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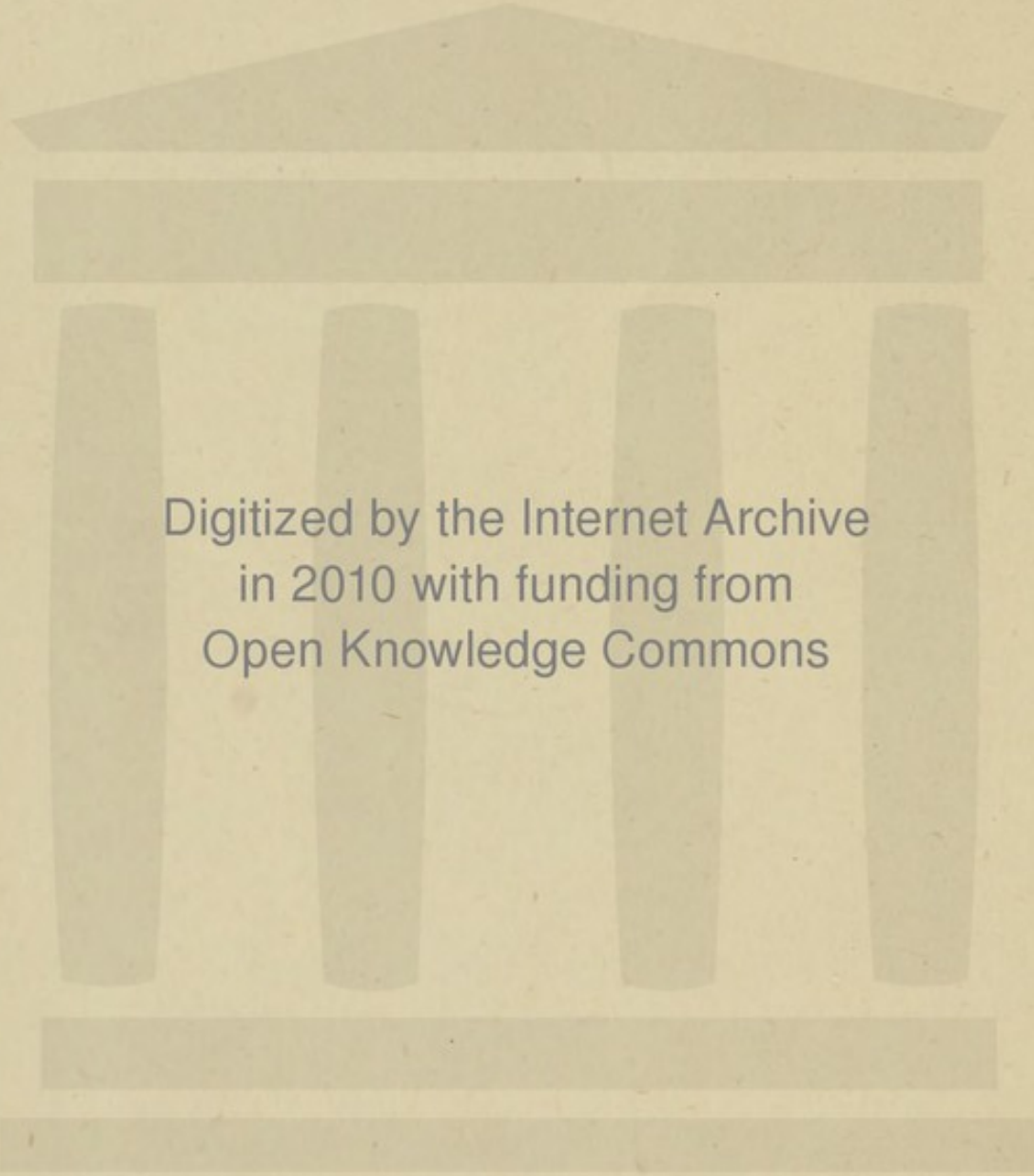


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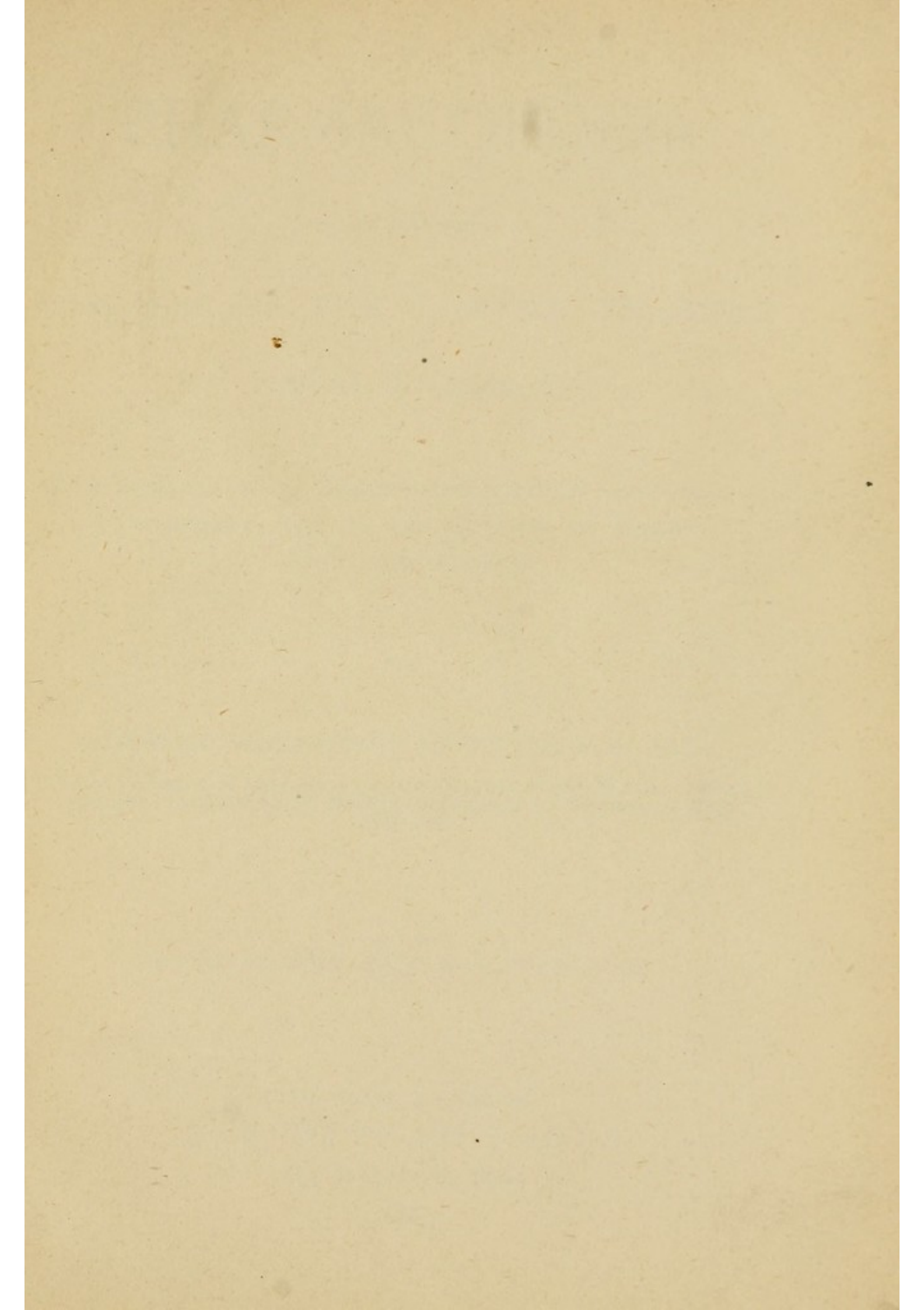
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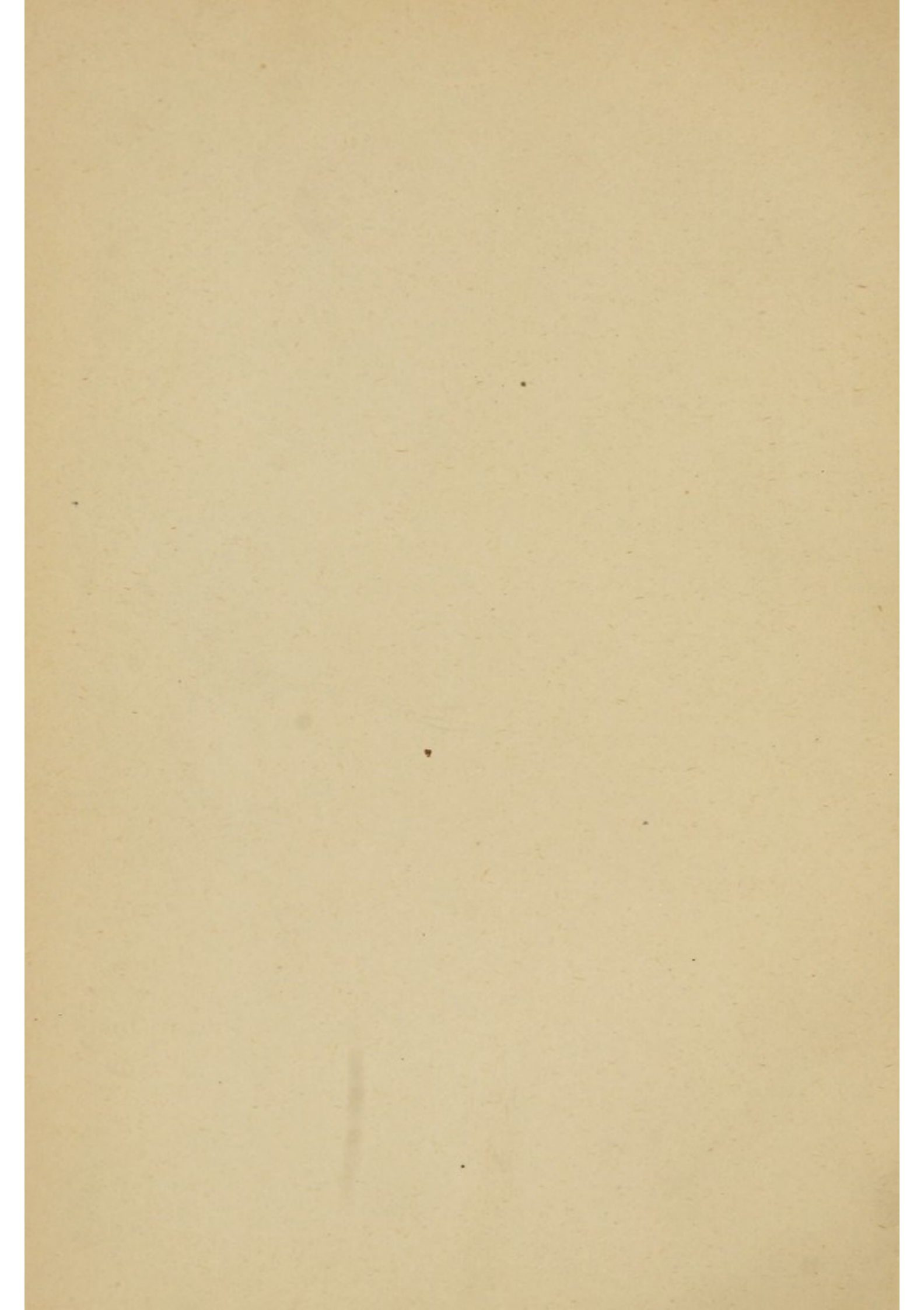
Mrs. Bruno Hood.

Bruno Hood,
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A
PHARMACOPOEIA

FOR THE TREATMENT OF

DISEASES OF THE LARYNX, PHARYNX
AND
NASAL PASSAGES

WITH REMARKS ON THE SELECTION OF REMEDIES AND CHOICE OF
INSTRUMENTS AND ON THE METHODS OF MAKING
LOCAL APPLICATIONS

BY

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PREFACE.

THE experience of a number of years in clinical teaching has convinced me that the time which is ordinarily devoted, during a limited course of lectures on a special subject, in dictating to the student in the first instance, and repeating in detail from time to time during the course, the necessarily large number and variety of formulæ that are requisite for intelligent treatment, can be more profitably employed, and the subject itself better and more clearly understood without laborious and too often imperfect note-taking, by collecting the commoner and more reliable ones in a systematic but simple form, which will always be accessible and ready for reference.

In pursuance of this conviction I have prepared this little volume for the use of my Students, and in connection with my lectures, and I offer this explanation to those members of the profession who may have occasion to consult my work, in view of the necessarily somewhat brief, even dogmatic, manner in which certain personal views are presented and certain courses of treatment advised.

The following pages will be found to contain the formulæ alone of such local applications as are adapted to the treatment of the various affections of the larynx, pharynx, and nasal passages, and which have been carefully tested in the light of personal clinical experience and found to possess a practical worth.

Constitutional remedies are not included in the list, being foreign to the purpose of the work, but they are none the less regarded as of the highest importance in the treatment of many of the affections with which it deals.

The formulæ have been collected from various works and authorities ; many of them are original. I have availed myself of the labors of my predecessors and contemporaries whenever it has been possible, and here render them my general acknowledgment, specific credit in all instances to the sources of information being impracticable in a work of this character and size.

Many drugs and combinations that have been recommended from time to time in the rapid development of the speciality have been rejected as having no real value, but none that are to-day regarded as essential have, it is believed, been omitted.

I have thought it desirable, in the present new edition, to add certain suggestions which will serve as a guide to the student in his choice of remedies, and remarks on the proper method of making applications to the various parts, together with illustrations of the requisite apparatus, all with the view of rendering the entire matter of local treatment clear and readily understood.

All matters relating to practical Pharmacy have been kindly revised for me by George D. Hays, M.D., Ph.G.

