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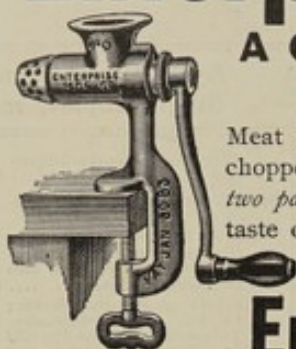
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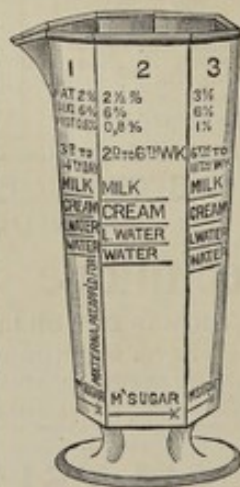
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A CASE OF RESECTION OF BOWEL FOR CARCINOMA.

BY CARLOS C. BOOTH, M.D.,

ATTENDING SURGEON, MAHONING VALLEY HOSPITAL, YOUNGSTOWN, OHIO.

I was called in consultation by Dr. Williams, of Girard, Ohio, October 20, 1898, to see Mrs. C—, aged sixty-two years, who had, eight weeks previous to my visit, been seized with severe pain in the abdomen. At that time Dr. Williams was called, who after a

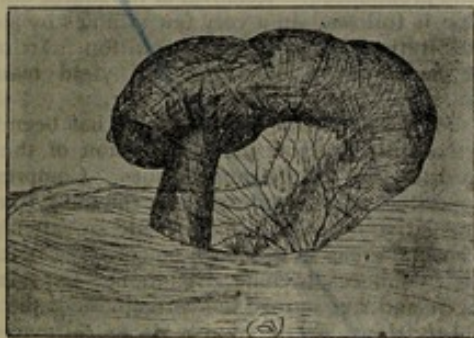


FIG. 1.

careful examination could not detect the cause or probable cause of the pain. He administered some anodyne powders, and left instructions for the bowels to be moved, and that he should be sent for again should his services be needed. They called him back during these eight weeks occasionally, and he continued anodyne powers when needed for pain, and insisted upon a daily bowel movement. The patient remained in bed, but ate pretty well, and suffered more or less during this time with sharp shooting pains in the right iliac region. The bowels operated normally during this time.

One week previous to my visit the doctor discovered an enlargement in the region of the appendix, and as treatment did not relieve the condition he asked for a consultation. On my arrival I found an anæmic, pale, white-haired woman, confined to bed; she was cheerful, sleeping well, suffering little pain, eating, bowels regular, with no vomiting; the abdomen was soft and flabby; pulse, 110; temperature slightly elevated.

On examination I found a movable tumor midway between the anterior superior spinous process of the ilium and the umbilicus. The surface was oval, ap-

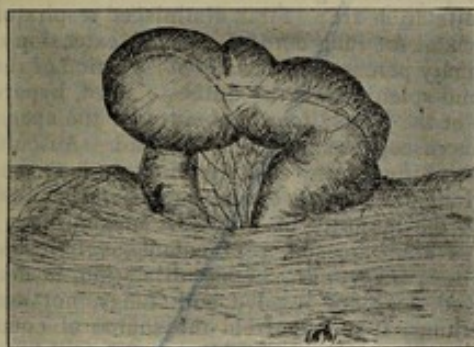


FIG. 2.

parently generally smooth, but in one position it felt very much like a movable kidney and could be moved high up and low down. It was not very painful on pressure, but the normal position and condition of the right kidney, gall bladder, ovaries, and stomach excluded this diagnosis, and I told the doctor it was my opinion it was a carcinoma of the cæcum.

There being no inflammatory symptoms at any time, the idea of appendicitis was excluded, which the doctor

said he had feared. I advised her immediate removal to the Mahoning Valley Hospital for operation. On October 30, 1898, with the assistance of the staff, I made an incision, two and one-half inches long, over the tumor, and, following the colon to the appendix, I drew the latter out with some eight inches of the ileum and ascending colon; it presented the appearance shown in Fig. 1. The ileum seemed to have been invaginated into the colon, and the head of the colon felt as though the small bowel was doubled up inside of it. I then tried to pull out or turn out the small bowel, and after turning out some inches of it I could press out no more; on turning the bowel over, it appeared as in Fig. 2. The dotted line shows the lines of excision. The black irregular lines radiating from the ileum show the breaks in the peritoneal surface caused by the pressure exerted in turning the ileum out. These ruptures showed the nature of the trouble. I immediately began a resection of six inches of the ileum and five inches of the colon above the cæcum.

