been but 60 per cent of that expended; practically it was somewhat less than this. If the air were compressed to eight atmospheres, there would remain available but 55 per cent; and for about eleven atmospheres of compression, but 50 per cent of the compressing power could be obtained. If the compression is less, say four atmospheres, 67 per cent would be secured; for three atmospheres, 73 per cent would, according to theory, be available, and so forth; hence we see that where the lower pressures will perform the work to be done, and will not necessitate the use of extra large and costly engines to utilize the power, there is an evident advantage in not using a very high degree of compression.

To this loss of power, practically inherent in compressed air, we must add the loss due to its transmission through tubes; this, where the pressure is not excessive, and where the velocity is reduced by the use of large tubes, is a much smaller item of loss than the other; it would not be over one third or one fourth of it. In carrying the air through, say 10 to 15 miles of pipe, it would not exceed, say, 5 to 8 per cent.

As we have stated, it is impossible, under ordinary circumstances, to utilize more than, say, fifty to sixty per cent of the power expended in compressing the air; yet, from the fact that compressed air enables us to carry, at a small cost, the power wasted in waterfalls to points where it can be used with advantage, the loss of 50 per cent in the motive power is a small matter, and the actual power obtained would cost in general much less than if generated with our most economical steam engines.

The use of compressed air for driving underground machinery, whether it be hoisting engines, rock drills, coal cutters, or other machines, is peculiarly advantageous, for it provides a valuable addition to the ventilation of the mine, and reduces the temperature, which in deep mines is so excessive. It can be carried to much greater distance than steam, which, moreover, is very destructive to mine timber.—*Engineering and Mining Journal.*

That is so.

American manufacturers have, from the first, been only placed at a disadvantage with England in one particular, and that is in the comparative dearness of labor. To overcome this difficulty has been the task of inventive ingenuity and enterprise in the States for many years past, and the result is such a substitution of machinery for hand labor, and such an application of scientific methods to economize production, as can be matched probably by no other country in the world.—*Colliery Guardian.*

BONE CHARCOAL.—Compact bones, such as marrow bones, give more charcoal, and of better quality, and yield less ammonia, oil, and gas, while the converse holds with light bones.

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