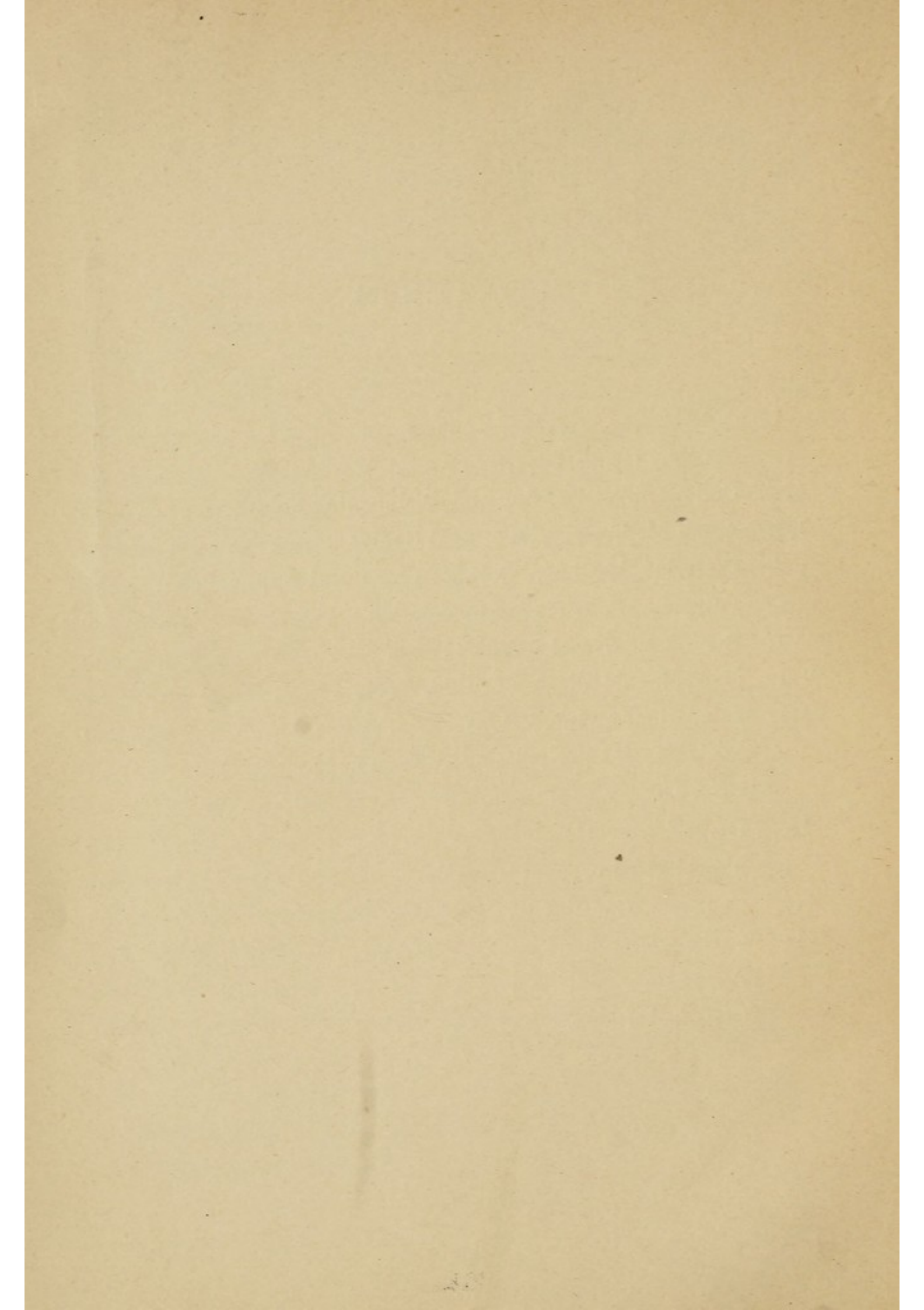
If the little volume now presented to the medical class will aid in systematizing and simplifying the labors of its students in this department of therapeutics, its mission will have been fulfilled.

G. M. L.

October, 1884.

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I.

PIGMENTA.

A. For External Use.

Employed in some forms of Laryngitis, as counter-irritants. Applied externally over the larynx.

Ceratum Cantharidis.

Charta Cantharidis.

Linimentum Cantharidis.

Tinctura Iodi.

Tinctura Iodini Composita (U.S.P., 1870).

Linimentum Iodi (B.P.).

Used as anæsthetics, in the forms of Hyperæsthesia of the Larynx. Applied externally over the organ.

Unguentum Aconitiæ (B.P.).

Linimentum Aconiti (U.S.P., 1870).

Linimentum Belladonnæ.

Linimentum Chloroformi.

R̄

Pulveris Camphoræ.

Chloralis āā ⅔ ss

Rub together in a warm mortar until liquefied, then filter.

Signa—Camphorated chloral.

B. For Internal Use.

Used as applications to the nasal passages, by means of a camel's-hair pencil or brush.

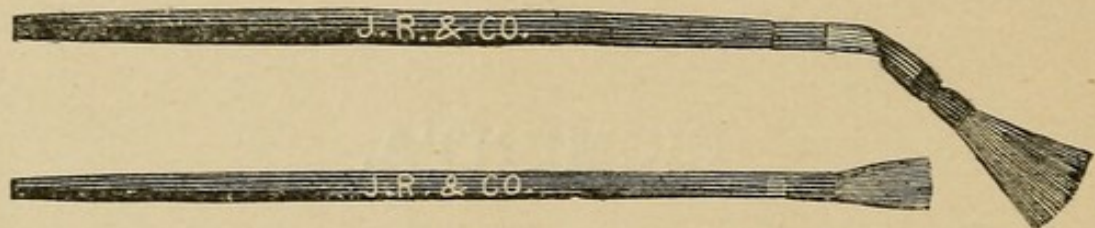


FIG. 1.—Brushes for applications to the nasal passages.

R̄

Petrolati (Vaseline) . . . q. s.

R̄

Petrolati . . . $\frac{7}{3}$ ss
Hydragryi Chloridi Mitis . . . $\frac{3}{3}$ ss

M. Ft. unguentum.

R̄

Unguenti Belladonnæ . . . q. s.

R̄

Acidi Carbolici . . . gr. ii
Iodi . . . gr. ii
Atropinæ . . . gr. ss
Petrolati . . . ad $\frac{7}{3}$ i

M. Ft. unguentum. Signa—In Chronic Rhinitis.

II.

COLLUNARIA—CLEANSING AND DISINFECTING SOLUTIONS.

Solutions for general cleansing purposes, used in coarse spray in the larynx and nasal passages, or by means of the anterior and posterior nasal syringe, to the latter region, at a temperature of about 90°-100° F.

Larynx.

Careful cleansing of the mucous surfaces of the larynx is not infrequently a necessary procedure, prior to the application of the medicated spray or powder. Notably is this the case in Laryngeal Phthisis, where the secretions are thick, abundant, and tenacious, and thus mask the diseased parts—specially the ulcerations, which lie beneath them. The cleansing process is best performed by means of the laryngeal spray, used with compressed air (see page 13), and one or two applications are to be made, either with or without the aid of the laryngoscopic mirror, at each sitting, before use of the medicament. The following solution may be used :

℞

Sodii Bicarbonatis.

Sodii Boratis . . . āā 3 ss

"Listerine" * . . . 3 i

Aquæ . . . ad 3 iv

Nasal Passages.

A very essential principle in the local treatment of catarrhal affections of the nasal passages is thorough cleanliness ; it underlies all others. There certainly can be little remedial value in the application of a medicated spray or powder that only reaches parts covered and protected by a layer of thick, tenacious mucus, or, still less, those encased in an armor of hard, inspissated crusts. On the other hand, I am convinced that this matter of cleanliness, if the latter be understood to mean frequent, daily, even several times a day, syringing of the nose, is overdone, and that it does much harm. The comfort, fancied or real, that the patient experiences after the use of his "nasal douche," even though this relief be only temporary, as it always is, leads him to repeat the process with constantly increasing frequency. Instances are not unknown where patients will use a quart of strong saline solution, under high pressure, through the nose several times daily. Physicians are not entirely guiltless in the matter, for it is not infrequently that the patient is misled by their belief that the cure of a nasal catarrh lies in the use of a "douche." Such practices, I repeat, are productive of no good, but much harm. Even apparent

* See page 23.

temporary good effects ultimately fail. The use of strong saline solutions in large quantity, passed through the nares under high pressure, is not infrequently an efficient factor in the propagation, if not in the causation, as I believe that I have many times seen it, of a chronic inflammation of the delicate nasal mucous membrane, with its usual result of permanent infiltration of the mucous and submucous structures. All this rather than a means for its relief.

While, then, cleanliness is essential, mechanical means for attaining it are to be used with great discretion. There is nothing curative in their employment. They are by no means as generally necessary as was formerly supposed. I believe that in my practice I have discontinued their use in more than fifty per cent. of cases, and the latter not only do just as well, but better, being relieved of an element of irritation. All instruments, then, for cleansing purposes, and I include here the "nasal douche" with its many modifications, anterior and posterior nasal syringes, and the like—I even add cleansing sprays—are only necessary and are only to be used in exceptional cases of aggravated catarrhal inflammation, with accumulation of pent-up or hardened secretions, and in cases attended by the formation and firm impaction in the passages of hard, dense crusts, as in atrophic or fetid catarrh and in ozæna. In simple chronic rhinitis, and in some—perhaps one half—of the cases of hypertrophic rhinitis their use is not required as a rule. The patient can readily remove the soft, semi-fluid secretions by simply blowing the nose; if he cannot, or if the secretions collect at the vault of the pharynx, one jet of

spray containing some alkali or some "Listerine," thrown behind the velum or into the anterior nares, just prior to the use of the medicated spray or powder will be amply sufficient to loosen and remove them.

Let us suppose, however, that we are called upon to treat a case such as I have described, where the use of some instrument is a necessity in order that the pent-up or hardened secretions may be removed before you make your application of the remedial agent. What form of instrument shall we use? Which method prefer? Never use a "nasal douche," it is an inefficient instrument for the purpose for which it was designed, insomuch as it does not thoroughly wash or cleanse the nasal cavities, even when carefully used. I prefer, and I strongly advise the employment of the instrument that I show

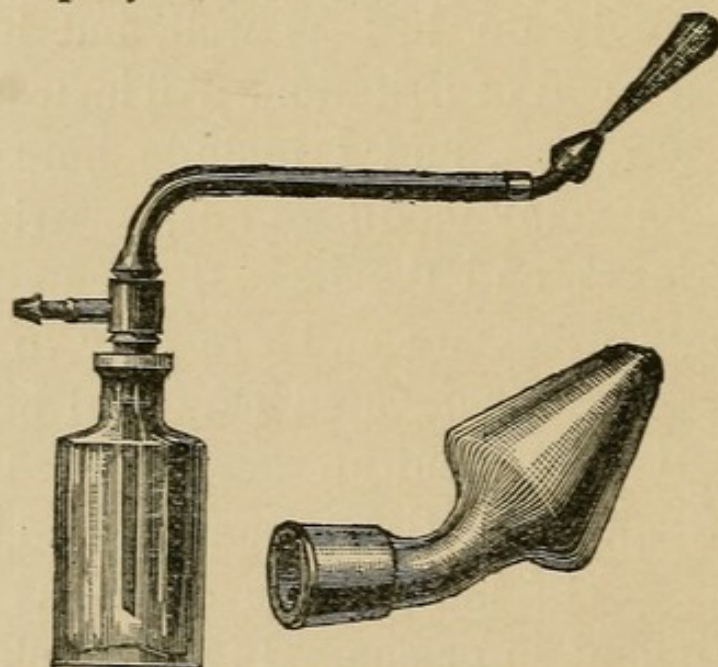


FIG. 2.—Nasal spray apparatus.

here, and which I devised some years ago. It is simply an apparatus arranged to throw a *very coarse spray* in the right direction into the anterior nares. The conical tip closes one nostril completely; the fluid then enters one

nasal passage and passes out by the other. Power is obtained by means of a double hand-ball tube. We call it the "nasal spray apparatus." With it the nasal passages and upper pharynx may, except in rare instances, be thoroughly cleansed of secretions and crusts by the use of less than one ounce of the medicated fluid contained in its bottle or reservoir. Here, at once, is an immense advantage gained over the quart or even pint of fluid used commonly in the "douche." Being a *coarse spray* it washes up, loosens, and dislodges the secretions (unless they are firmly impacted in extreme cases) by the constant commotion of the fluid in the nasal passages, and this very readily and quickly. Explicit directions are to be given in every case to the patient for its use. They are as follows :

1. Warm the medicated fluid in the bottle before using, by holding the filled bottle for a few moments in hot water.

2. Hold the body erect and incline the head very slightly forward over the toilet basin.

3. Introduce the conical nozzle of the apparatus into the nostril (first on the side most occluded) far enough to close it perfectly, holding at the same time the horizontal tube of the apparatus directly outwards from the face ; do not turn it from side to side or downward, and make a trial of the spray by compressing the hand ball once, to prove that the opening in the nozzle is not occluded in the nostril ; then—

4. Open the mouth widely and breathe gently but quickly through it in a snoring manner ; avoid carefully all attempts at speaking, swallowing, or coughing (at the

moment that the fluid passes into the upper part of the throat from the nostril being operated upon, a desire to swallow will be experienced; resist it, and the next second the fluid passes forward through the opposite nostril).

5. Hold the end ball of the apparatus firmly in the right hand (the left holds the bottle) and *operate it briskly*, until the spray of medicated fluid, which should be felt at once to enter the nasal passage, has passed around it and appears at the opposite nostril; at this moment, stop.

6. Remove the nozzle from the nostril; allow the surplus fluid to run out of the latter; then blow the nose gently—*never vigorously*.

7. Repeat the operation upon the opposite nostril.

In the severer forms of nasal disease—those attended by the formation and impaction of hard, dense crusts and masses in the nasal passages and upper pharynx—the use of this “nasal spray apparatus” will not be sufficient to dislodge them in the first instance, and a more powerful means (short of direct instrumental removal) must be employed. This result is obtained by the “posterior nasal syringe,” of hard rubber or metal, with a long, curved nozzle, which is used to cleanse the parts posteriorly (by way of the upper pharynx and posterior nares).

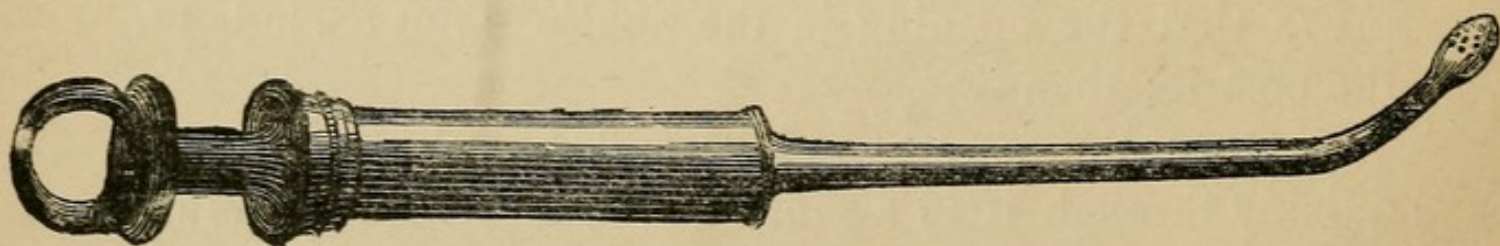


FIG. 3.—Posterior nasal syringe.

Or still better, by means of the apparatus figured below.

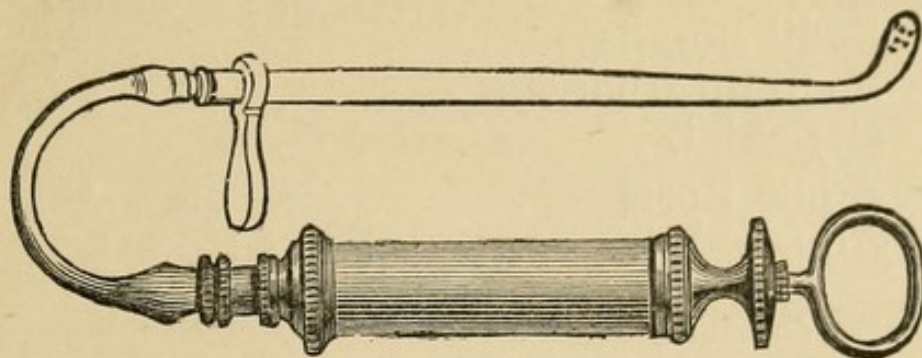


FIG 4.—Post-nasal tube with metal syringe.