After carefully tying off the mesentery and removing the enlarged glands I put on the intestinal clamps, and excised the whole. I intended to insert the Murphy button into the dorsum of the colon, but, on being told that time was precious with my aged patient, I closed up the end of the colon, except room enough for the button, with a double row of fine silk

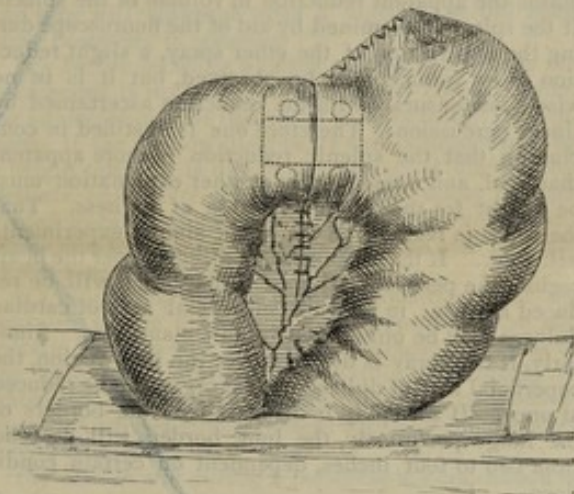


FIG. 3.—The Murphy Button is shown by dotted line.

sutures. I then placed the other half of the button in the ileum, and brought the two together, thus forming a continuous opening; adjusted and stitched the mesocolon and mesentery, dropped the repaired bowel into the abdomen, covered it over with the omentum, and closed the abdominal incision. The patient was on the operating-table about forty minutes. She was put in bed with pulse 120, and good reaction; she passed gas that night, and the bowels moved slightly the next day. Fig. 3 shows the bowel as repaired.

The patient had no inflammatory symptoms, and had a comfortable convalescence with the exception of a small bed sore, which formed by accident ten days after the operation. Since then she has done well and is making a complete recovery. A very interesting feature of the case was that she had no obstruction of the bowel at any time. Microscopical examination showed the mass to be carcinomatous.

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THE LUNG AND HEART REFLEXES: A CONTRIBUTION TO THE STUDY OF HERETOFORE UNDESCRIBED CLINICAL PHENOMENA.¹

By ALBERT ABRAMS, A.M., M.D.,

SAN FRANCISCO.

In a recent contribution, Moccucci² relates how he, at the suggestion of Professor Raimond, sprayed the left half of the abdomen with ether in twelve cases of enlarged spleen. Marked reduction in the volume of the spleen was observed in all the cases. In repeating the experiments, I likewise noted a decided diminution in the area of splenic dulness in all individuals on whom the method was tried, irrespective of the fact whether enlargement of the spleen existed or not. Was this reduction of splenic dulness real or apparent? If apparent, to what was the reduction due? The reduction of splenic dulness was both apparent and real, but especially did the former prevail. If a spray of ether is directed over the region of the spleen, percussion of that organ shows a diminished area of dulness amounting in most instances to obliteration of the area of percussion dulness. Coincident with this phenomenon, one may note super-resonance of the lungs contiguous to the spleen. It is the latter phenomenon which explains the apparent reduction in volume of the spleen. If the spleen is examined by aid of the fluoroscope during the application of the ether spray, a slight reduction in its volume may be observed, but it is in no wise commensurate with the reduction ascertained by linear percussion. Therefore one is justified in concluding that the splenic reduction is more apparent than real, and consequently another explanation must be sought for the diminished area of dulness. That the cause is resident in the lungs, simple experiments will show. If the ether spray is directed over the heart region, the percussional area of that organ will be reduced at once; in fact, the superficial area of cardiac dulness may be obliterated by this manoeuvre. Similarly, if the spray is directed over the liver region, the superficial area of dulness of that organ can be reduced at once. If the spray is directed over the borders of the lungs posteriorly, the lung borders will descend from two to four inches, dependent on certain conditions.

