

EINHORN. (MAX)

RUMINATION IN MAN

BY

MAX EINHORN, M.D.,

PHYSICIAN TO THE GERMAN DISPENSARY, NEW YORK

Reprinted from the MEDICAL RECORD, *May 17, 1890*



NEW YORK

TROW'S PRINTING AND BOOKBINDING CO.

201-213 EAST TWELFTH STREET

1890

RUMINATION IN MAN

BY

MAX EINHORN, M.D.,

PHYSICIAN TO THE GERMAN DISPENSARY, NEW YORK

Reprinted from the MEDICAL RECORD, *May 17, 1890*



NEW YORK

TROW'S PRINTING AND BOOKBINDING CO.

201-213 EAST TWELFTH STREET

1890

RUMINATION IN MAN.¹

By rumination, or "chewing the cud," we designate a condition in which the food returns, without nausea, in small portions, from the stomach through the œsophagus into the mouth, some time after meals; here it is chewed anew and swallowed.

Rumination belongs to the normal physiological processes of most herbivora, and forms the most marked characteristic of the whole class of mammals which we call "ruminants."

Here the rumination is a most appropriate arrangement. The herbivorous animals are obliged to partake of great quantities of food, as the nourishing value of the grasses is relatively a small one. On the pasture they must make use of their time for gathering and swallowing the grass. Afterward, when they have more time and leisure, they reduce the food to smaller particles and mingle the same with saliva, by the act of rumination.

In view of this circumstance the stomach of ruminating animals differs in construction from that of other animal classes. It consists of four compartments: Paunch, or rumen, honeycomb-bag, or bonnet, manyplies, or psalter, and reed, or rennet. The first two serve more or less as reservoirs, whereas the two latter contain the glandular elements for digestion.

At the first act of swallowing, the food materials enter the rumen and the bonnet, whereas after chewing the cud the food passes directly into the psalter and rennet.

¹ Read before the German Medical Society of New York, May 5, 1890.

Chewing of the cud, which is so very important and appropriate for the whole class of ruminants, occurs, though quite rarely, in man, and is designated then as rumination or merycism.

For man rumination is unnecessary, and more or less a hindrance. One can hardly define rumination as a disease, for the bodily functions are in no way harmed by that process, but as an abnormal, anomalous condition, which must be socially an uncomfortable and disagreeable burden to its owner.

As I have lately had the opportunity to observe two cases of rumination in man, I take the liberty to-night of speaking more fully on this interesting subject.

1. **History of Rumination.**—In ancient times there were confused views on rumination in animals which in fact do not ruminate at all. Thus Aristotle and Plinius¹ speak of ruminant hares and hamsters. The occurrence of rumination in man, however, is not mentioned.

Fabricius ab Aquapendente,² in 1618, first observed and described two cases of typical rumination in man. The physicians of that time imagined that the stomach of ruminating men divided itself into as many divisions as that of ruminating animals. But Fabricius ab Aquapendente had the opportunity of making the autopsy after the death of his ruminants, and could state in this way that that conjecture was not correct. Fabricius found the stomach only dilated and thickened, but otherwise not different from any other stomach of man.

At this time there were many mystic ideas about the origin of rumination; it was believed, for instance, that the merycists descended from horned parents. Thus, as the father of his ruminating subject was believed to have had a horn on his forehead, Fabricius³ remarks: "Ex quo forte datur nobis intelligi parentis semen aliquam

¹ Johannessen: *Zeitschr. f. klin. Med.*, Bd. x., p. 274.

² Fabricius ab Aquapendente: *Tractatus de gula, ventriculo et intestinis*. Patav., 1618.

³ Ewald: *Klinik der Verdauungskrankheiten*, ii., p. 436.

habuisse affinitatem cum cornigeris animalibus, neque mirum fuisse genitum filium simile quid a parente contraxisse."

A little while afterward, imitation was supposed to be the main cause of rumination. It was generally assumed that all ruminants had been suckled in their infancy by ruminant animals, and in this way had learned from their feeding mothers the process of rumination.

With Peyer,¹ who, in 1685, had reported twelve cases of rumination in man, begins the scientific discussion of this subject. The same is connected with the doctrine of rumination in general.