This procedure is always disagreeable, sometimes painful, to the patient, and care must always be taken not to bruise the parts during the introduction of the nozzle of the syringe or tube. Toleration will be established after a time. For cleansing purposes through the anterior nares an easier matter—the large, hard-rubber syringe of the aurist answers the purpose well.

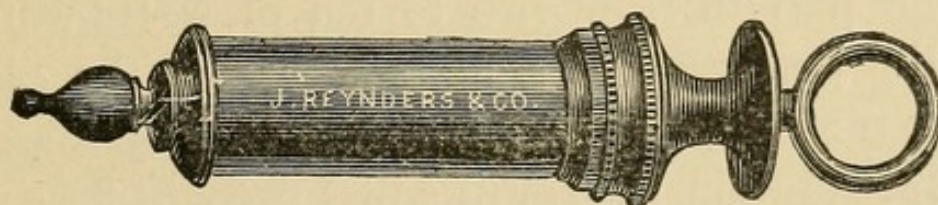


FIG. 5.—Anterior nasal syringe.

Cleansing and Disinfecting Solutions.

R̄

Sodii Bicarbonatis.

Sodii Boratis āā 3 ss

"Listerine" 3 i

Aquæ ad 3 iv

M. Signa—Used with the nasal spray apparatus.

℞

Acidi Carbolici	.	.	gr. v-x
Sodii Boratis.			
Sodii Bicarbonatis	.	.	āā 3 ss
Glycerini.			
Aquæ Rosæ	.	.	āā 3 ii
Aquæ	.	.	ad 3 iv

M. Signa—Used with the nasal spray apparatus.

℞

"Listerine"	.	3 ss, 3 i, 3 ii, 3 iv
Aquæ	.	3 iv

M. Signa—Used with the nasal spray apparatus.

Where a much larger quantity of a cleansing solution is necessarily used, as with the anterior or posterior nasal syringe, simple warm water, with the addition of borax—ten grains to each ounce—or "Listerine" in the proportion of one part to from two to ten of warm water, will answer the purpose. I sometimes—when the disagreeable odor is strong—use, after a thorough syringing with an alkaline solution, a *spray* of equal parts of "Listerine" and water; it destroys fetor very quickly, and substitutes for it the pleasant odor of the thyme. Other cleansing solutions for use in large quantity, with the syringe, are as follows. They should all be used at or near the temperature of 100° F.

℞

Glyceriti Acidi Carbolici (U.S.P. 1870)	3 jss
Sodii Boratis	3 i
Aquæ	ad Oi

M.

℞

Liquoris Potassii Permanganatis (U.S.P. 1870) 3 iss
 Sodii Boratis 3 i
 Aquæ ad O i

M.

℞

Acidi Salicylici gr. x
 Sodii Bicarbonatis 3 i
 Aquæ O i

M.

℞

Sodii Bicarbonatis.
 Sodii Boratis.
 Sodii Chloridi āā gr. vii
 Sacchari gr. xv

M. Signa—The powder should be dissolved in about half a tumblerful of tepid water.

℞

Sodii Boratis 3 i
 Glyceriti Acidi Carbolici (U.S.P. 1870) . . . 3 ii
 Sodii Bicarbonatis 3 i
 Aquæ O ss

M. Signa—"Dobell's Solution."

The water should be warm. Chlorate of potash or "Condy's fluid" solution of permanganate of potassium may be used in place of the Borax in this formula.

III.

AQUÆ MEDICATÆ — MEDICATED SPRAYS.

Solutions for local applications, by means of glass, hard-rubber, or metal spray tubes and the compressed air-apparatus, or by any of the many forms of hand-ball atomizer, adapted for the purpose, to the larynx, pharynx, anterior and posterior nares.

My own experience prejudices me strongly in favor of the medicated spray, as a means of making a thorough and efficient application to a diseased laryngeal mucous membrane. In regard to its superiority over other methods in applications to the upper pharyngeal space and posterior nares, as well as anteriorly, through the nasal passages, there is, I think, no question. I believe, that with a proper spray tube and a pressure of compressed air of about forty pounds to the square inch, no more perfect application can be made to the parts. I prefer this high pressure of compressed air to the lower power so often recommended. I have never done harm to the mucous membrane with it, and the increased power of propulsion in the cloud of spray, renders it possible to reach instantly—before any spasmodic contraction of the larynx takes place—its entire mucous surface. In the

nasal passages the same pressure causes the spray to enter and thoroughly bathe all of the many irregularities and recesses that here abound.

Larynx.

A spray application to the larynx should always be made, as is that with the laryngeal brush (see remarks: Collyria), under the guidance afforded by the laryngoscopic mirror—the concave forehead mirror and artificial illumination being used, the patient holding his own tongue and phonating the vowel sound “e,” in order to elevate the epiglottis and bring the vocal cords together at the instant before the volume of spray is discharged into the larynx; the operator holds the spray tube in his right hand, and the laryngoscopic mirror in his left.

Pharynx.

A spray application to the middle pharynx is made at the moment that the operator, with his left hand holding the spatula, depresses the patient's tongue well down into the floor of the mouth, and while the latter is breathing quietly, in order that the parts—viz., the faucial pillars, soft palate, and constrictor muscles of the pharynx—may be relaxed, not contracted. A much larger space is thus uncovered to the spray, and a corresponding degree of effectiveness gained.

Nasal Passages.

A spray to the nasal passages should always be applied, if possible, through the upper pharynx and

posterior nares, as follows : The patient depressing his tongue by means of a spatula, the velum palati must be drawn forward—that is, away from the posterior pharyngeal wall—by means of a suitable strong wire, bent at its end into a small, rounded hook and covered by bougie material—a procedure that can readily be accomplished in all cases after a little practice, and one that I regard as absolutely essential to the thorough success of the appli-

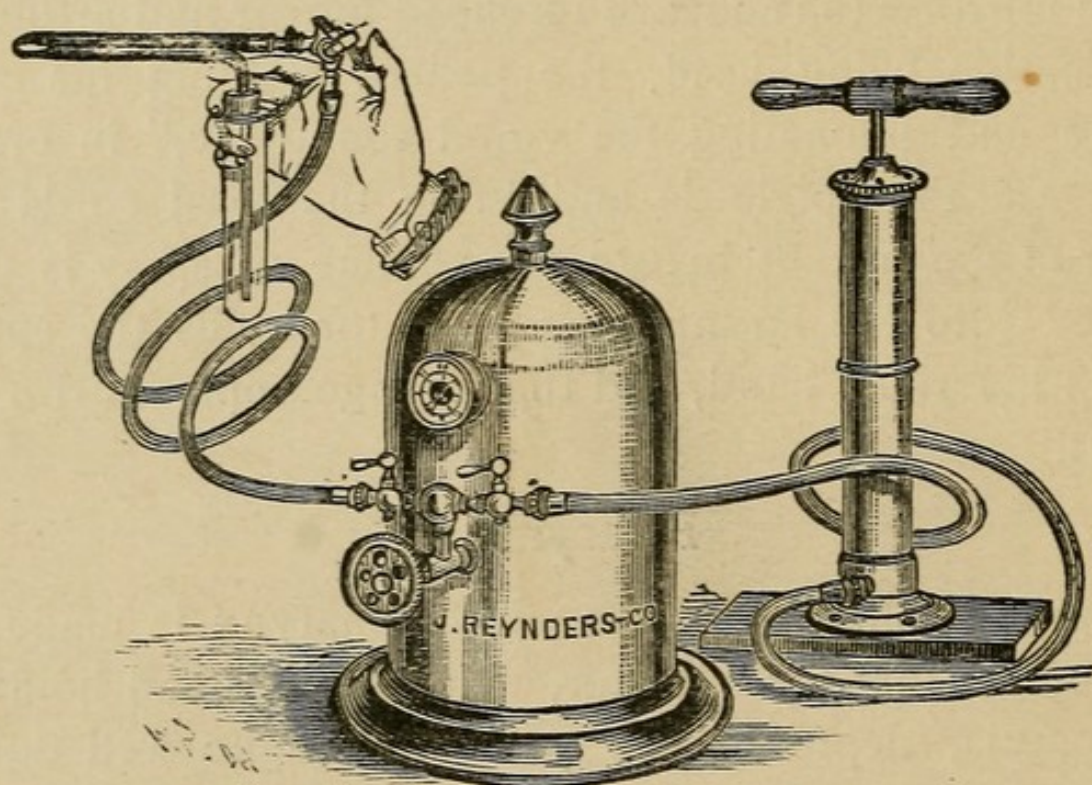


FIG. 6.—Compressed-air spray apparatus.*

cation, as it is the only way in which a practicable degree of space can be gained through which to throw a spray upward and forward through the nasal passages. To attempt an application with the velum drawn upward and backward—closely approximated to the pharyngeal wall, is nonsense ; in this position it will be found, the moment

* The complete compressed-air spray apparatus is manufactured by J. Reynders & Co., of New York.

that you introduce your spray tube into the patient's mouth, in nine cases out of ten.

The "palate hook" is held in the operator's left hand, his right holds and controls the spray tube and the spray (the tube, being passed back of the velum,) is thus thrown upwards into the vault of the pharynx and forwards

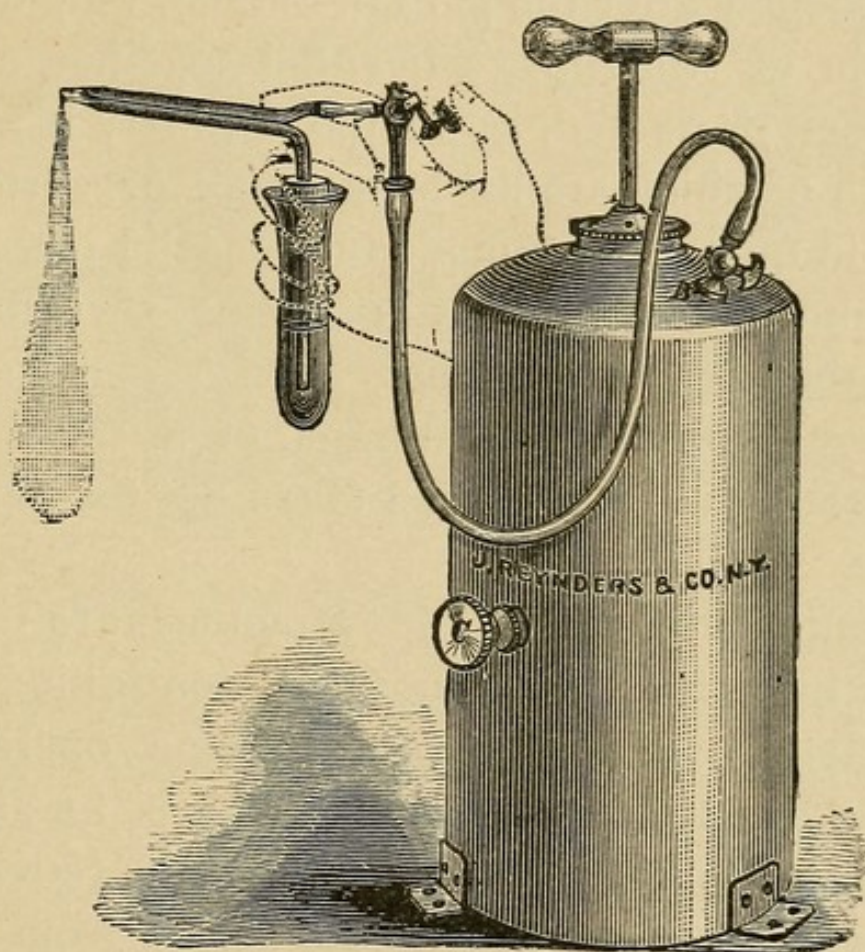


FIG. 7.—Compressed-air spray apparatus.

through both nasal passages, so that it appears, at both nostrils, in a fine cloud.

Such applications as are here described are thorough and complete, not painful nor even very disagreeable to the patient, and that the results, obtained by a series of such, far exceed those obtained by any other method of local applications, ample experience has shown me.

The spray tubes shown in fig. 8 are made of vulcanized rubber; the best and cheapest tubes, however, are those made of glass, but they are, of course, more fragile than the above, or than the others made of metal and nickel-plated, which can only be used with certain non-corrosive solutions. A spray tube has been designed by Wile, that is modelled after the pattern of Sass, but, instead of being made of two tubes cemented together, as in the case of glass, or riveted, as in the ordinary hard-rubber tubes, both of which are liable to break or spring apart, the tubes in question are made of one solid piece of hard rubber; and the tips, instead of being permanently attached to the body of the tubes, are screwed in and are made interchangeable. By means of a small wrench, they are readily unscrewed and taken out for purposes of cleansing.

The "automatic cut-off," for attachment to the end of the spray tube for the purpose of controlling the air current (fig. 9), is preferred by some operators. A cheaper and, I think, a better method, is to attach the spray tube to the connecting rubber tube (covered with silk or mohair)—(see fig. 6 and fig. 7) from the air receiver, by means of a metal, air-tight bayonet joint, and then control the air current through the rubber tube, by pressure of this with the thumb of the hand that holds the spray tube against the end of the latter (see fig. 6); or, if necessary—but it is less convenient—the connecting rubber tube from the air receiver may be simply slipped over the end of the spray tube at the time the application is made to the throat with the latter, and the air-current controlled by the thumb, as above described.

Three spray tubes constitute a set. One is so arranged as to throw the jet of spray upwards (naso-pharynx); the second, downwards, (larynx); and the third, directly outwards (pharynx and anterior nasal passages).

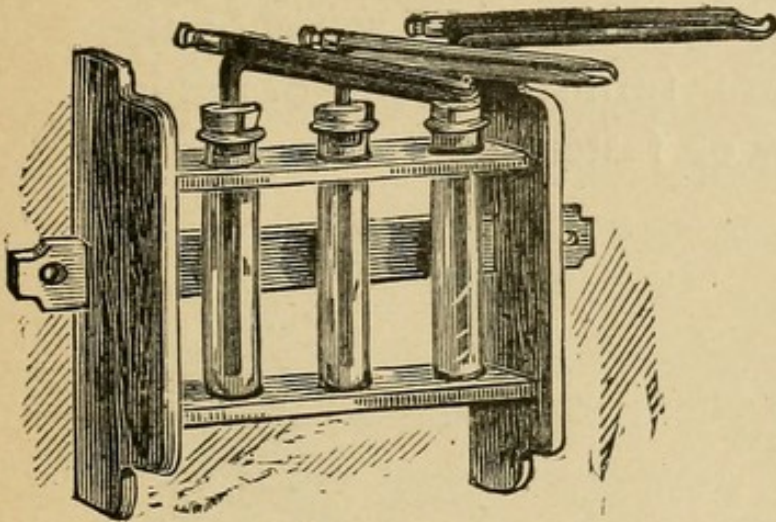


FIG. 8.—Hard-rubber spray tubes.