Suffice it to say at this time that dislocation of the lung borders by forced inspiration never approaches the dilatation produced by the ether spray. Further experiments demonstrate in brief the fact that the application of any cutaneous irritant, whether the latter be mechanical, chemical, or electrical, will always induce acute dilatation of the lungs. Even in emphysematous individuals the application of a cutaneous irritant will augment still further the existent lung dilatation. Acute lung dilatation is a well-established condition occurring in capillary bronchitis and in bronchial asthma. Unlike alveolar emphysema, the alveolar ectasia is temporary and capable of eradication when the cause is removed. The writer has shown³ that acute dilatation of the lungs can be induced in healthy persons by irritation of the nasal mucosa.

In this contribution I presented the following propositions: First, that there are conditions of nasal reflex genesis manifested by dilatation and contraction of the lungs. The second proposition is, that the pulmonary neurosis of dilatation can be induced in almost every healthy individual by irritation of the nasal mucosa, and conversely that this condition can be dissipated after the removal of the source of irritation. The pulmonary neurosis of dilatation can be attained

by firmly pressing cotton into both nasal cavities. The degree of lung dilatation, with its concomitant phenomena, will naturally vary according to circumstances which modify other reflex acts. After the introduction of the cotton, a few minutes elapse before percussional results are noted. One will then observe super-resonance and immobilization of the lung borders and diminution of the areas of hepatic and cardiac dulness, in the latter instance even to obliteration. The auscultatory signs of lung dilatation are less constant and pronounced. Removal of the source of nasal irritation is followed in a very few minutes by a complete restitution of the normal condition. Irritation of one nasal cavity only does not yield manifest results.

If the mucosa of both nasal cavities has been thoroughly cocaineized before the introduction of the cotton, no dilatation of the lungs ensues. Compression of the nasal cavities by pressure on the nose likewise yields negative results. I have made no attempt to locate special areas in the nasal mucosa, the irritation of which conduces to lung dilatation. Experiments on rabbits and frogs prove the correctness of the clinical observations just cited. In frogs, I have often observed the phenomena of lung dilatation under the microscope. The results were always negative when the nasal mucosa was cocaineized before irritation of the mucous membrane was attempted.

I maintain that the phenomenon of lung dilatation can be provoked at any point in the extensive course of distribution of the pneumogastric nerves, and that the stimuli can act indirectly on the vagus nerves through the terminal fibres of the trigeminus, or, as I have already shown, by irritation of the cutaneous sensory nerves contiguous to the lungs. The question naturally arises, by what means are we able to establish the fact that the application of any cutaneous irritant will cause acute dilatation of the lungs, a condition, it may be mentioned parenthetically, which is of only a few minutes' duration? In making such an hypothesis tenable we summon to our aid the conventional physical signs and the fluoroscope. These aids show that when the skin is irritated by means of cold, by friction, or by a strong faradic current, lung dilatation will ensue. The degree of lung dilatation is dependent on the character of the irritant and the severity of its application. The response of the lung to dilatation is always greatest in that part of the lung contiguous to the source of cutaneous irritation.

The physical signs that enable one to recognize lung dilatation are: First, diminished respiratory excursions of the lung borders; second, extension of the pulmonary percussion note and obliteration of the cardiac and splenic areas of dulness; third, hyper-resonance of the lungs; fourth, absence of the apex beat. The fluoroscope is another valuable aid. Auscultation is most untrustworthy as a sign, inasmuch as the artificial lung dilatation is of very short duration, not lasting in the majority of instances longer than three minutes after the source of cutaneous irritation has been done away with. Lung dilatation, it must be observed, does not involve both lungs, nor even an entire lung; it spreads from the source of cutaneous irritation, involving primarily circumscribed parts; then, if the irritation is severe enough, more remote parts may be involved. In lungs showing diminished resonance, the latter can always be increased by rubbing the skin vigorously over the lung percussed. I have learned to rely on this sign, which I call the lung reflex, in all doubtful cases of lung dulness, and to test the resiliency of the pulmonary tissue.