2. **Mechanism of Rumination in Animals.**—The act of rumination is composed of: Ejaculation (forwarding the bolus from the stomach through the œsophagus into the mouth), chewing, and swallowing. The main difficulty of the mechanism lies in the explanation of the ejaculation, which act is equally important for rumination as well as for vomiting.

Peyer supposed that the rumen contracts, and in that way causes the food to come up. In man, also, Peyer attributed rumination to abnormal contractions of the stomach. Daubenton² attributed the act of preparing and forming the returning bolus for rumination to the bonnet. Flourens³ made the resection of the bonnet in a sheep, but on the day following the operation the sheep began to ruminate again in the usual manner. Flourens therefore rightly concluded that the bonnet cannot be the causing moment of rumination. Flourens now ascribed this part of forming the bolus to the lower part of the œsophagus, to the "gouttière œsophagienne;" he compares the same with "an open hand, which takes the grasses and contracts, in order to push them thereafter into the œsophagus."

¹ J. C. Peyer: *Merycologia*. Basileæ, 1685.

² Cit.: Toussaint, *Arch. de Physiologie normale et pathologique*, 1875, p. 147.

³ At the same place.

Colin¹ experimentally refuted Flourens's theory; according to Colin, the forming of the boli is not of much consequence. The substances undergoing rumination are pushed by the contractions of the rumen and the bonnet, aided by the work of the diaphragm and of the abdominal muscles, into the infundibulum of the œsophagus. "The œsophagus seems to become relaxed now, dilates, and makes room for the entering food substances; thereafter it closes and exerts an antiperistaltic contraction, by which way the contents come into the mouth."

Lately the following theory for the mechanism of rumination has been advanced by Chauveau and Toussaint.² In the moment of ejaculation or rejection, the glottis closes, the diaphragm quickly and vigorously contracts; thereby a considerable rarefaction of the air contained in the thoracic cavity arises, and in the meantime a diminution of pressure. The œsophageal tract is now under negative pressure, and in this way pumps a portion of the bonnet-contents; which portion hereafter is carried into the mouth by an antiperistaltic movement of the œsophagus.

This doctrine of the mechanism has been fully approved by the experiments of Luchsinger,³ made on morphinized goats, in which the stomach and the glottis have been exposed by operation in such a way that the whole process of rumination could be quickly and plainly observed.

These experiments showed also that any irritation of the rumen (slight pressure, pouring of warm water, tetanizing currents) gave rise to rumination. Thus Luchsinger concludes that rumination is a reflex process. As there is no rumination, according to Flourens, after the nervi vagi have been cut through, Luchsinger deems it probable that the centre of rumination is located in the medulla

¹ Colin: Arch. de Neurologie, 1883, p. 86.

² Chauveau, Toussaint: Arch. de Phys. et Patholog. générale, 1875, p. 151.

³ B. Luchsinger: Zur Theorie des Wiederkauens, Pflüger's Arch., Bd. xxxiv., p. 295.

oblongata, and that transmission passes by way of the vagus.

3. **Anatomy.**—Upon the different ideas of the mechanism of rumination in animals depend the conjectures which have been made upon anatomical anomalies of ruminating men.

Flourens's theory made the idea probable that the lower part of the œsophagus must be dilated. Thus, indeed, Arnold¹ and Luschka² have found, in autopsies made on ruminating men, the lower part of the œsophagus dilated in a high degree; at the top of this dilatation there was recognizable a slight constriction. Arnold designated this part as "Vormagen" (ante-stomach), and Luschka as "antrum cardiacum." Both of them ascribed rumination to this anatomical anomaly. Besides, both of them found, in their autopsies of ruminants, the interior branch of the nervus accessorius Willisii to be as thick and well developed as the exterior branch, whereas usually it is only half as thick.

But Poensgen³ showed that the antrum cardiacum cannot be made responsible for rumination. Among five stomachs of healthy grown people he found the antrum cardiacum present twice. Koerner⁴ also found the antrum cardiacum present in eight out of twenty-two normal stomachs.

As regards the thickness of the interior branch of the nervus accessorius Willisii, the same varies very much, according to Cruveilhier, even in non-ruminating people.

In harmony with Toussaint's theory, the belief in a deficient closure of the cardia as a cause of rumination would be perfectly justifiable. Already, in 1859, And. Dumur⁵ suggested that mérycisme is a neurosis, effected

¹ Arnold: Untersuchungen im Gebiete der Anatomie und Physiologie, p. 211. Zürich, 1838.