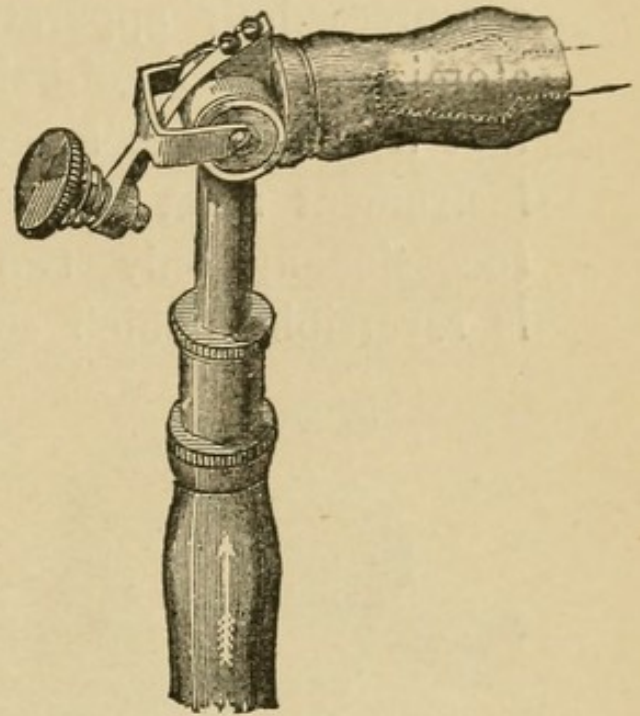


FIG. 9.—Automatic cut-off, for spray tube.

If the general practitioner has not, or cannot obtain, the above instruments—viz., the compressed-air apparatus with air-pump and spray tubes—he is necessarily obliged to depend upon some form of hand atomizer, constructed upon either the principle of Richardson or Bergson, and in which the propelling power is developed by the use of hand-ball bulbs and tubes. Of these atomizers there is a great variety; they are sold everywhere, and at a moderate cost. A very good one is manufactured by the Davidson Rubber Co., and called Hard-rubber Atomizer, Continuous Spray, No. 61. Others are shown in the following figures. Codman & Shurtleff, of Boston, manufacture likewise a large variety of very useful and efficient forms of hand-ball atomizer.

There is, then, no difficulty in securing a proper apparatus, and, by means of such, an application can be made with care, with good effect, rarely, however, with the efficiency that attends the use of the compressed-air apparatus. In any of these forms of atomizer, the hand-balls should be double, in order that a continuous spray may be produced, and each instrument must be provided with three separate tips (occasionally only two are furnished, one of which is reversible), which screw or fasten on the horizontal

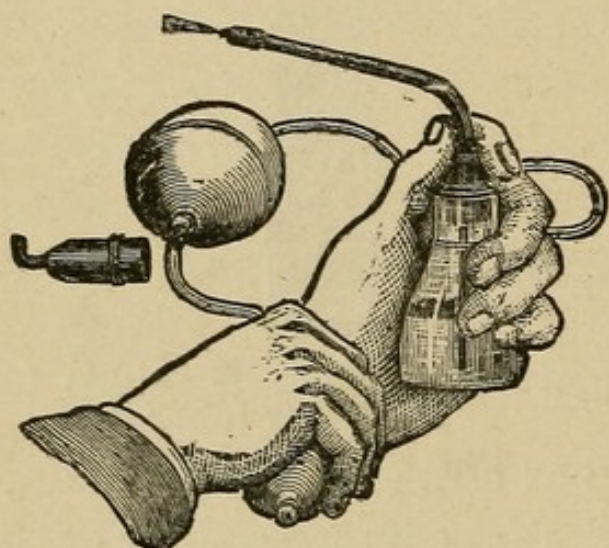


FIG. 10.—Hard-rubber atomizer, continuous spray (with two tips).

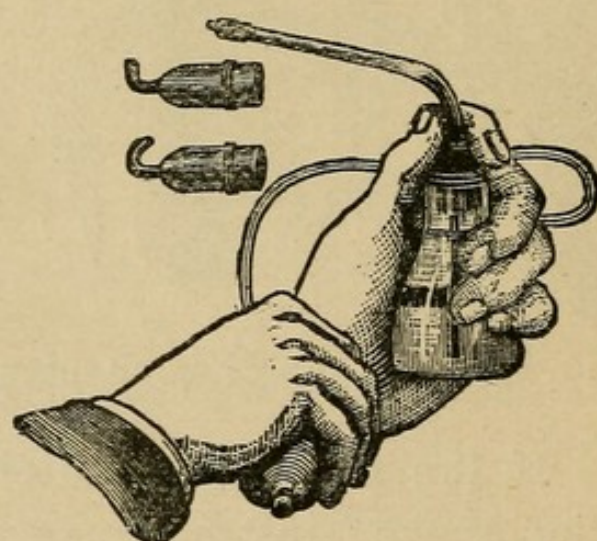


FIG. 11.—Hard-rubber atomizer, continuous spray (with three tips).

hard-rubber bar of the spray tube (one throws the spray downward to the larynx, one upward into the naso-pharynx, and the third directly backward into the pharynx).

The disadvantages of this form of spray apparatus, which make it inferior to the use of compressed air, are the length of time that it takes to develop the propelling power by means of hand-ball pressure, and the fact that both of the operator's hands are required to work the instrument. Both of these points are of importance when

the latter is in position in an irritable throat, where time is all requisite, and a speedy application a necessity.

Larynx.

To make an application to the larynx with this instrument, the patient must stand or sit, facing a window, so that a good light is thrown into the widely-opened mouth ; or, still better, the operator should use the concave forehead reflector, with artificial light. The patient draws his tongue well out of the mouth, and holds it between two fingers of the right hand, the tongue having first been covered by a small, clean napkin. The operator now carefully passes the horizontal bar of the instrument, on which is placed the tip which throws the spray downward, well back into the pharynx, without, however touching the posterior pharyngeal wall, and holds it steadily with his left hand, in a position which his anatomical knowledge tells him is such that the point of the instrument is directly above the mouth of the larynx (the laryngoscope cannot, of course, be used during this procedure, as both of the operator's hands are occupied). The patient now takes a deep, full, and *quick* inspiration, at the same moment that the operator begins to compress the air-bulbs of the apparatus *vigorously*. A short, sharp laryngeal cough will be the evidence that the spray has entered the larynx.

Pharynx.

The application to the posterior pharyngeal wall is an easier matter, for the parts are directly before the operator,

and under his vision. The patient depresses his tongue by means of a spatula, and breathes quietly. The proper tip is of course to be placed on the spray tube.

Nasal Passages.

A proper application with the "hand-ball spray" to the posterior nasal passages and upper pharynx is the most difficult. A patient is rarely found with a throat tolerant enough to allow of the spray being thrown with this instrument up behind the velum, into the vault of the pharynx and posterior nares. Both of the operator's hands being again occupied with the atomizer, he cannot use the "palate-hook" to draw the velum forward, and, as a rule, therefore, he had better confine himself to applications made through the anterior nares, and forced well and quickly back through them into the pharynx, if he employs this form of instrument.

For simple applications to the pharynx, one of the following forms in default of other apparatus may be advantageously employed. Their use is far superior in effective medication to that gained by the prescription of a gargle. They may also be used by the patient, his right hand holding the instrument, his left holding the spatula, by means of which he depresses his tongue,

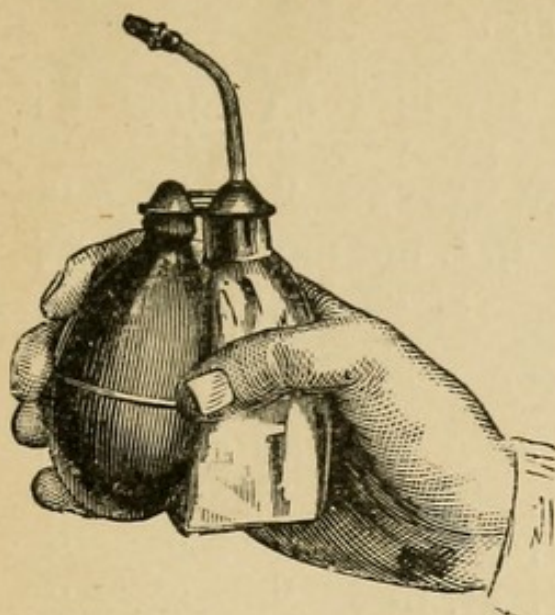


FIG. 12.—Atomizer (with removable tip) throwing a coarse spray.

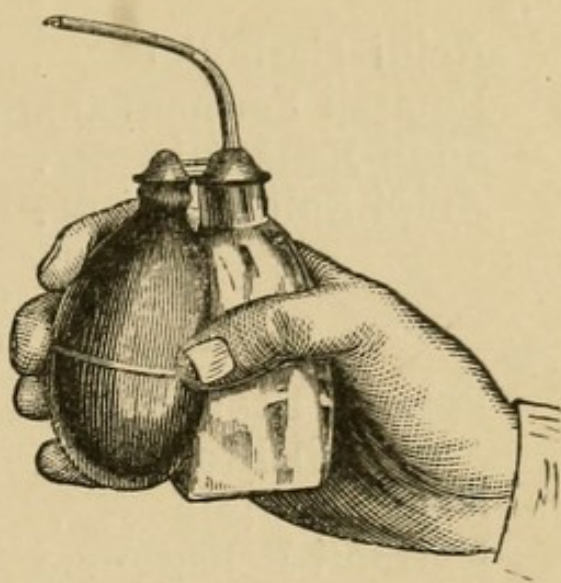


FIG. 13.—Atomizer throwing a coarse spray,

Larynx and Pharynx.

ASTRINGENT SOLUTIONS.*

℞	Ferri et Ammonii Sulphatis .	3 ss—3 i	ad aquæ	3 i
	Zinci Iodidi	gr. x-xx	"	"
	Zinci Chloridi	gr. x-xxx	"	"
	Zinci Sulphocarboulatis	gr. x-xx	"	"
	Ferri Chloridi	3 ss—3 i	"	"
	Ferri Sulphatis	3 ss—3 i	"	"
	Zinci Sulphatis	3 ss	"	"
	Cupri Sulphatis	gr. v-xv.	"	"
	Aluminis	gr. x-xv	"	"
	Acidi Tannici	gr. v-xx	"	"
	Potassii Chloratis	℥ i	"	"
	Liquoris Plumbi Subacetatis			
	Diluti	℥ xx-xxx	"	"

℞ STIMULANT.

Argenti Nitratis gr x, xx, xxx—3 i ad aquæ 3 i

* These are given in order of preference as to use.—(Lefferts.)

ANTISEPTIC.

℞

Acidi Carbolici	.	.	gr. iii-v	ad aquæ	℥ i
Potassii Permanganatis	.	.	gr. v-x	" "	"
Sodii Benzoatis	.	.	gr. xx-xxx	" "	"
Acidi Sulphurosi	.	.	q. s.	not more than	3 i
					at each application.

SEDATIVE.

℞

Potassii Bromidi	.	.	.	3 ss,	ad aquæ	℥ i
Ammonii Bromidi	.	.	.	3 i	" "	"
Extracti Opii	.	.	.	gr. ii-x	" "	"
Extracti Belladonnæ	.	.	.	gr. ii-x	" "	"
Liquoris Morphinae Sulphatis (Magendie),	℥	xii				"

℞

Iodoformi	.	.	.	.	.	3 i
Ætheris Fortioris	.	.	.	.	.	℥ i

M. Signa—Spray in Syphilitic and Phthisical Laryngitis.

℞

Zinci Chloridi	.	.	.	.	gr. xv
Liquoris Morphinae Sulphatis (Magendie),					3 i
Glycerini	.	.	.	.	3 ss
Aquæ	.	.	.	.	ad ℥ i

M. Signa—Spray in Laryngeal Phthisis.

ANTI-DIPHTHERITIC.

℞

Acidi Lactici	.	.	℥ xxx	ad aquæ	℥ i
Sodii Salicylatis	.	.	℥ i	ad aquæ	℥ i
Liquoris Calcis (U. S. P.)	.	.	q. s.		

Nasal Passages and Vault of the Pharynx.

Applications to these parts should always be employed of a strength that will cause no irritation of the mucous membrane,—one much more susceptible than either that of the pharynx or larynx. A preliminary trial of the strength of the solution should always be made.

The following are the ones ordinarily used by me, given in order of preference :

R

Zinci Iodidi	gr. v	ad aquæ	℥ i
Zinci Sulphocarboulatis	gr. v	" "	"
Zinci Sulphatis	gr. v	" "	"
Ferri et Ammonii Sulphatis	gr. v	" "	"
Ferri Chloridi	gr. v	" "	"
Acidi Tannici	gr. v-xx	" "	"
Potassii Chloratis	℥ i	" "	"

The above are suited for cases of Simple Chronic Rhinitis and Hypertrophic Rhinitis in its earlier stages ; still later in the latter disease the following may be used : (See also rules for cleansing, page 4.)

R

Iodi	gr. iv
Potassii Iodidi	gr. x
Zinci Iodidi	℥ i
Zinci Sulphocarboulatis	℥ i
" Listerine " *	℥ i
Aquæ	ad ℥ iv

M. "Spray."

* The " Listerine " in this formula is a preparation recently introduced to the Profession by Lambert & Co., of St. Louis, containing the essential antiseptic constituent of thyme, eucalyptus, baptisia, gaultheria, and mentha arvensis in combination. Each fluid-drachm also contains two grains of refined and purified benzo-boracic acid. Thus, it may be used in this formula and in the majority of the solutions of astringents etc., that have been mentioned, as a menstruum, in the proportion of one part " Listerine " to two of water. It will be found to serve a useful and pleasant purpose where the addition of an antiseptic is desirable. The thyme and eucalyptus, besides being disinfectants, act also as stimulants to the mucous membrane, the benzo-boracic acid as an emollient.

In Atrophic or Fetid Rhinitis, the indications for treatment are twofold : first, to cleanse and disinfect, and then to keep clean and disinfected, the nasal passages of all decomposing crusts and secretions ; and, second, to stimulate the atrophied mucous membrane, with a view to the regeneration of function and character of secretion in the muciparous follicles and serous glands, if this latter can be accomplished, a matter which my experience has led me strongly to doubt. The first indication is met by the daily use of the anterior or post-nasal syringe, occasionally by the necessary direct removal of hard crusts by means of forceps, and thorough washing of the passages with an antiseptic and alkaline solution until all offending secretions are removed. Formulæ for this purpose have been given (see page 10).

The second indication requires the use of such drugs as sanguinaria, galanga, carbolic acid, creosote, salicylic acid, iodine, bromide of potassium, etc., which are recommended as efficient in the early stages of the disease. They are mentioned in the order of preference. They probably act by giving rise to a local irritation of the mucous membrane, which in turn leads to a stimulation of the glandular structures, and an increased discharge of serum and mucus.

IV.

COLLYRIA—MEDICINAL SOLUTIONS FOR LOCAL APPLICATION.

Used with the laryngeal brush, to the larynx, or by means of a large camel's-hair pencil, to the pharynx.

