Bile was collected in fifteen minute fractions for one hour in order to determine the normal flow. The solution of magnesium sulphate was then injected into the duodenum, and observations on the flow of the bile were made for one hour in fifteen minute fractions (Table 2 and Chart 2). Similar observations were made before and after intravenous injection of magnesium sulphate (Table 3 and Chart 3).

In order to test the validity of the procedure of the intraduodenal injection of magnesium sulphate, experiments were carried out in which fresh bile was injected into the duodenum in the same manner (Table 4 and Chart 4). The experiment was controlled by another in which physiologic sodium chlorid solution was used instead of bile.

COMMENT

The experiments outlined were undertaken in order to determine whether magnesium sulphate introduced directly into the duodenum or into the circulation would cause any change in the volume or in the character of the bile. The data tabulated are representative of observations on many dogs.

The technic employed was simple and easily executed. When the common duct was cut at its entrance into

stimulation by introduction of the needle and the solution.

CONCLUSIONS

The results of our experiments were entirely negative. When magnesium sulphate solution was injected directly into the duodenum of dogs or injected into the circulation, there was neither acceleration of the rate of flow of bile, nor change in the color. In many instances the rate was even somewhat retarded.

When bile was injected into the duodenum, there was a definite, prompt increase in the flow of bile.

BILATERAL ABDUCTOR PARALYSIS OF
THE LARYNX CAUSED BY "MOON-
SHINE" WHISKY

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Alcoholism seems to be one of the rarest of etiologic factors in paralysis of the bilateral abductors (the crico-arytenoidei postici) of the larynx, an extremely serious and often fatal condition. A thorough search of the literature, including a study of Semon's¹ masterful treatise on motor disturbances of the larynx, disclosed but one fully reported case of this kind. In fact, alcohol is not even mentioned by Semon nor is reference made to it in any of the hundreds of reports he had accumulated. Only in Oppenheim's textbook is it mentioned among the possible etiologic factors of multiple neuritis affecting the vagi, among other nerves.

The only recorded case is that reported by Uffenorde.

REPORT OF UFFENORDE'S CASE

A man, aged 59, as a result of heavy drinking, developed first a partial brachial paralysis and then symptoms of laryngeal obstruction, dyspnea, cough and cyanosis. The vocal cords were completely adducted and failed to move from the median position on inspiration. With the exception of some pachydermic masses on the cords, there was no other local pathologic condition, neither were there symptoms of any other nerves being involved. Three days after he had been denied the use of alcohol, the stridor and dyspnea disappeared and both cords began to abduct slightly on inspiration, and, within six days, function was completely restored.

The patient, however, resumed drinking and returned to the hospital a year later with a recurrence of the dyspnea and other symptoms. The vocal cords were again absolutely immobile in the midline. The dyspnea and cyanosis were so marked that a tracheotomy was performed. Again recovery took place within a very few days, and the patient was dismissed. He returned several times later on account of dyspneic attacks which followed heavy drinking; but at no time was the paralysis evident, as in the original attacks. It was rather a spastic closure of the glottis, of short duration, in which the psychic impress of the previous experiences was the dominant factor. The later attacks rapidly disappeared under palliative treatment.

REPORT OF AUTHORS' CASE

In the case which we had the opportunity to observe, the attack presented a group of symptoms suggestive of the Avellis-Schmidt syndrome, which is generally due to bulbar lesions or tumors in the region of the jugular

Chart 4.—Flow of bile before and after bile had been injected into the duodenum.

TABLE 4.—EFFECT OF INTRADUODENAL INJECTION OF BILE IN DOGS

Cubic Centimeters of Bile Every Fifteen Minutes	Gallbladder Not Removed	
First.....	2.1	3.0
Second.....	2.0	2.8
Third.....	1.6	2.5
Fourth.....	1.7	2.7
Cubic centimeters of bile secreted following injection at fifteen minute intervals	15 c.c. of physiologic sodium chlorid solu- tion injected intra- duodenally	15 c.c. of fresh bile injected intraduoden- ally
First.....	1.2	3.0
Second.....	1.0	3.5
Third.....	1.5	4.0
Fourth.....	1.7	3.8

the duodenum, any nerve path which might have passed by this route was also severed. If a nerve reflex was dependent on such a route it would have been abolished.

It was found that the rate of flow of bile in the control experiments was more uniform when the animals were fasting; therefore, any fluctuation in the rate of flow after the injection of magnesium sulphate could best be determined in the fasting state.

After intraduodenal injection of magnesium sulphate, the duodenum, which was clearly visible through the skin, at first contracted and then remained markedly relaxed for from thirty minutes to one hour. This initial contraction was probably due to mechanical

1. Semon, in *Handbuch der Laryngologie und Rhinologie*, Vienna, Paul Heymann, 1, 1889.
2. Oppenheim: *Lehrbuch der Neurologie*, 1907.
3. Uffenorde: *Ztschr. f. Ohrenh.* 72: 53, 1915.

fossa. The lesions involved the facial, vagus and hypoglossal nerves, on one side, together with some of the upper cervical motor nerves and some fibers of the opposite vagus. The spinal accessory nerve apparently escaped.