² Luschka: Virch. Arch., 1857, p. 427.

³ Poensgen: Die motorischen Verrichtungen des menschlichen Magens, p. 127. Strassburg, 1882.

⁴ Koerner: Deutsch. Arch. f. klin. Med., Bd. xxxiii., p. 554.

⁵ And. Dumur: De la paralysie du cardia ou mérycisme. Diss. Berne, 1859.

by a sometimes incomplete paresis of the cardiac portion of the stomach. The movements of the stomach being directed from the pylorus to the cardia, a portion of the stomach-contents enters through the relaxed cardia into the lower part of the œsophagus, and by exciting antiperistaltic movements comes into the mouth.

This conjecture, to consider rumination as a neurosis of the stomach, with relaxation of the cardia, has been more generally accepted within late years. Koerner, Poensgen, Johannessen, Alt, Boas, Ewald, coincide in this view. Several of the authors mention in their ruminating cases the presence of Meltzer's "Durchspritzgeræusch" (the sound which appears immediately after swallowing water at the processus xyphoides), which should prove the relaxation of the cardia.

Alt's¹ patient swallowed two small gold-fish, and, when ruminating, they returned alive. Alt urged that the cardia must have been deficiently closed, for otherwise the fish could not very well have passed that spot without being compressed and killed.

But even this point—a relaxation of the cardia—does not seem to be always found constant. Boas² found in his case of rumination a normal "Durchpressgeræusch" (the sound which is heard at the processus xyphoides seven seconds after swallowing water), and I, likewise, could observe the same phenomenon in my two cases, which will be reported later.

Some of the authors suggest a too firm closure of the pylorus as an aiding cause of rumination; among them Alt. The food not being able to pass through the closed pylorus would remain longer in the stomach and would cause the same to eject its contents upward, which process is the more easily done in these cases, as the cardia is relaxed.

The fact is, that the stomach has often been found en-

¹ Alt: Berl. klin. Wochenschr., 1888, N. 26, 27.

² Boas: Ibid., N. 31.

larged in merycists, but it is still quite questionable whether we could say here, "post hoc ergo propter hoc." Any other palpable anatomical alteration, as being in connection or the cause of rumination, must at present be excluded.

4. **Etiology.**—Should we not accept an anatomical alteration in the upper digestive tract, in its nervous or central apparatus—which supposition is in no way proven or even made probable, as we have seen above—as the cause of rumination, there remain yet two possibilities for the origin of this anomaly, namely, heredity and self-acquisition. But as heredity was met with only in very few cases of rumination, and thus cannot be taken for the main cause of the affection, it appears of importance to lay most stress on self-acquisition.

The self-acquisition can arise, firstly, from imitation; secondly, from necessity and custom (adaptation).

As the best example of imitation Koerner's¹ case may be cited, where a ruminating governess imparted her own affection to her two pupils; after the governess had been sent away, the two children quickly got rid of their rumination.

In many cases of rumination there is mentioned that the patients first, before the beginning of rumination, had for some time suffered from dyspeptic symptoms with regurgitations; thereafter they commenced to swallow what came up by regurgitation, and, finally, were aware of ruminating. In these cases the development of rumination from slight pathological conditions, by necessity and custom, can be plainly seen.

Most of the reported cases of rumination (in all the literature, to date, but one hundred and six cases of rumination have been described) are of the male sex, and belong chiefly to the professional and more educated classes (physicians, philologists, and lawyers); of the female sex only a few cases are reported as ruminants (in all nine cases, figured from the paper of Johannessen).

¹ Koerner: *Deutsch. Arch. f. klin. Med.*, 1. c.

This alone would not prove that rumination, in fact, appears less frequently in men of the lower class and in the female sex; for very often a man of the working class does not deem his condition as a ruminant to be abnormal, and does not make mention of it to his physician. On the other hand, there are several people (especially among women) who would like to conceal their affection, and therefore do not speak about it. In consequence thereof, the correct relation of rumination, in reference to its distribution among the two sexes and the different social classes, cannot be ascertained from the cases reported in literature.