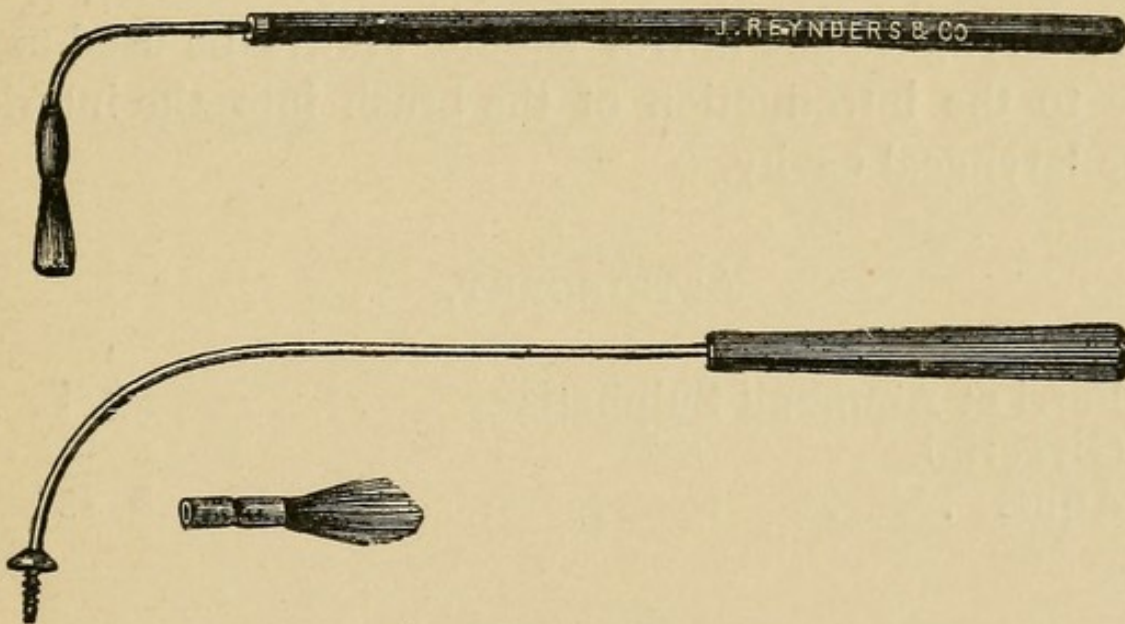


FIG. 14.—Brushes for the larynx.

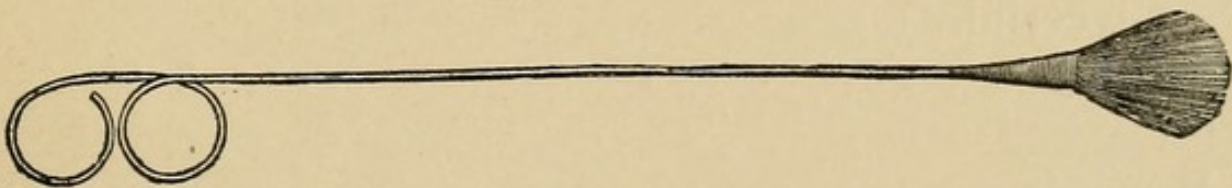


FIG. 15.—Brush for the pharynx.

The use of some one of the following solutions is indicated in all chronic, and in many sub-acute, inflammatory

affections of the larynx and middle pharynx. In acute inflammations of these parts, their employment is, as a rule, contra-indicated. Applications, to be of service, must be thoroughly, skilfully, and regularly made, to the affected mucous membrane. In chronic affections, daily applications for the first week, on alternate days during the second and third weeks, twice in the fourth week and thenceforth at gradually increasing intervals, according to the indications presented in the given case, will be a safe general rule.

Alternation of the remedies is sometimes of service in old and inveterate cases. The same rules will apply to the use of the medicated sprays (see page 13).

The laryngoscopic mirror should always be used as a guide to the introduction of the brush into the interior of the laryngeal cavity.

ASTRINGENT.

℞

Ferri et Ammonii Sulphatis . . . 3 i

Glycerini.

Aquæ āā ʒ ss

M.

℞

Zinci Iodidi 3 ss

Glycerini.

Aquæ āā ʒ ss

M.

℞

Zinci Sulphocarbolatis . . . 3 ss

Glycerini.

Aquæ āā ʒ ss

M.

℞
 Zinci Chloridi gr. xv
 Glycerini.
 Aquæ āā ⅓ ss

M

℞
 Tincturæ Ferri Chloridi . . . 3 i—3 ii
 Glycerini.
 Aquæ āā ⅓ ss

M

℞
 Ferri Sulphatis 3 ii
 Glycerini.
 Aquæ āā ⅓ ss

M

℞
 Zinci Sulphatis 3 ss
 Glycerini.
 Aquæ āā ⅓ ss

M

℞
 Aluminis 3 i
 Glycerini.
 Aquæ āā ⅓ ss

M

STIMULANT.

℞
 Argenti Nitratis . . . gr. x, xx, xxx, 3 i
 Aquæ ⅓ i

M.

℞
 Cupri Sulphatis gr. xv
 Glycerini.
 Aquæ āā ⅓ ss

M.

ANTISEPTIC.

℞	Acidi Carbolici Puri	℥ xv
	Glycerini.	
	Aquæ	āā ʒ ss
M.		

STIMULANT, ALTERATIVE, AND RESORPTIVE.

℞	Tincturæ Iodi	℥ iv, xii
	Potassii Iodidi	gr. v-x
	Glycerini.	
	Aquæ	āā ʒ ss
M.		

℞	Iodi	gr. ii
	Potassii Iodidi	gr. iv
	Zinci Iodidi.	
	Zinci Sulphocarboulatis	āā gr. x
	Glycerini.	
	Aquæ	āā ʒ ss
M.		

GLYCERITA.

The following glycerites of the U. S. P. 1870 may also be used as local applications to the larynx.

Glyceritum Acidi Carbolici.
 Glyceritum Acidi Gallici.
 Glyceritum Acidi Tannici.
 Glyceritum Amyli (U. S. P. 1880).
 Glyceritum Sodii Boratis.

V.

PULVERES.—POWDERS.

For insufflation into the larynx or nasal passages by means of an appropriate form of powder-blower.

Larynx.

Opinions will be found to vary as to the efficacy of medicated powders in the treatment of laryngeal disease. The German and English method still retains them. In America they are not commonly used. In Acute and Sub-acute Laryngitis, as well as in some grades of, specially Phthisical and in Syphilitic Laryngitis, they are occasionally indicated. On the other hand, in advanced Chronic Laryngitis they are of little or no service. For use in Tracheal affections they have been strongly recommended. Should their use be determined upon in a given case, the powder selected may be applied to the larynx by means of one of the following forms of apparatus, ; the same rules being observed as in the case of the use of the laryngeal spray (see page 13). The laryngoscopic mirror should always be employed to ensure accurate application of the powder.

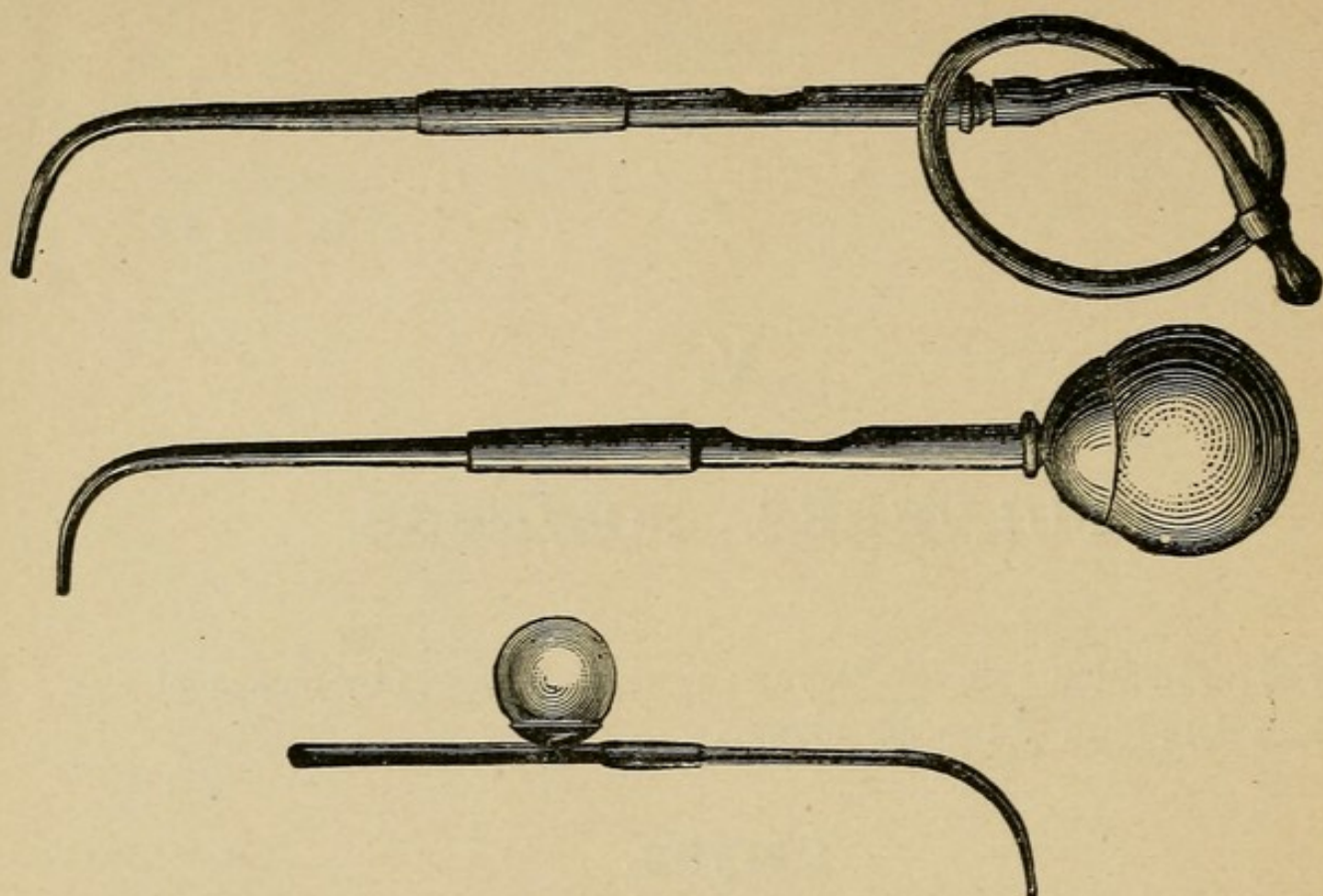


FIG. 16.—Powder insufflators for the larynx.

ASTRINGENT.*

℞
 Acidi Tannici.
 Pulveris Amyli āā 3 ii
 M.

℞
 Aluminis.
 Pulveris Amyli āā 3 ii
 M.

SEDATIVE.

℞
 Morphinæ Acetatis gr. ii, v, viii, x
 Pulveris Amyli $\frac{7}{3}$ ss
 M.

* See also nasal powders.

This powder should be well prepared in a mortar, so that the Morphine is thoroughly incorporated. The strength of the special powder selected will depend upon the degree of sedative action required. Only a small portion of powder is placed in the insufflator at each application.

℞

Morphinæ Acetatis	.	.	gr. ii, v, viii, x
Iodoformi	.	.	ad $\frac{7}{3}$ ss

M.—(See rule for preparation and use given above.)

℞

Iodoformi.			
Bismuthi Subnitratis *	.	.	\overline{aa} 3 ii

M.

℞

Iodoformi	q. s.
-----------	---	---	---	---	---	---	-------

℞

Bismuthi Subnitratis	.	.	.	.	3 iii
Pulveris Amyli	.	.	.	ad	$\frac{7}{3}$ ss

M.

℞

Sodii Boratis	.	.	.	.	3 iii
Pulveris Amyli	.	.	.	ad	$\frac{7}{3}$ ss

M.

* The *Bismuthi Oxychloridum*, $(\text{BiCl}_3, \text{Bi}_2\text{O}_3)_2 \text{H}_2\text{O}$, is preferred by Mackenzie as being more impalpable and less irritating than either the carbonate, subnitrate, or oxide of bismuth. It is also less soluble, which renders it better adapted to produce the mechanical effect of forming a coating over inflamed or raw mucous surfaces. It may be prepared by slowly pouring a solution of bismuth in nitric acid into a solution of sodium chloride.

Nasal Passages.

In cases where medicated spray applications are not well borne by the nasal mucous membrane, causing pain and irritation, or perhaps, in any case, in accordance with the special views of the physician, a medicated powder may be substituted. Powders are particularly adapted to the treatment of Simple Chronic Rhinitis, where the secretions are readily removable, the parts soft and absorptive. In Hypertrophic Rhinitis they are, I believe, of little use, and in Atrophic or Fetid Rhinitis contra-indicated.

The forms of powder insufflator adapted for the treatment of diseases of the nasal passages are shown in the following wood-cuts. One is arranged to deliver, by means of the air-pressure developed by the hand-ball, a charge of the finely pulverized powder with which the bottle is charged, into the anterior nares. The other, with a longer curved tube,—which should be introduced with care behind the velum of the patient,—performs the same operation in the posterior nares and vault of the pharynx.

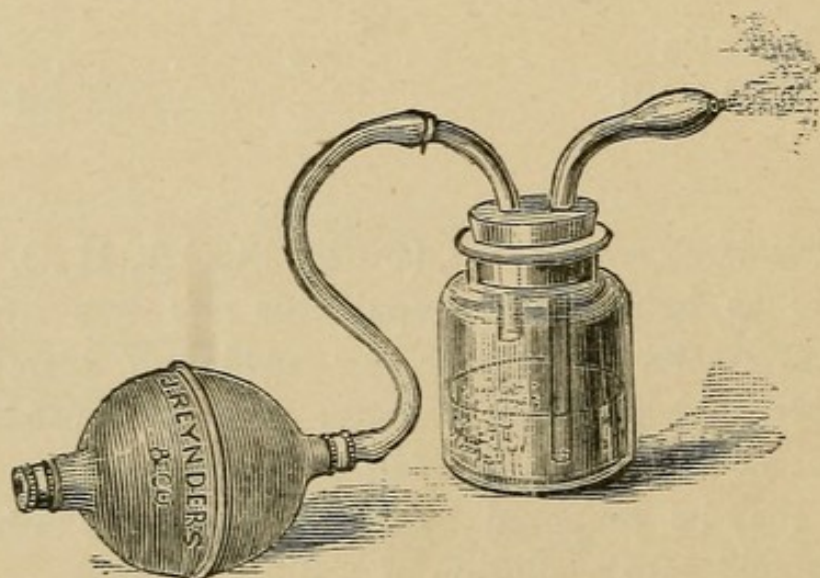


FIG. 17.—Powder insufflator for the anterior nares.