The provocative agent was a home-distilled "moonshine." Since the advent of prohibition and the consequent increase in the consumption and manufacture of improperly distilled liquors and synthetic concoctions, a new form of alcoholism has come to light, differing considerably from the classic type of days past. Its predilection for the ocular apparatus and its tendency toward strange psychoses are among the more recently observed manifestations. Our case demonstrated the extremely toxic effects of these beverages on nerve cells, as manifested by the multiple neuritis as well as the mental derangement.

History.—C. W., man, aged 43, a woodworker, was brought in suffering with difficult respiration of about eight hours' duration. He stated that the attack began the night before, with a choking sensation, and that he had never suffered an attack of this kind before; nor could he state what brought in on. The dyspnea was chiefly inspiratory.

Examination.—The preliminary examination revealed an emphysema and piping râles throughout the chest. A provisional diagnosis of asthma was made. A little later a laryngeal examination was made. It was found that the vocal cords were in complete adduction, and, except for a slight wavering of the right cord, failed to abduct on inspiration. There was a slight amount of edema of the arytenoids and the aryepiglottic folds.

The cyanosis and stridor, though marked, were not sufficient to necessitate immediate tracheotomy. The following day, the dyspnea was still pronounced, and the patient complained of headache, cough, and nausea, which were later followed by vomiting. These symptoms persisted, and, in addition, the patient became irrational and boisterous, and tried to get through a locked door leading to the fire escape. Restraints were applied. He continued to be very restless and noisy, talking loudly and irrationally. The pulse was weak and thready, ranging from 130 to 156, and the respirations were correspondingly rapid (48 to 54). His expression was anxious, and he perspired freely. Cyanosis, though present, was not threatening. In addition, the examination disclosed: (1) paresis of the right side of the face; (2) paresis of the right half of the tongue; (3) inability to elevate the chest (paresis of the accessory muscles of respiration; the pectoralis minor, serrati and scaleni); (4) increased knee jerks; (5) doubtful Babinski on the left side; (6) normal pupils and fundi.

The multiplicity of symptoms suggested cerebrospinal syphilis, which diagnosis, however, was later ruled out through the subsequent course of the case and the negative Wassermann reactions on both blood and spinal fluid.

The leukocytes numbered 9,800; the urine was negative for albumin, sugar and casts. The following day the patient was improved. Breathing was easier; he was more rational, quieter and the pulse was slower (pulse, 118; respiration, 24). Examination of the larynx revealed the left cord immobile in adduction; the right cord abducting slightly on inspiration; the epiglottis and arytenoids somewhat edematous.

At this time, by close questioning, we obtained the information that the patient had for some time past been imbibing freely of a home-made alcoholic distillate which was being manufactured in the neighborhood, and that just previous to the onset of the attack he had obtained several bottles that had recently been made. Nothing definite could be ascertained as to the exact nature of the concoction, except that it was almost white and was "very strong."

A roentgenogram of the chest at this time proved negative.

Course.—The paresis of the face, tongue and chest muscles disappeared within forty-eight hours, and the laryngeal condition showed progressive improvement. Examination on the nineteenth day, under direct laryngoscopy (local anes-

thesia), revealed the right cord moving freely, both in abduction and adduction; the left cord was still in adduction and moved but slightly on deep inspiration. There were slight pachydermic masses on both cords and the inter-arytenoid space, but no edema, tumor or ulcer.

The patient returned to the hospital for observation at weekly intervals for two months and showed a general improvement, gaining 20 pounds (9 kg.) in weight.

Examination, three months after the attack, demonstrated the right cord completely recovered and the left one almost in the cadaver position, although showing some slight motion on phonation. It appears that the paralysis of the recurrent nerve was almost complete on this side, having gone through the cycle in accordance with Semon's law, beginning with the abductors and ending with the adductors.

The voice is, nevertheless, very good, as the right vocal cord during phonation overrides the median line and opposes the left cord in the oblique position.

RELATIVE VALUE OF SACHS-GEORGI AND WASSERMANN REACTIONS IN DIAGNOSIS OF SYPHILIS

AN ANALYSIS OF ONE THOUSAND SEVEN
HUNDRED AND FORTY-EIGHT
PARALLEL TESTS *

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An enormous literature has accumulated regarding the relative merits of the Sachs-Georgi and the Wassermann tests in the diagnosis of syphilis, a literature that is so filled with contradictions that an unprejudiced reader is utterly at a loss in evaluating the relative accuracy of the two tests. Some observers claim for the Sachs-Georgi reaction a greater specific value in the diagnosis of the disease than is possessed by the Wassermann reaction, while others conclude that the Sachs-Georgi test is less accurate or absolutely unreliable.

In view of the discordant results recorded in the literature with the Sachs-Georgi test, we believed that it would be of some value to compare the results obtained with the two tests on routine specimens of blood sent to the laboratories of the Army Medical School for the Wassermann test. This work has covered a period of nearly one year and has been very carefully conducted, the Wassermann tests being made and read by one of us (W. C. W.), while the Sachs-Georgi tests were made and read by the other (C. F. C.). In this way all leaning toward forcing an agreement between the results of the tests, which might unconsciously be brought about when a single person makes and reads both tests, was avoided and an absolutely unprejudiced reading of both was possible, as neither of us knew at the time of reading his tests what result had been obtained with the comparative test.

From our experience we are positive that a greater agreement between the two tests would have been obtained had one observer made all of the readings for both, but we are also positive that the data so obtained would have been very unreliable, as many of the weak Sachs-Georgi reactions would have been read

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