In the insane and idiots rumination has been found quite frequent. Thus G. Cantarono¹ found 9 cases of rumination among 400 male insane; among 300 female insane he did not find any ruminants. Bourneville and Ségla² likewise lay stress on the frequency of rumination in idiots, and also in epileptics.

5. Duration of the Affection of Rumination.—The duration of merycism is very variable; sometimes there is rumination keeping on uninterruptedly during the whole of life. Often rumination appears periodically in form of attacks; in these cases periods of rumination alternate with normal periods for intervals of different lengths.

Sometimes rumination suddenly ceases at the occurrence of an important change in the life of the merycist. Thus in literature a case is mentioned in which the ruminant stopped immediately after marriage.³ But, there is also a report of another case in which rumination made its appearance a day after marriage.

These varying circumstances can only prove how deeply rumination is connected with the nervous functions.

¹ G. Cantarono: *Neurolog. Centralbl.*, iv., 1885.

² Bourneville et Ségla: *Du Mérycisme*, *Arch. de Neurologie*, Paris, 1883.

³ Cit. Poensgen: l. c., p. 129.

6. **The Chemical Analysis of the Condition of the Stomach in Ruminants.**—The investigations made upon the chemical condition of the stomach in merycists are of the most recent time.

Johannessen¹ says briefly, in his elaborate paper on rumination, that at the end of rumination the ejected materials showed an acid reaction. Alt,² in 1888, was the first to make exact examinations of the stomach-contents in a ruminant. As soon as the patient suppressed rumination it was found that the obtained stomach-contents, three to four hours after a trial-dinner, contained free hydrochloric acid, were rather hyperacid, and showed very retarded amylolytic qualities. But as soon as the patient had practised his rumination as usual, the obtained stomach-contents were less acid and the amylolysis was much better. Alt presumes that the rumination in his patient had the purpose of correcting the fault made by a deficient salivation of the food and the hyperacidity arising from it. "We would have," Alt says, "in rumination an institution for correcting the hyperacidity effected by a deficient salivation and the bad digestion of the amylaceous matters." Acting on this theory, Alt treated his patient with alkalies, with the result that the patient was less inclined to ruminate, and further, could suppress the same much easier.

In favor of Alt's theory would be perhaps the case of rumination reported by W. A. Hubbard.³ A farmer, aged thirty-five, consulted Dr. Hubbard for, as he expressed it, "the restoration of his lost cud." This patient had the habit of ruminating his food since a period beyond his recollection, and had always enjoyed perfect health; now, for a month the rumination had stopped, and was immediately followed by dyspeptic symptoms. All medications proved to be of no use. Should we look with Alt

¹ Johannessen: *Zeitschr. f. klin. Med.*, Bd. x., p. 274.

² Alt: *Berlin. klin. Wochenschr.*, l. c.

³ W. A. Hubbard: *MEDICAL RECORD*, July 31, 1886, p. 122.

upon rumination as a means of correction, it would be very easy to understand why the patient had the dyspeptic symptoms at the cessation of the rumination, and his wish and hope that "his habit will return as suddenly as it left him," justifiable.

Soon afterward, however, Boas¹ published a case of rumination where the chemical analysis of the stomach-contents showed the acidity to be diminished in a high degree. The treatment consisted in giving the patient hydrochloric acid, and the result was a diminution of the rumination and an amelioration of the glandular function of the stomach. In this way by Boas's case Alt's theory has been refuted.

Shortly afterward Juergensen² published two cases of rumination, with an absence of the free hydrochloric acid.

Nothing else has been written since, as far as I am aware, on the chemical analysis of the stomach-contents in ruminants.

After this brief preliminary discussion, permit me, Mr. President and Gentlemen, to introduce to you two cases of rumination which I have had under my observation.

CASE I.—June 1, 1889. Ernst K.—, aged forty-five, baker, had typhoid fever twelve years ago and was perfectly cured; otherwise the patient had always enjoyed good health. About seven years ago the patient suffered much from eructations and regurgitations after meals. For five or six years the patient noticed that, about one-half to one hour after meals, the food partaken of was rejected in small quantities from the stomach into his mouth; he would chew it again and swallow it, not having any bad sensation in doing so; the taste was even the same as during the meal. Meat would be ejected first, then bread, vegetables, etc. Cabbage and turnips were, likewise, ejected before the other food. When the patient drank water, this would never come up again; milk,

¹ Boas: Berl. klin. Wochenschr., l. c.