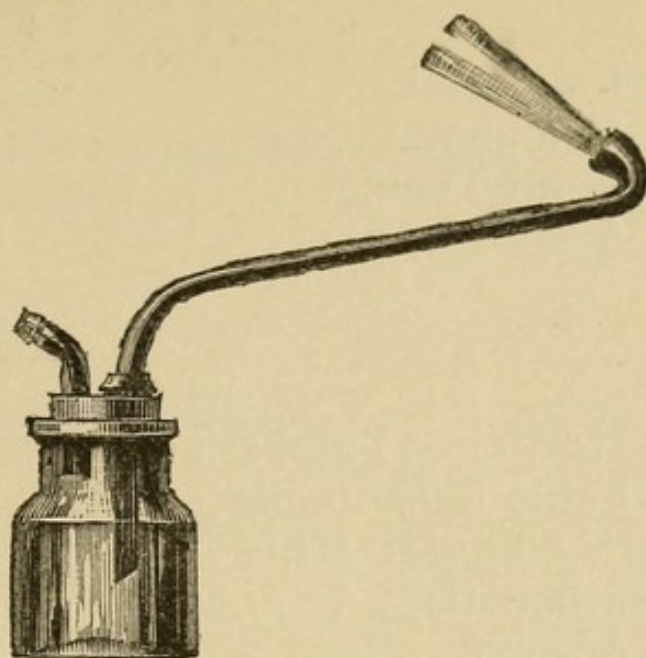


FIG.. 18.—Powder insufflator for the posterior nares.

℞

Pulveris Foliæ Belladonnæ	.	.	gr. xx
Pulveris Morphinae Sulphatis	.	.	gr. ii
Pulveris Acaciæ	.	ad	$\frac{7}{3}$ ss

M. Signa.—For Acute Coryza.

℞

Morphinae Sulphatis	.	.	.	gr. i
Bismuthi Subnitratis	.	.	.	$\frac{3}{3}$ iii
Pulveris Acaciæ	.	.	.	$\frac{3}{3}$ i

M. Signa.—“ Ferrier’s Snuff,” for Acute Coryza.

℞

Pulveris Camphoræ	.	.	.	$\frac{3}{3}$ ii
Acidi Tannici	.	.	.	$\frac{3}{3}$ ss
Pulveris Sacchari Lactis	.	.	ad	$\frac{7}{3}$ ss

M. Signa.—For Acute Coryza in infants.

The following powders may be used for the forms of Simple Chronic Rhinitis :

℞

Pulveris Iodoformi	3 ii
Pulveris Camphoræ	3 i
Pulveris Acidi Tannici	gr. v
Pulveris Acaciæ ad	$\frac{7}{3}$ ss

M.

℞

Pulveris Morphinae Sulphatis	gr. i
Pulveris Foliae Belladonnæ	gr. x
Hydrargyri Chloridi Mitis	gr. xx
Sodii Bicarbonatis	gr. xv
Pulveris Acaciæ ad	$\frac{7}{3}$ ss

M.

℞

Pulveris Camphoræ.	
Pulveris Iodoformi	\overline{aa} 3 i
Pulveris Acidi Tannici	gr. iii
Pulveris Morphinae Sulphatis	gr. ss
Pulveris Foliae Belladonnæ. . . .	gr. v
Pulveris Acaciæ ad	$\frac{7}{3}$ ss

M.

℞

Morphinae Acetatis	gr. iv
Pulveris Iodoformi.	
Bismuthi Subcarbonatis	\overline{aa} 3 i
Pulveris Acaciæ ad	$\frac{7}{3}$ ss

M.

℞

Pulveris Cubebæ	3 ii
Acidi Salicylici	gr. x
Sodii Bicarbonatis.	
Pulveris Acaciæ	\overline{aa} 3 i

M.

℞

Zinci Chloridi	gr. v
Pulveris Foliæ Belladonnæ	gr. x
Pulveris Acaciæ	ad ʒ ss

M.

℞

Pulveris Argenti Nitratis	gr. ii, iv, vi, x
Pulveris Acaciæ	ʒ ss

℞

Pulveris Acidi Tannici *	ʒ ss	ad	Pulveris Acaciæ	ʒ ss
“ Aluminis	gr. x	“	“	“
“ Acidi Salicylici	ʒ i	“	“	“
“ Ferri et Ammonii				
“ Sulphatis	gr. x	“	“	“
“ Ferri Sulphatis	gr. x	“	“	“
“ Iodi	gr. i, ii	“	“	“
“ Potassii Bromidi	ʒ i	“	“	“
“ Potassii Chloratis	gr. xv	“	“	“
“ Sodii Salicylatis	ʒ ss	“	“	“
“ Zinci Sulphatis	ʒ i	“	“	“
“ Zinci Chloridi	gr. v	“	“	“
“ Belladonnæ Foliæ	ʒ ss	“	“	“
“ Catechu	ʒ ss	“	“	“
“ Galangæ	ʒ ss	“	“	“
“ Sanguinariæ	ʒ ii	“	“	“

* Many of the following powders are equally well adapted for insufflations into the larynx. (See page 29.)

VI.

BUGINARIA—NASAL BOUGIES.

Medicated Bougies for the treatment of the various chronic affections of the nasal passages have been advised by Catti of Vienna (*Zur Therapie der Nasenkrankheiten, Wiener medizinische Zeitung*, 1876). They are made of medicated gelatin, and are a little over three inches in length, slightly conical, about one quarter of an inch in diameter at the thick end, and taper almost to a point. Their introduction into the nasal passage is attended with no difficulty, if a rotary as well as an onward motion is given to them during their passage. The elastic body of the bougie adapts itself to every irregularity in the nasal cavity, passes very easily through the narrower parts of the meatus, and dilates the parts by gentle pressure. After their introduction in the manner described, the nostril is plugged loosely with cotton, in order to prevent the liquefied gelatin from escaping by any other orifice than that of the posterior nares. The bougie will melt in from twenty minutes to an hour, depending upon the amount of secretion present, in the given case. It is evident that, by their use, a medicament is gradually and persistently brought in contact

with the affected mucous membrane, and that gentle dilatation of the passage is effected.

The following formulæ are procurable *—each bougie contains :

1	Acidi Carbolici	gr. $\frac{1}{2}$
2	Acidi Salicylici	gr. i
3	Acidi Tannici	gr. i
4	Belladonnæ Ext. Alc.	gr. $\frac{1}{4}$
5	Ergotæ Ext.	gr. v
6	Hydrastis Ext. Fld.	℥ v
7	Iodoformi	gr. ii
8	Iodoformi	gr. v
9	{ Iodoformi	gr. ii
	{ Belladonnæ Ext.	gr. $\frac{1}{4}$
10	Kramerizæ Ext.	gr. iii
11	Liquoris Iodi Comp.	℥ v
12	Liquoris Iodi Comp.	℥ x
13	{ Liquoris Iodi Comp.	℥ v
	{ Acidi Carbolici	℥ $\frac{1}{4}$
14	Morphinæ Sulphatis	gr. $\frac{1}{4}$
15	Opii Extracti	gr. i
16	Sanguinariæ Ext. Fld.	℥ ii
17	Zinci Salicylatis	gr. i
18	Zinci Sulphatis	gr. i
19	{ Zinci Sulphatis	gr. i
	{ Acidi Carbolici	gr. $\frac{1}{4}$
20	{ Zinci Sulphatis	gr. i
	{ Acidi Carbolici	gr. $\frac{1}{4}$
	{ Hydrastis Ext. Fld.	℥ v
	{ Zinci Sulphatis. . . . .	.
21	{ Opii Ext.	āā gr. i
22	{ Zinci Sulphatis	gr. i
	{ Belladonnæ Ext. Alc.	gr. $\frac{1}{4}$
23	{ Zinci Sulphatis	gr. i
	{ Morphinæ Sulphatis	gr. $\frac{1}{4}$
24	Zinci Chloridi	gr. $\frac{1}{4}$

The following suggestions as to their use are offered :

Simple Chronic Nasal Catarrh, with free secretion, numbers 18, 24, 6, 19, 20, 21, 22, 23, 3, 10.

Hypertrophic Nasal Catarrh, numbers 7, 8, 9, and the above.

Atrophic Nasal Catarrh, numbers 6, 4, 16, 1, 2, 11, 12, 13.

Fetid Nasal Catarrh, Syphilitic and Strumous Ozæna, numbers 7, 8, 1, 2, 17, 9.

VII.

GOSSYPPIA—MEDICATED COTTON- WOOLS.

Cotton tampons, medicated by the addition of various drugs, are recommended and used in the treatment of some of the affections of the nasal passages and nasopharyngeal region, by certain authorities. Such desirable results as they may effect are based upon the same principle as that of the use of the medicated nasal bougies, to which, however, they are far inferior (see page 36.), viz. : that the medicament is persistently brought and maintained in contact with the diseased mucous membrane. They are of value mainly, I believe, for their antiseptic and hæmostatic effects.*

The indications for their employment will be apparent from their constitution.

Borated Cotton (15 % Boracic Acid in solution).

Borated Cotton (45 % Boracic Acid in solution).

Carbolated Cotton.

Hæmostatic Cotton (Subsulphate of Iron 45 %).

Iodized Cotton (5 %).

Iodoform Cotton ($7\frac{1}{2}$ %).

Salicylated Cotton.

Styptic Cotton (Perchloride of Iron).

Tannated Cotton.

* Manufactured by C. Am Ende, Hoboken, N. J.

VIII.

INHALATIONES—INHALATIONS.

Inhalations are divided into three classes : A—Vapores Calidi, or Steam Inhalations ; B—Nebulæ, or Atomized Fluid Inhalations ; and C—Fumi, or Fuming Inhalations.

A.—Vapores Calidi—Steam Inhalations.

The employment of hot moist air (steam), charged with a volatile matter, which latter should possess a decided and remedial action, is of the greatest value in the treatment of all acute and sub-acute inflammatory diseases of the larynx, and specially of those of the tonsils and pharynx. In chronic affections of these parts they are of less worth.

The inhalations can very properly be entrusted to the patient, and thus form an adjuvant to the local and direct treatment adopted by the surgeon.

Their curative effect is, no doubt, in great part due to the hot moist air, and this alone in most cases may be used successfully in default of the proper medicament ; the latter, however, in certain instances, at least, imparts a remedial character to the steam, which is desirable.

A variety of "Inhalers" are readily procurable—some at moderate cost. The best known are those of Mackenzie, the "Eclectic Inhaler," Bullock's "Hospital Inhaler,"

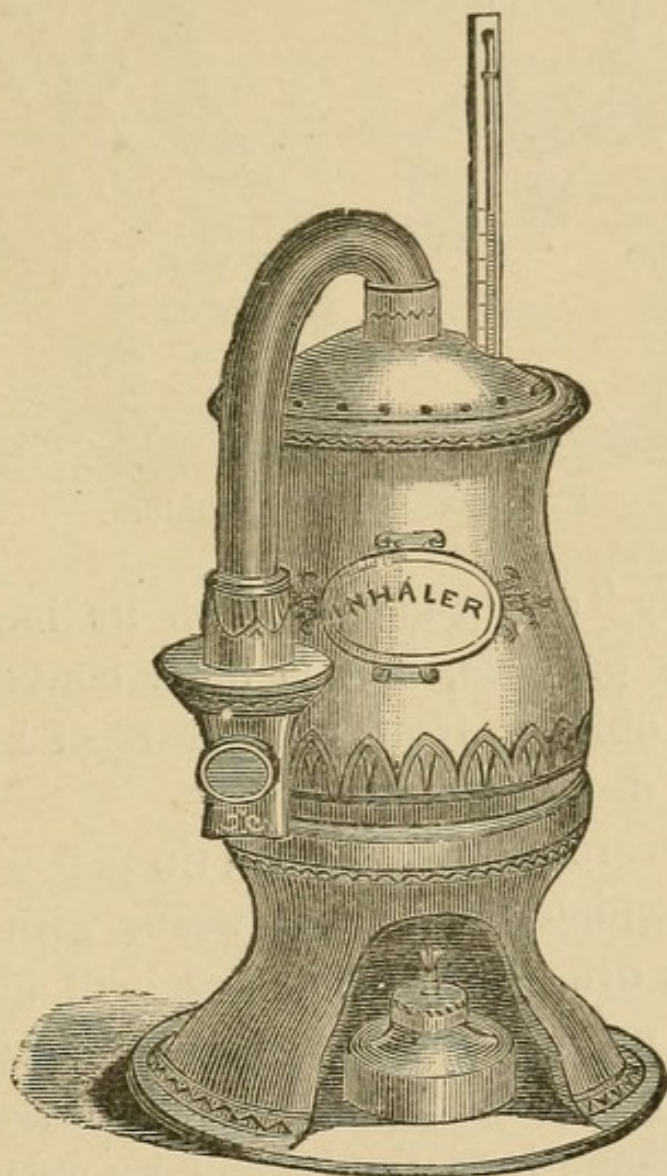


FIG. 19.—The Eclectic Inhaler.

Martindale's "Portable Inhaler" (for illustrations of these see the "Pharmacopœia of the Hospital for Diseases of the Throat," London, fourth edition, pp. 67,68), and the various forms of Earthen-ware Inhaler, made by Maw, of London. The latter have always served a good purpose in my hands.

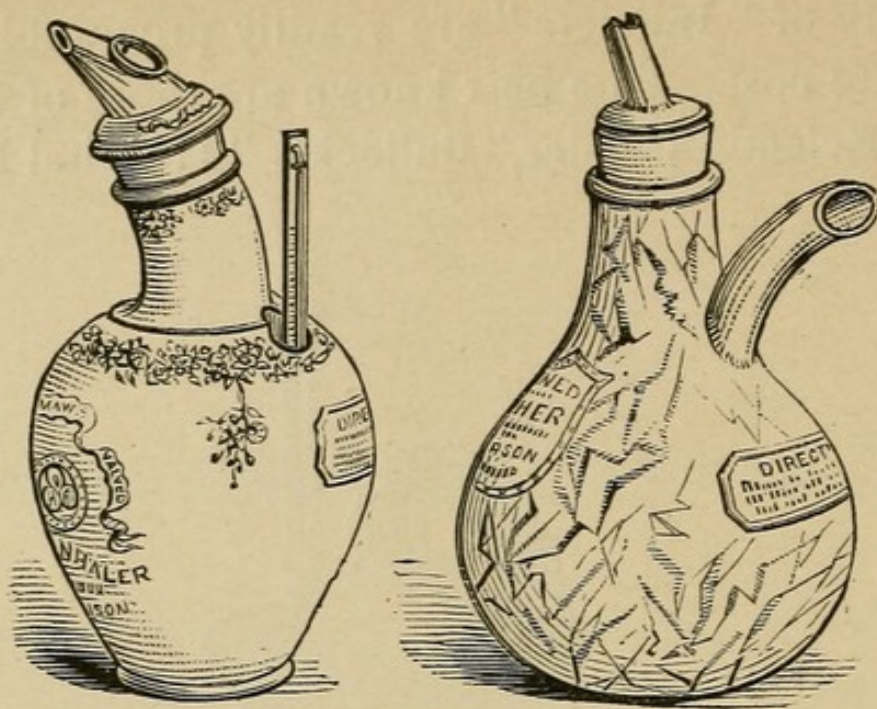


FIG. 20.—Maw's Inhalers.

The ordinary "croup-kettle," with its long nozzle, answers a ready purpose, and is most convenient should the patient be obliged, from the nature of his disease, to recline in bed during the inhalation.