The aid that the x-rays furnish in recognizing the lung reflex is marked. Before considering the aid thus furnished, we must recall a few essential facts in anatomy relative to the complemental spaces. Each

¹ Read before the Medical Society of the State of California, April 14, 1899.

² *Riforma Med.*, 1898, p. 208.

³ *New York Medical Journal*, June 13, 1896.

lung has a double covering. The inner covering, the pulmonary pleura, is intimately attached to the lung, whereas the parietal pleura builds a sac in which the lung is permitted to move freely. In many situations this sac is larger than the lung volume, and in those situations reserve spaces are created, which have been called the complemental or pleural spaces. These spaces make variations in the respiratory volume of the lungs possible. The pleural spaces are found at the lung borders. These spaces in the cadaver measure as follows: Right sternal line, 2 cm.; right parasternal line, 2 cm.; right mammillary line, 2 cm.; right axillary line, 6 cm. In our measurements after cutaneous irritation, we found that the dislocation of the lower lung border exceeds these measurements, which can be accounted for by the fact that, relatively speaking, even in health, the lungs are in a partially collapsed condition; our measurements on an average were as follows: Right sternal line, $3\frac{1}{4}$ cm.; right parasternal line, $3\frac{1}{4}$ cm.; right mammillary line, 4 cm.; right axillary line, 6 cm.

If we examine the normal lung with the Roentgen rays, the fluoroscopic picture presents a uniformly light area. This light area will vary not only in different individuals, but also in the same individual. The lungs appear brighter during inspiration than during expiration. If now we irritate the skin of the thorax by means of a wire brush or spray of ether, we may note, contiguous to the site of irritation, that the brightness of the lung will become intensified. We also observe that this increased brightness is especially manifest in situations corresponding to the complemental spaces. By gradually applying our irritant to different parts of the skin of the thorax, we shall observe that eventually the entire lung may be made to yield a more intense luminosity. We shall further observe that this increased brightness is of varying duration, lasting in some instances but a few seconds to four minutes; whereas in the average individual the duration is about two and a half minutes, the lungs after that time resuming their normal appearance.

In previous communications,¹ I have repeatedly directed attention to a condition of pulmonary atelectasis which more forcibly illustrates the value of the lung reflex in diagnosis. The essential facts of these contributions are as follows: (1) There are present over the thorax of apparently normal individuals constant areas of diminished percussion resonance varying from dulness to flatness. (2) The areas vary in number and situation, as far as the individual is concerned, but in the aggregate they admit of definite localization. (3) I have denominated these areas of dulness as atelectatic zones. (4) Repeated forced inspirations will dispel them in children, as well as in adults, although they will reappear (usually after two or three minutes) when tranquil breathing is resumed, and will continue as such until an increased demand is again made on the vital capacity of the lungs.

If individuals in whom atelectatic zones are demonstrable by percussion are subjected to an x-ray examination, it will be found that the zones obstruct the rays, and, in consequence, the fluoroscopic picture will be marked by areas of opacity corresponding to the atelectatic zones. It will be noted, furthermore, if the patient is instructed to practise forced breathing, that, in a variable length of time, the opaque areas become bright, only to become opaque again when forced breathing is suspended. It must be remarked,

however, that the zones are not always opaque, the shadow thrown on the fluoroscope varying from slight haziness to decided opacity. This is fully in accord with the results yielded by percussion.

In very many instances forced breathing will not dissipate the areas of opacity; then recourse must be had to irritation of the skin of the thorax, which more effectually induces the lung reflex, which is one of dilatation. After examining a large number of individuals with a view of determining the degree of lung dilatation as secured by forced inspiration, in comparison with that attained by stimuli applied to the skin of the thorax, I find the following (the measurements were made in the middle axillary line on the right side): Average dislocation of the lower lung border from quiet respiration to forced inspiration, 3 cm.; average dislocation of the lower lung border from quiet respiration after violent irritation of the skin in the axillary region by means of a wire brush, 6 cm. The following conclusions were formulated:

(1) Atelectatic zones may be demonstrated in a large number of individuals.

(2) These zones throw circumscribed shadows on the fluoroscope, which will vary according to the degree and area of the pulmonary atelectasis.

(3) The shadows cast by the atelectatic zones can be made to disappear by continuous forced breathing, and they will reappear after a variable period when quiet breathing is resumed.