² Juergensen: Ibid., 1888, N. 46.

however, would be ejected in a curdled condition after ten minutes, and was ruminated. The ruminating process once begun continued usually for one-quarter to one-half an hour.

The rumination in this patient made its appearance periodically, and was intercepted by free intervals of variable duration.

Since the year 1886 the patient had an attack of rumination lasting one year and a half. During the whole of this period the patient had to ruminate after each meal.

The duration of the other attacks was from three to six months.

Rumination has not been observed in any other member of the family of this patient. The patient believes that his affection arose from eating too quickly.

During the attacks of merycism the patient does not feel sick, but is annoyed by the rumination on account of the company present.

The rumination in this case is perfectly independent of the will of the patient, and the patient can neither ruminate spontaneously nor is he able to suppress the coming rumination. At present the patient has ruminated constantly for three months. For the past three or four years the patient has been subject to constipation.

The physical examination does not show anything abnormal. The patient is of medium height and well built; he, however, looks somewhat pale. The tongue is not coated. Seven seconds after the swallowing of water a rattling sound is heard on auscultation at the xyphoid process.

Examinations of the Stomach.—1. June 1, 1889. One hour after Ewald's trial-breakfast: HCl +, acidity = 54, erythro-dextrin +, dextrin = 0.

2. June 6, 1889. When fasting: the stomach contains about 5 c.c. of a whitish turbid fluid; HCl +.

3. June 30, 1889. One hour after trial-breakfast: HCl +, acidity = 40, achroo-dextrin +, erythro-dextrin + traces.

4. July 1, 1889. One hour after the trial-breakfast: HCl +, acidity = 50, erythro-dextrin + much.

5. July 13, 1889. One hour after the trial-breakfast: HCl +, acidity = 100, dextrin +.

CASE II.—March 26, 1890. G. P.—, physician, aged twenty-seven, had gastritis febrica in his childhood, and in 1884 typhoid fever. Since his ninth year the patient has been troubled with his stomach; at that time, during a period of six months, the patient usually vomited after partaking of food, especially after fluid nourishment. Sometimes the patient had to vomit at the beginning of the meal, immediately after the soup, but could, nevertheless, continue to partake of his meal directly afterward. Since then the condition of the patient had become ameliorated, and instead of vomiting there appeared rumination.

The rumination in this patient appears spontaneously, about one hour after meals, and continues for about a quarter of an hour. The food comes up in small quantities (in form of boli). The taste is not sour; in chewing the cud the patient has a pleasant sensation.

When the patient partakes of fluid food only (as, for instance, beer, bouillon, coffee, milk), then it is not ruminated.

The patient has no ailments whatever.

In this patient the rumination appears periodically; thus, for instance, the patient ruminated three months, and then was free from it for about a year.

Even during the period of rumination the bowels act regularly; the patient, however, often suffers from belching.

He is able to ruminate at will any time there is food in his stomach. The act of rumination proceeds, even then, without any effort. In order to effect the rumination the patient closes his glottis and exerts slight pressure over the stomach by means of his abdominal muscles; the contents are then ejected in small portions into the mouth. Patient is able to do this in any posture;

when sitting or standing, however, this act proceeds with more ease than in a recumbent position. In the same way the patient is voluntarily able to belch and to vomit; the latter in such a way that all the stomach-contents are ejected at once. In this way the patient is enabled to cleanse his stomach easily; he does this by drinking a large quantity of water and ejecting the same immediately after. The patient also has the faculty of stopping the vomiting at any moment he chooses, and in this way he can alternate vomiting with rumination. Patient has diplopia and is color-blind in one eye.

The father of the patient and several of his brothers and sisters are troubled with the stomach; the main symptom of their ailment is belching; nobody in the family, however, had rumination. The patient is able to suppress rumination, not feeling any pain in doing so. He does not know what causes the periodical attacks of rumination. After excitement the patient is more liable to fall into an attack of rumination.

The physical examination showed no abnormal conditions whatever. Patient is of medium height, well developed, somewhat stout. Tongue perfectly clean. The stomach does not seem to be dilated. Seven seconds after swallowing water a rattling sound appears on auscultation at the xyphoid process.