An earthen-ware pitcher, a small tin pail,—in short, any receptacle in which the boiling water with the desired quantity of the drug may be placed, will be efficient in the absence of more costly but perhaps more convenient apparatus. In the latter instances the steam may be directed to the mouth of the patient by means of a thick paper cone, the large end of which covers in the vessel.

Rules for Use.

Steam inhalations should be used, as a rule, at a temperature of 140° , rarely over 150° , never over 160° . Under 130° they are of little use, unless Ammonia is used (Mackenzie).

The "Inhaler" having been filled with one pint of water at a proper temperature, and the medicament added, if one be used, the patient seats himself or reclines upon his bed in a convenient attitude, and either, according to the nature of the case, *i. e.*, whether it be one of laryngeal or pharyngeal inflammation, inhales the steam by a series of deep inspirations—six to the minute in the former instance,—or simply allows it to enter his open mouth, he breathing normally, and thus inhaling it slowly, in the latter.

The process may be repeated, in acute affections, every two or three hours, or even oftener if it be grateful to the patient, and for from four to five minutes at a time.

As a rule, inhalations should not be given after meals, and care is always requisite that the patient does not expose himself to cold external air immediately after their use.

The following Formulæ, with the indications for their employment, are selected from those in use at the Hospital for Diseases of the Throat, London, and consist of the ones best adapted for general requirement in the treatment of laryngeal, tonsillar, and pharyngeal diseases.

The following general remarks regarding their preparation apply to all :

In the case of most of the essential oils (which may be increased in quantity, according to the indications of the case, or several of the volatile oils may be advantageously and pleasantly combined with other remedies in the same prescription), Light Carbonate of Magnesia is used to hold the oil in suspension, in the proportion of half a

grain of Magnesia to each drop of oil. Prepared Kaolin (native white Silicate of Alumina which has been purified by elutriation from free Silica and undecomposed Felspar) is even better than the Magnesia for this purpose, as the latter forms in time non-volatile combinations with some of the essential oils.

The quantities of ingredients in the Formulæ are generally prescribed for *one-ounce mixtures*, a *teaspoonful* of which is added to a *pint* of water, at the required temperature, for *each inhalation*.

Vapor Acidi Benzoici.

R̄

Acidi Benzoici	gr. iii
Kaolin	gr. xii

Rub together and add

Tincturæ Tolutanæ	℥ xviii
Aquæ	℥ ss.

Shake, and make up the quantity with water to one ounce.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—Very serviceable in Acute Affections of the Air Passages.

Vapor Benzoini.

R̄

Tincturæ Benzoini Compositæ	℥ i
---------------------------------------	-----

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—A valuable sedative inhalation for Acute Inflammations of the Pharynx and Larynx, specially in their earlier stages.

Vapor Ammonii Benzoatis.

R̄

Acidi Benzoici	gr. viii
Spiritus Ammoniae Aromatici	℥ ss
Spiritus Camphoræ	℥ iii
Spiritus Vini Rectificati	℥ i

Dissolve, and mix. A teaspoonful in a pint of water at 80° to 100° F. for each inhalation.

Use.—Stimulant in the later stages of Acute Inflammations.

STIMULANTS.

Vapor Iodi Benzoinati.

R̄

Acidi Benzoici	gr. xvi
Tincturæ Iodi	℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—Stimulant.

Vapor Cubebæ.

R̄

Olei Cubebæ	℥ xi
Magnesii Carbonatis	gr. xx
Aquæ	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—A valuable stimulant, especially in Laryngorrhœa.

Vapor Cubebæ Cum Limone.

℞

Olei Cubebæ	3 ss
Olei Limonis *	℥ x
Magnesii Carbonatis	gr. xx
Aquæ	ad ʒ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—A valuable stimulant.

Vapor Juniperi Anglici.

℞

Olei Juniperi Anglici	℥ xx
Magnesii Carbonatis	gr. x
Aquæ	ad ʒ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—An excellent stimulant in cases of vocal weakness.

Vapor Ammoniaë.†

℞

Aquaë Ammoniaë.	
Aquaë	aa 3 iv

M.

A teaspoonful in a pint of water at 80° F. for each inhalation.

Use.—Stimulant; useful in Chronic Laryngitis and Functional Aphonia.

* The oil of lemon is used to mask the disagreeable odor of the cubebs. It may be used as a fragrant addition to many other inhalations.

† This inhalation may be advantageously employed in combination with any of the volatile oils, or with Camphor or Thymol. In such case Kaolin is to be used for keeping the oils in suspension, in place of Light Carbonate of Magnesia.

Vapor Calami Aromatici.

℞

Olei Calami (P. G.)	.	.	.	.	℥ v
Magnesii Carbonatis	.	.	.	.	gr. iiss
Aquæ	.	.	.	.	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—A powerful stimulant. It often acts admirably in cases of Chronic Congestion of the Larynx when other stimulating inhalations have lost their effect.

Vapor Camphoræ.

℞

Spiritus Camphoræ *	.	.	.	.	3 i
Spiritus Vini Rectificati	.	.	.	.	3 iii
Aquæ	.	.	.	.	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—Stimulant, valuable in Chronic Glandular Laryngitis.

Vapor Creasoti.

℞

Creasoti	.	.	.	.	℥ lxxx
Magnesii Carbonatis	.	.	.	.	gr. xxxx
Aquæ	.	.	.	.	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—Stimulant; a very serviceable remedy for Chronic Congestion of the Larynx and Trachea.

* Spirits of camphor in the proportion of one drachm to the ounce of inhalation mixture will be found a useful additional *stimulant* to many of the other inhalations. (See also above—Ammonia.)

Vapor Myrti.

℞

Olei Myrti	. . . . .	℥ vi
Magnesii Carbonatis	. . . . .	gr. iii
Aquæ	. . . . .	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—Stimulant ; useful in Acute Tonsillitis.

Vapor Pini Sylvestris.

℞

Olei Pini Folii (Fir-leaf Oil) *	. . . . .	℥ xl
Magnesii Carbonatis	. . . . .	gr. xx
Aquæ	. . . . .	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—A mild but useful stimulant in Chronic Laryngitis.

Vapor Thymolis.

℞

Thymolis †	. . . . .	gr. vi
Spiritus Vini Rectificati	. . . . .	℥ i
Magnesii Carbonatis	. . . . .	gr. iii
Aquæ	. . . . .	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. for each inhalation.

Use.—A strong stimulant and disinfectant ; useful in Pharyngitis and Laryngitis when associated with the Exanthemata.

* This oil is not to be confounded with ordinary Oil of Turpentine. It is prepared from the leaves of the *Pinus Sylvestris*, Linn., and is imported from Germany as fir-leaf oil (*Fichtennadelöl*). It may be obtained in this country from the Gardner Pine Needle Company, Sharon Springs, N. Y.

† Thymol, like Camphor, will be found to be a most useful addition to many of the essential-oil inhalations (see Camphor—Ammonia).

Vapor Terebenis.

R̄	Terebenis Puri*	.	.	.	.	℥ xl
	Magnesii Carbonatis	.	.	.		gr. xx.
	Aquæ	.	.	.	.	ad ℥ i

M.

A teaspoonful in a pint of water at 140° F. to be inhaled for ten minutes, morning and night.

Use.—As a stimulant.

Vapor Iodi Camphorati.

R̄	Tincturæ Iodi	.	.	.	.	℥ ss
	Aquæ Ammonia Fortioris	.	.	.		℥ xxx
	Spiritus Camphoræ	.	.	.	.	℥ iiiss

M. and after four days filter.

A teaspoonful in a pint of water at 80° F. for each inhalation.

Use.—Stimulant ; also used for Valsalvan inhalation.

SEDATIVE.

Vapor Acidi Hydrocyanici.

R̄	Acidi Hydrocyanici Diluti	.	.	.	.	℥ i
	Aquæ	.	.	.	.	ad ℥ i

M.

A teaspoonful in one pint of water at 80° F. for each inhalation.

Use.—Sedative ; very useful in the cough of Laryngeal Phthisis and in some Spasmodic Affections.

* Pure Terebene, an isomer of Oil of Turpentine, produced by the action on the latter of Sulphuric Acid and distilling (see "National Dispensatory," p. 1019).

Vapor Ætheris.

℞

Ætheris Fortioris.

Spiritus Vini Rectificati . . . āā ʒ ss

M.

A teaspoonful in a pint of water at 80° F. for each inhalation.

Use.—Sedative and anti-spasmodic; useful in Irritation of the Larynx.

Vapor Chloroformi.

℞

Chloroformi Purificati.

Spiritus Vini Rectificati . . . āā ʒ ss

M.

A teaspoonful to be added to a pint of water at the desired temperature (from 60° to 100° F.), and an additional teaspoonful to be added every five minutes during the time that the inhalation is used, nor more than *three teaspoonfuls* to be used on any *single occasion*, except in the presence of the surgeon.

Use.—Sedative in spasmodic affections of the Larynx.

ANTI-SPASMODIC.

Vapor Amyl Nitritis.

℞

Amyl Nitritis ℥ viii

Spiritus Vini Rectificati ʒ i

M.

A teaspoonful in a pint of water at 100° F. for each inhalation.

Use.—Anti-spasmodic; very valuable in some cases of Asthma and Spasm of the Glottis.

Vapor Acidi Hydrocyanici }
Vapor Ætheris Fortioris } See Sedatives.

ANTISEPTIC.

Vapor Acidi Carbolici.

℞

Acidi Carbolici Puri q. s.

Twenty drops in a pint of water at 140° F. for each inhalation.

Use.—Antiseptic; useful in Tertiary Syphilitic and Carcinomatous ulcerations of the Throat.

Vapor Creasoti }
Vapor Juniperi Anglici } See Stimulants.
Vapor Thymolis. }

B. Nebulæ—Atomized, Fluid Inhalations.

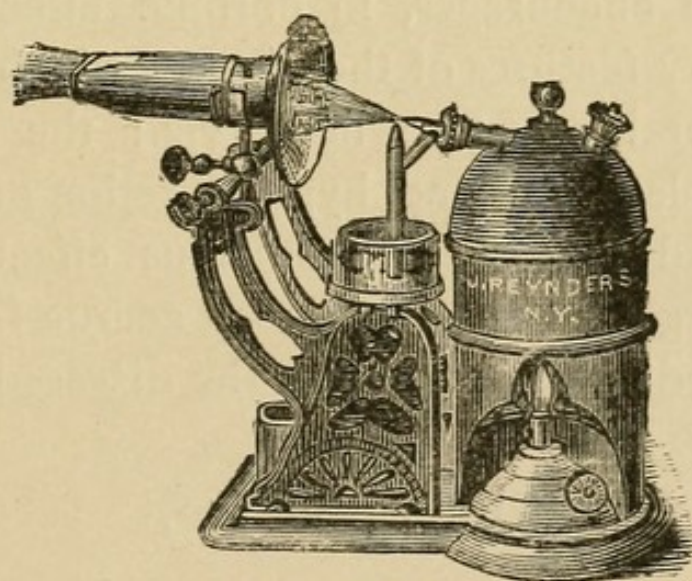


FIG. 21.—Steam atomizing apparatus.

Medicated waters, atomized by means of the steam atomizing apparatus, are, I believe, of doubtful utility in

the treatment of diseases of the larynx, specially of its chronic affections. In the pharynx, on account of the more direct and easy application of the medicated and atomized fluid, they are, perhaps, of more service; but even here are inferior in their remedial effect to that obtained by the use of a medicated spray used with the compressed-air apparatus (see page 13).

The "Steam Atomizer" requires care and much attention to detail in order to preserve it in good working order; time, which it is difficult to persuade the patient with a chronic affection of the throat to take, is requisite for its daily, thorough, and repeated use. Many patients will find the inhalation of such an atomized fluid into the lower portions of the upper respiratory tract, to any degree that ensures efficiency, both difficult and disagreeable, often impossible, and not infrequently irritating. Moreover, I do not question but that the use of the hot steam, which is here the propelling and atomizing power, promotes and encourages, in chronic affections of the throat, the very features of the disease, which it is intended in a general way to relieve, viz.: the tumefaction, hyperæmia, relaxation, and hypersecretion of the mucous membrane, and that these pernicious effects more than outweigh any good result that may accrue from the contact of the medicated spray with the diseased localities.

Rules for Use.

If the apparatus be used, it should be more persistently employed than is usually the case; once or twice a day is not too infrequent an application to ensure results. The

directions which accompany the instrument should be understood and carefully followed. The latter should be arranged upon a table before which the patient is seated at a suitable height. If the atomized and medicated fluid is intended to enter the larynx, the patient's tongue, covered by a small napkin, must be well drawn out of his mouth by himself, his widely-opened mouth placed in the direct line of the cloud of spray as it leaves the glass mouth-piece of the instrument, and as near as the heat of the cloud will safely allow of, and a quiet, deep, full inspiration taken. The sensations of the patient, or a short, sharp, quick cough will show that the larynx has been reached by the atomized fluid. A moment's pause is now made, and the process repeated ; at what length at each sitting and with what frequency will depend upon the requirements of the individual case and the character of the remedy that is used. To enable the cloud of atomized solution to reach the pharynx thoroughly, the patient's tongue must be well depressed by means of a tongue-spatula, and full inspirations taken.

The following are the principal remedies used as atomized fluid inhalations. The stronger astringent solutions are useful in Hæmoptysis, and in Laryngeal Hemorrhage ; the lactic-acid, lime-water, and salicylic-acid solutions in Diphtheria. The application of the others suggests itself.

NAME.	PROPORTIONS.	MEDICINAL PROPERTIES.
Nebulæ Aluminis	gr. viii ad Aquæ Destillatæ ʒ i	Astringent
“ Acidi Tannici	gr. v “ “	“
“ Ferri et Ammonii Sulphatis	gr. iii “ “	“
“ Ferri Chloridi	gr. iii “ “	“
“ Ferri Sulphatis	gr. ii “ “	“
“ Zinci Chloridi	gr. ii “ “	“
“ Zinci Sulphatis	gr. v “ “	“
“ Zinci Iodidi	gr. v “ “	“
“ Zinci Sulphocarbolutis	gr. v “ “	“
“ Acidi Carbolici	gr. iii “ “	Antiseptic and Stimulant
“ Potassii Chloratis	gr. xx “ “	“
“ Potassii Permanganatis	gr. v “ “	“
“ Sodii Chloridi	gr. v “ “	“
“ Sodii Benzoatis	gr. xx “ “	“
“ Acidi Hydrocyanici Diluti	ʒ i “ “	Sedative
“ Aquæ Lauro-cerasi (B. P.)	q. s. “ “	“
“ Potassii Bromidi	gr. xx “ “	“
“ Acidi Lactici	℥ xxx “ “	Resolvent and Antiseptic
“ Liquoris Calcis	q. s. “ “	“
“ Sodii Salicylatis	gr. xx “ “	“
“ Iodoformi	gr. xl ad Ætheris Fortioris “	Antiseptic and Detergent

C. Fumi—Fuming Inhalations.

Fuming inhalations are specially indicated in cases of spasmodic affections of the larynx, trachea, and bronchial tubes. They can best be carried out by steeping unsized paper in a solution of nitrate of potash of definite strength, cutting the paper into strips of three inches long by half an inch broad, lighting the paper at one end, and dropping it into a cylindrical vessel, four inches high by two in diameter, from which the smoke can be inhaled by repeated deep inhalations. It will be found convenient to have three solutions. No. 1.—Potassii Nitratis, gr. xxx., ad Aquæ, $\frac{3}{4}$ i. No. 2.—Potassii Nitratis, gr xlv., ad Aquæ, $\frac{3}{4}$ i, and No. 3.—Potassii Nitratis, 3 i, ad Aquæ, $\frac{3}{4}$ i.