(4) Before deciding whether the shadow cast on the fluoroscope is really due to pulmonary consolidation, the subject should be instructed to make forced inspirations; if the shadow disappears and is supplanted by a bright reflex, it is due to atelectasis; if the shadow persists, pulmonary consolidation may safely be concluded to exist, excluding, of course, other anatomical conditions that would interfere with the transmission of the Roentgen rays to the fluoroscope.

(5) Radioscopy of the lungs demonstrates that the opacities on the fluoroscope corresponding to the atelectatic zones greatly exceed the percussional areas of the latter; and, furthermore, that in individuals in whom no zones can be demonstrated by percussion, opacities are sometimes present which disappear after forced inspiration.

(6) Before and during a radioscopic examination of the lungs, it is always imperative to instruct the patient to practise forced breathing, and when this manoeuvre does not dissipate the opacity, recourse must be had to cutaneous irritation.

The heart reflex will next engage our attention.

If we irritate the skin in the precordial region, a contraction of the myocardium is thereby reflexly induced. Receding from the precordial region, irritation of the skin will proportionately diminish the myocardial contraction. These facts are not demonstrable by percussion because the same stimulus results in the production of the lung reflex, which in itself is an acute lung dilatation, thus making percussion elusive for the superficial area of cardiac dulness. This phenomenon of myocardial contraction, which I have called the heart reflex, is only manifest by means of the Roentgen rays and the fluoroscope. Contraction of the right ventricle following cutaneous irritation can less frequently be observed than contraction of its fellow-ventricle. The heart reflex phenomenon is especially manifest in children. In one instance, the case of an emaciated girl, aged fourteen years, my assistant, Dr. Louis Gross, and myself saw both ventricles recede fully one and one-half inches on either side, upon application of the cutaneous irritant. Of course, the anatomical heart in the adult measures only three and one-half inches in breadth, but we are here concerned with the physiological heart. The myocardial contraction thus induced is

¹ "Report of One Hundred Cases Treated by the Pneumatic Cabinet," *Pacific Medical Journal*, September, 1891; "Pulmonary Atelectasis as a Cause of Anæmia," *Transactions of the Medical Society of the State of California*, April, 1892; "Observations on Pulmonary Atelectasia," *ibid.*, Session of 1894; *Medicine*, December, 1895; *New York Medical Journal*, June 13, 1896; *Philadelphia Medical Journal*, November 26, 1898.

sudden and of momentary duration, and like other reflex acts soon becomes exhausted.

I advise those who desire to produce this phenomenon to select children, or at any rate persons who possess thoraces best adapted for x-ray examination.

The lung and heart reflex phenomena subserve a purpose in diagnosis and are indications for a rational treatment of pulmonary and cardiac diseases.

In diagnosis, the lung reflex establishes a clew to the diagnosis of the nature of lung dulness, whether due to consolidation or to atelectasis. If the latter is present, vigorous cutaneous irritation will dissipate the dulness, whereas if the former is present it will persist. In the broncho-pneumonic affections of children, it is frequently impossible to say whether we have a dulness dependent on consolidation or only atelectasis caused by occlusion of the bronchioles. Here the application of cutaneous friction will at once decide the question. In pulmonary tuberculosis and in the pretuberculous condition, experience has taught me that the lung reflex is only slightly present. Whereas in the middle axillary line on the right side the average dislocation of the lower lung border after cutaneous friction in this region is 6 cm., in the pretuberculous condition and in phthisis it is only 2.5 cm. The heart reflex is a valuable index to the state of the myocardium. If the latter muscle is degenerated, the heart reflex is exceedingly feeble or even absent. In pericardial exudates and in pericardial synechia it is also absent.

The lung reflex suggests many valuable lessons in regard to treatment. It teaches us that, in the development of the lungs, vigorous cutaneous frictions are invaluable. In broncho-pneumonia, in which lung atelectasis deprives the patient of extensive areas of respiration, the application to the chest of cutaneous stimuli is invaluable in maintaining lung dilatation. This can be secured by the use of cold water, friction, or heat by means of poultices. I must confess a weakness for the latter, in defiance of custom. To me, the application of heat to the chest when indicated in pulmonary affections seems more rational and intuitively less barbarous than the conventional application of cold water. Then, again, the response of the lung by dilating is as great to heat as to cold. I believe that, as I have shown in a previous paper,¹ the good effects observed after the Schott treatment are dependent on stimulation of the sensory nerves of the skin.