Examinations of the Stomach.—1. During the rumination period. September 15, 1888. One hour after Ewald's trial-breakfast: HCL+, acidity = 50; erythro-dextrin+, achroodextrin+. On the same day the patient took 1.0 salol in a gelatine capsule; the urine shows the salicyluric acid reaction (it becomes dark red on addition of a few drops of liq. ferri sesquichlor.) after one hour.

2. During an interval of freedom from rumination. March 25, 1890. One hour after trial-breakfast: HCL+, acidity = 54; erythro-dextrin+, achroodex.+ . After this examination the patient had to ruminate for three days, then the rumination ceased.

Epicrisis.—On considering the two afore-described

cases of rumination, we must exclude heredity in both of them as being the etiological factor. In both cases the appearance of rumination was preceded by dyspeptic conditions, associated with belching and regurgitation or vomiting, in such a way that it might seem that the rumination was developed from this condition.

In both reported cases the merycism appeared periodically, the length of the period varying very much; thus in K—— one period of merycism lasted for one year and a half; another, however, only for three months. In the second patient a period usually lasts three months.

Patient P—— is able to voluntarily produce rumination at any time he likes, and can suppress it in the same way. This is quite different with patient K——; the latter is neither able to ruminate at will, nor can he suppress rumination.

In both patients, seven to eight seconds after the swallowing of water a rattling sound was heard at the xyphoid process in the normal way (Meltzer's *Durchpressgeraesuch*); the so-called "*Durchspritzgeraesuch*"—or the sound which appears right after swallowing water at the *processus ensiformis*—was absent. In this way the cardia—as far as can be ascertained by the swallowing sounds—proved to be normal as regards its contracting power.

It appears to be improbable that the relaxation of the cardia should be the only cause of rumination. For, on the one hand, the normal "*Durchpressgeraesuch*" was present in my two patients and in that of Boas. On the other hand, there are many people with the "*Durchspritzgeraesuch*"—which shows a relaxation of the cardia—who never ruminate.

Is the cardia in our merycists normally closed—as has just been shown—the same must open at the commencement of rumination, at the ejection. This opening occurs perhaps through the cardia-opening or relaxation-centre, and in this way rumination can begin. Luchsinger, from his experiments on animals, conjectured a centre for rumination in ruminant animals. It is not

probable that such a centre exists *a priori* in men ; in time, however, the cardia-opening centre may gain the faculty of presiding over rumination also. This centre for the opening of the cardia and rumination is, as such, independent of the will ; in some people, however, there may arise a connection between the same and the will centres ; then rumination can proceed voluntarily.

I have already remarked above that, in most cases, merycism does not appear as such at once, but that it probably gradually develops from eructations and regurgitations. When a patient suffers a long time from belching and eructations of some of the stomach-contents, he is sometimes liable to swallow the upheaved portion, and he is more liable to do that the oftener the regurgitations repeat themselves within a certain time.

Now, then, we know that the stomach is inclined to occasionally repeat some process which has been done exceptionally, or that a habit is easily liable to become developed. The following fact shows this most conspicuously : When taking up the sponge-experiments of Spallanzani on himself, Brown-Séguard¹ was able to do it a short time, and once the sponge was ejected from the stomach ; since that time Brown-Séguard, although not swallowing the sponge any more, had to eject everything he had partaken of.

We can imagine that the stomach would undertake regurgitations, perhaps first in consequence of dyspeptic conditions ; afterward, however, especially when the ejected contents had been swallowed, as a kind of a habit to repeat this whole process. But as soon as food is ejected into the mouth early after a meal, at a time when it has not yet been changed much, the same will soon begin to do its usual work—the chewing—upon these returned materials from the stomach. In this way we could imagine the development of rumination in many cases.

In order to demonstrate what great influence habit

¹ Cit : Bourneville et Séglas, l. c.

might have, and to what skill one can arrive by it, I might mention the peculiar case of Le Juge de Segrais.¹ A boy of eleven years was able, after having partaken of a meal composed of different food-substances, to select one certain dish, which he liked most, for rumination; then only this favorite dish, without any admixture of the other food-substances, was ejected into the mouth. ["Il mangera de plusieurs plats, les uns aussi variés que les autres; celui qu'il aura eu l'idée de faire revenir, reviendra seul, sans mélange des autres."] As to the origin of the rumination in this boy the following is mentioned: The boy had lived several months in the country, where he had to partake of a great deal of milk prepared in various ways. The stomach, often being overfilled, regurgitations frequently appeared. The boy began to swallow the regurgitated food, and soon became used to this whole process—so much so, that he found great pleasure in doing it. Since that time the boy commenced to ruminate. The boy would ruminate those dishes especially which he liked most, in order to enjoy, as he himself expressed it, the taste of good things a second time. In time the faculty of selecting the favorite dishes, even after a meal composed of different foods, for rumination, was developed.

Darwin,² likewise, mentions the case of a man who was able to select the food he intended to ruminate.

Although self-acquisition and habit may sometimes be the originating cause of rumination, this affection, in order to explain the periodical attacks—its sudden stoppage and sudden appearance—must, nevertheless, be classed with the neuroses of the stomach.

After these theoretical explanations we might again return to our two cases of rumination.

In considering the figures of the chemical analysis of the stomach-contents of the two merycists, it might easily be seen that no relationship whatever can be found be-

¹ Le Juge de Segrais: *Journal de Médecine de Paris*, 1887, p. 58.

² Darwin: *Cit. Bourneville et Séglas*, l. c.

tween the chemical condition of the stomach-contents and rumination. In one patient the condition of the stomach was perfectly normal in every respect, the chemical analysis showed the presence of hydrochloric acid in a normal quantity; the power of motion also proved to be adequate; Ewald's salol reaction appeared after one hour. In the other patient the chemical analysis of the stomach-contents varied greatly on different days. There was found once normal acidity (50), once rather subacidity (40), and once hyperacidity (100), whereas hydrochloric acid was always present.

From this last case the conjecture of Ewald is confirmed. This author,¹ in his book on the "Diseases of the Stomach," says in reference to rumination: "I would not be astonished, the conditions being the same, if varying degrees of acidity were found in the same patient, because such changeable conditions are in the nature of many neuroses." The case of patient K— furnishes the best example for such an occurrence, and from this we can infer that no connection exists between rumination and the chemical condition of the stomach.

Therapy.—Formerly hydrochloric acid, alkalies, narcotics, and the bitter remedies were tried empirically now and then, with apparent results for a short time, and sometimes without any influence whatever. Lately it has been tried to remedy the error—if any—ascertained after a chemical examination of the stomach-contents, and hydrochloric acid or alkalies have accordingly been given, with good results.

Koerner² tried giving small pieces of ice immediately after meals, and warmly recommends this method. Washing of the stomach has been practised by Johannessen,³ and gavage (feeding through the stomach-tube)

¹ Ewald: Klinik der Verdauungskrankheiten, Bd. ii., 2d edition, p. 440.

² Koerner: Deutsch. Arch. f. klin. Med., Bd. 33, p. 544.

³ Johannessen: Zeitschr. f. klin. Med., 1. c.

during fourteen days by Juergensen,¹ but with only temporary relief. All these remedies sometimes effect a temporary amelioration; a permanent cure, however, has never been achieved by therapeutic means. As an exception to this rule we might perhaps consider the moral treatment—*i.e.*, the patient determines not to ruminate and, as soon as a desire to ruminate appears, endeavors to suppress it. Poensgen² mentions two cases of merycism perfectly cured by this method.

Surely this moral treatment can only be applied in cases in which the rumination can be suppressed by the will-power of the patient, but not in cases in which the rumination is wholly independent of the will.

In treating Dr. G. P., I have made use of this method; the recipe was: As soon as the patient feels any inclination to ruminate, to try with all his power to suppress it. The patient has carried out this rule quite conscientiously, and the merycism has since that time occurred only occasionally. In the treatment of the other patient (K—) different tonics and cracked ice have been tried, without any result.

Even though the therapy of rumination is very scant, we can console ourselves with the fact that the vital functions of the organism, as before mentioned, are never endangered by merycism itself, and it therefore must not be considered as a disease, but looked upon merely as a physiological anomaly.

122 EAST FIFTY-NINTH STREET.

¹ Juergensen: Berlin. klin. Wochenschr., 1888, N. 46.

² Poensgen: Die motorischen Verrichtungen des Magens, 1. c.