I employ in many of my patients vigorous cutaneous frictions, in lieu of the conventional Schott treatment, with results nearly as good as by the latter method. Relief of dyspnoea follows, and there is a marked reduction of the pulse rate, together with an increase in volume and force. The following conclusions may be formulated in reference to the Schott treatment:

(1) Lung dilatation follows the exercise and bath treatment of the Schott method, the dilated lung acting as an excretory channel for the overburdened heart.

(2) The cause of the lung dilatation is dependent on cutaneous irritation provoked by the exercise and baths.

(3) The degree of lung dilatation may be increased by more powerful cutaneous irritation.

(4) A decrease in the volume of the heart likewise ensues after the Schott treatment.

(5) This reduction in cardiac volume is likewise provoked by cutaneous irritation, which is one of the real factors involved in the Schott treatment.

(6) Vigorous cutaneous friction by means of a wire brush, such as is employed in the application of the faradic current, will accomplish almost as much as the baths and exercise of the Schott treatment. At the same time it is a simpler and more expeditious as well as inexpensive method of treatment.

In explanation of the lung and heart reflexes, we all

recognize the great influence of the skin in physiological and pathological conditions. According to Von Preuschen, stimulation of the respiratory centre is greater through the cutaneous nerves than through the vagus branches to the respiratory organs. In animals which have been made apnoeic, the application of cutaneous stimulation (use of cold water) induced strong respiratory movements, and he concludes that mechanical cutaneous stimulation by flagellation, cold water, or the electric brush is of great value in stimulating the centre of respiration.

The centre for the inhibitory nerves of the heart is stimulated reflexly by centripetal nerves. In support of this physiological axiom, we need only recall the "Klopf Versuch" of Goltz, which demonstrates that striking the abdomen in animals will inhibit the heart's action.

THE USE OF THE EXTRACT OF SUPRARENAL CAPSULE IN OPHTHALMIC PRACTICE.

By FRANK N. LEWIS, M.D.,

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THE favorable reports from the use of the extract of the suprarenal capsule, by some writers, in operations on the eye and in the nose, was an inducement to give this drug a trial. Within a short space of time a recent experience at the Manhattan Eye and Ear Hospital, in cases of different diseases of the eye, warrants the putting on record the results so far obtained, or rather what has been accomplished in the cases in which it was used. From this limited use of the extract it might be unwise to draw definite conclusions. Others who have used it speak in high praise of it. From my use of it, while it has been of benefit in some cases and I feel inclined to give it further trial, there were cases in which not only was there no benefit, but it seemed to do positive harm. In fact, in the first case in which it was used by me, one of gonorrhoeal ophthalmia, instead of a decrease in the redness, swelling, and discharge from the conjunctiva, there seemed to be a decided increase of all these symptoms by its use. In this case the suprarenal capsule extract was used in a much weaker aqueous solution than it was in subsequent cases of other diseases, but it hardly seems reasonable to say that a strong solution of it would have been of benefit while the weaker one did harm.

In the use of a new drug or of the new application of an old drug one is apt to exaggerate the benefit, or perhaps it would be better to say that there is a natural desire for much benefit and any slight good effect is magnified. Conservatism is desirable, especially when, as now, such a large number of new remedies are constantly being brought out. At the same time it seems unwise to reject without trial a remedy simply because it is new. The use of suprarenal capsule in ophthalmic practice is not altogether new, but so far as I know it has not been used very extensively or by many. Possibly some have given it a trial and then abandoned it.

The first case was Joe G., twenty-seven years of age, admitted October 31, 1898, with gonorrhoeal ophthalmia of the left eye, of six days' duration, which had had no treatment. There were marked chemosis, especially of the lower part of the eyeball, profuse purulent secretion, swelling of the lids, and the entire cornea had a "ground-glass" appearance, with a small marginal ulcer at the supra-temporal quadrant. The patient was admitted during the evening, and the usual treatment of ice cloths, frequent cleansing with

¹ The Medical News, January 7, 1899.

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