A particular character may be given to these papers by the addition of various volatile principles, thus Spirit of Camphor and Oil of Cassia increase their powers, while Compound Tincture of Benzoin, Oil of Sandal, and Tincture of Sumbul reduce their action and make them less irritating.

The medium-strength nitrated paper (No. 2) is generally employed in the above case, and the best method of preparing it is to moisten the paper in a tincture, or, in the case of essential oils, in a solution of the oil (one drachm dissolved in nine drachms of rectified spirit), and then expose it for a few moments in order to allow the spirit to pass off.

These papers should be kept in tinfoil, or prepared in small quantities as required.

From one to six papers, according to the indications in the particular case, should be used, one after the other, at each inhalation.—(London Throat Hospital, Pharmacopœia.)

IX.

GARGARISMÆ—GARGLES.

A gargle—so-called—is seldom of any value, if it be intended by its use to medicate parts located posteriorly to the anterior pillars of the fauces.

A careful trial in individual cases will demonstrate that, as a rule, the act of gargling is incompletely,—the posterior pharyngeal wall not being reached by the fluid,—and therefore uselessly, performed.

Gargles are, moreover, contra-indicated in all cases where the necessary movements of the parts in the act are painful and cause irritation, as will be found to be the case in most acute diseases of the fauces and tonsils. For these reasons their employment is a restricted one. and is superseded in efficiency by the direct application of a medicated solution in the form of spray.

Rules for Use.

Should they be prescribed—and being a time-honored institution, they probably will continue to be—the patient should be instructed to use them as a lotion or wash for the inflamed surfaces, as far as they can be reached, and not as a gargle,—that is to say, he should bring the medi-

cated fluid into contact with the parts, by allowing it to flow upon them by gravity, as the head is held far backwards, or still better, as he is lying upon his back, with the mouth widely opened, and the head turned slowly from side to side, so as to thoroughly bathe the mucous membrane.

At least half a fluid-ounce of the lotion should be taken into the mouth on each occasion, allowed to flow into the back of the throat and retained there as long as possible; this act to be repeated, and its repetition ordered from four to six, or even more times, daily, according to the indications.

Used in this manner, a lotion possesses a certain degree of value in affections of the mouth, soft palate, and anterior fauces; to a lesser degree, in those of the tonsils.

If a lotion is prescribed that contains a mineral acid, the patient must be cautioned to rinse the mouth with water after its use, in order to prevent injury to the teeth.

ASTRINGENT.

℞

Ferri et Ammonii Sulphatis	.	.	3 iss
Glycerini	.	.	℥ i
Aquæ	.	.	ad ℥ viii

M.

℞

Aluminis	.	.	.	.	.	3 iss
Glycerini	.	.	.	.	.	℥ i
Aquæ	.	.	.	.	.	ad ℥ viii

M.

℞

Aluminis.

Acidi Tannici āā 3 iss

Glycerini 3 i

Aquæ ad 3 viii

M.

℞

Zinci Chloridi 3 ss

Glycerini 3 i

Aquæ ad 3 viii

M.

℞

Zinci Sulphocarboulatis 3 ii

Glycerini 3 i

Aquæ ad 3 viii

M.

℞

Pulveris Kramerie 3 iv

Aquæ at 100° C. 3 viii

Signa.—Infuse for one hour and strain.

℞

Sodii Boratis 3 iv

Tincturæ Myrrhæ 3 ss

Glycerini 3 i

Aquæ ad 3 viii

M.

℞

Acidi Tannici gr. 360

Acidi Gallici gr. 120

M.

This powder should be thoroughly mixed and then kept in a glass-stoppered bottle ready for use. It is

useful for arresting the *hemorrhage after amputation of the tonsils*. A small quantity may be prepared at the time of the operation by mixing with a little water so as to form a paste. This is applied to the cut surfaces by means of a brush. It acts quickly and effectually.

ANTISEPTIC AND STIMULANT.

℞

Acidi Carbolic	.	.	.	.	.	gr. xx
Glycerini	.	.	.	.	.	℥ i
Aquæ	.	.	.	.	ad	℥ viii

M.

℞

Acidi Acetici	.	.	.	.	.	℥ ii
Glycerini	.	.	.	.	.	℥ i
Aquæ	.	.	.	.	ad	℥ viii

M.

Use.—Useful in the sub-acute inflammatory affections occurring during the course of the exanthemata.

℞

Potassii Chloratis	.	.	.	.	.	℥ ii
Glycerini	.	.	.	.	.	℥ ss
Aquæ	.	.	.	.	ad	℥ viii

M.

℞

Liquoris Potassii Permanganatis (U. S. P. 1870.)		℥ i
Aquæ	.	ad ℥ viii

M.

℞

Sodii Sulphocarbolicis	.	.	.	.	℥ ss
Sodii Boratis	.	.	.	.	℥ ii
Glycerini	.	.	.	.	℥ i
Aquæ	.	.	.	.	ad ℥ viii

M.

SEDATIVE.

℞

Potassii Bromidi	.	.	.	.	.	3 iss
Glycerini	.	.	.	.	.	$\frac{3}{4}$ i
Aquæ	.	.	.	.	.	ad $\frac{7}{8}$ viii

M.

The following Glycerites of the U. S. P. 1870 not infrequently serve a ready and efficient purpose as gargles. They should be diluted with water or with "Listerine" and water to the proper strength according to the indications :

Glyceritum Acidi Carbolici.

Glyceritum Acidi Tannici vel Gallici.

Glyceritum Sodii Boratis.

"Listerine," * diluted with from two to sixteen parts of water, makes a very agreeable and useful gargle. It may be substituted in many of the above formulæ in the place of the Glycerine.

* See page 23.

X.

TROCHISCI—LOZENGES, PASTILS.

Medicated lozenges or pastes, when used with a view to an immediate local effect, not infrequently play a convenient and useful rôle in the treatment of faucial and pharyngeal affections, as an adjuvant to the direct local treatment elsewhere described. In laryngeal diseases their efficacy is more doubtful, but certain forms, notably those containing Benzoic Acid or Cubebs, have a certain reputation as "voice" stimulants, and act probably through their stimulant qualities, exciting, by the medium of the pharyngeal mucous membrane, a reflex influence upon the larynx, by the path of the pharyngeal plexus of nerves,—this aside from their mere local action in stimulating the secretions of the parts.

Rules for Use.

One lozenge may be taken by the patient into his mouth at the back of the tongue and allowed to dissolve slowly; four or five times daily, the saliva, impregnated with the drug, being swallowed. In acute affections, their more frequent use is indicated. No fluids should be drunk for a short time after their use.

Mackenzie — Trochisci.

NAME.	PROPORTIONS.	ADJUVANTS.	MEDICINAL PROPERTIES.
Acidum Benzoicum	1-2 gr. in each .	Red Currant Paste .	{ Stimulant and "Voice" Lozenge in Nervo-Muscular Weakness of the Voice.
Acidum Carbolicum	1 gr. .	Gum and Sugar .	{ Antiseptic and Stimulant.
Acidum Tannicum	1 1-5 gr. .	Black Currant Paste .	{ Strongly Astringent.
Aconiti Tinctura .	1-2 ℥. .	" " .	{ In Tonsillitis and Febrile Affec- tions of the Throat.
Althæa	1 1-7 gr. in each .	Albumen, Gum, Sugar & Orange-Flower Water	{ Emollient.
Ammonii Chloridum	2 grs. .	Black Currant Paste .	{ In Congestion of the Pharynx and Larynx.
Catechu	2 grs. .	" " .	{ Astringent, but less powerful than Tannic Acid.
Cubeba	4 to 7 gr. .	{ Extract Liquorice and Black Currant Paste	{ To diminish Excessive Secretion from Pharynx, etc. Useful in Bronchial Affections.
Guaiaicum	{ 2 grs. Resin Guaiaic, in each	Black Currant Paste .	{ Useful in Crescent Inflamma- tion and Sub-acute Follicular Disease of the Tonsils.
Hæmatoxylon . .	2 grs. Ext. in each	" " .	{ Mildly Astringent.
Kino	2 grs. in each .	" " .	{ Astringent.
Lactucarium . .	1 gr. Ext. in each	" " .	{ Soothing and Mildly Sedative.

Mackenzie—Trochisci.—Continued.

NAME.	PROPORTIONS.	ADJUVANTS.	MEDICINAL PROPERTIES.
Potassii Chloras .	3 grs. in each .	Black Currant Paste .	Stimulant and Antiseptic.
Potassii Citras .	3 grs. " .	" " .	Topical Sialagogue.
Potassii Bitartras	3 grs. " .	" " .	Topical Sialagogue.
Pyrethrum .	1 gr. " .	" " .	A very Valuable Sialagogue.
Extractum Krameriae	3 grs. " .	" " .	A very Useful Astringent.
Sodii Boras .	3 grs. " .	" " .	Mild Detergent.
Sedative . . .	{ 1-10 gr. Extractum Opium in each	" " .	{ Sedative for Irritative and Pain- ful Coughs.

Browne—Trochisci Eucalypti Compositi.

Potassii Chloras .	2 grs.	{ in each	{ Astringent. Sialagogue and Expectorant.
Extractum Eucalypti	1 gr.		
Pulvis Cubebe .	1-4 gr.		
		Acid Fruit Paste . .	

Cooper—Trochisci Effervescentes.

Extractum Eucalypti	1 gr. in each		
Acidum Carbolicum	1-6 gr.	. . . . .	Astringent.
Acidum Gallicum	2 grs.	. . . . .	Disinfectant.
Potassii Chloras	3 grs.	. . . . .	Astringent.
Extractum Krameriae	2 grs.	. . . . .	Stimulant.
		. . . . .	Astringent.

Wyeth—Compressed Tablets.

NAME.	PROPORTIONS.	ADJUVANTS.	MEDICINAL PROPERTIES.
Potassii Chloras	grs. v.	. . . . .	Stimulant and Antiseptic.
Potassii Chloras } Sodii Boras	aa grs. iiss	. . . . .	" "
Potassii Chloras } Ammonii Chloridum	gr. iiiss	. . . . .	" "
Ammonii Chloridum } Ammonii Chloridum	gr. iss	. . . . .	" "
Sodii Boras } Ammonii Chloridum	gr. ii	. . . . .	" "
Ammonii Chloridum	gr. iii	. . . . .	" "
	gr. iii vel. gr. v.	. . . . .	" "

Whistler—Pastilli.

Pastils, the basis of which is Glyco-gelatine, that renders them softer and more mucilaginous in nature, as well as more palatable both in appearance and taste, than the ordinary lozenge or troch made with fruit paste or gum, were introduced originally by Dr. Whistler, as a special means of applying Iodoform to the throat, (see *Medical Times and Gazette*, Nov. 1878). Their consistence when freshly made is that of firm jelly, in order that they may dissolve readily in the secretions of the mouth.

Tannin, Kino, Rhatany, and all substances given above that are chemically incompatible with Gelatine, cannot be used with the basis, Glyco-gelatine.

The formula of this latter is :

R

Gelatinæ Purificatæ	.	.	.	.	℥ i
Glycerini (ab pondere)	.	.	.	.	℥ iiss
Liquoris Carminæ Ammoniatæ *	.	.	.	.	q. s.
Aquæ Aurantii Florum	.	.	.	.	℥ iiss

The process to be followed in combining these ingredients will be found in detail in the *Pharmacopœia* of the Hospital for Diseases of the Throat, London, 1881.

Four of the most useful formulæ of Dr. Whistler are here given. The directions are for making one pastil ; one ounce of the mass will make twenty-four.

* Pure carmine should be completely soluble in ammonia.

Pastillus Iodoformi.

℞

Pulveris Iodoformi (a larger or smaller quantity according to the indications) gr. i

Glycerini ℥i

Rub together and add to the Glyco-gelatin (melted in a water bath), gr. xviii.

M. Set aside to cool. Make one pastil.

Signa.—In Syphilitic eruptions and ulcerations of the Tongue, Mouth, and Throat, and in Chronic Pharyngitis.

Pastillus Bismuthi et Potassii Chloratis.

℞

Bismuthi Subcarbonatis gr. iii

Potassii Chloratis gr. ii

Glycerini ℥iii

Rub together and add to the Glyco-gelatin (melted in a water bath), gr. xviii.

M. Set aside to cool. Make one pastil.

Signa.—In acute and sub-acute catarrhal affections of the Pharynx and Larynx, and in Tonsillitis, Simple and Follicular.

Pastillus Bismuthi et Morphinae.

℞

Bismuthi Subcarbonatis gr. iii

Morphinae Acetatis gr. $\frac{1}{40}$

Glycerini ℥iii

Rub together and add to the Glyco-gelatin (melted in a water bath), gr. xviii.

M. Set aside to cool. Make one pastil.

Signa.—In acute and sub-acute catarrh of the Pharynx and Larynx, in Tonsillitis, and especially as a sedative in Laryngeal Phthisis.

Pastillus Acidi Boraci.

℞

Pulveris Acidi Boraci gr. ii

Glycerini ℥ii

Rub together and add to the Glyco-gelatin (melted in a water bath), gr. xviii.

M. Set aside to cool. Make one pastil.

Signa.—In aphthous affections of the Mouth and Throat.

Further formulæ, viz. :

Pastillus Acidi Carbolici,
Pastillus Ammonii Chloridi,
Pastillus Bismuthi

will be found in the Pharmacopœia alluded to above.

XI.

CAUSTICA—CAUSTICS.

Argenti Nitras Fusus, U. S.

Acidum Chromicum.

Acidum Nitricum.

Acidum Aceticum Glaciale.

Caustica Zinci Iodati.

R

Potassii Iodidi gr. 240

Iodi gr. 480

Aquæ Destillatæ 3 iii

Dissolve by trituration in a glass mortar. Add the above drop by drop to the following solution :

Zinci Sulphatis gr. 200

Aquæ Destillatæ ℥ i40

Dissolve. Allow to stand for six hours, then decant liquid from sediment. Keep in a well-stoppered bottle.

Caustica Zinci Chloridi.

R

Zinci Chloridi,

Farinæ Tritici—of each equal parts.

Reduce the Chloride of Zinc to a fine powder ; add the flour and rub together until they form a mass ; dry until the mass becomes of proper consistence ; then cut into strips ; roll into cylinders of the required size, and keep at a moderate temperature until dry, re-rolling them from time to time if necessary. The little cylinders must be kept in a horizontal position in a well-closed bottle until used.

Pasta Londinensis.

℞

Sodæ (U. S. P.),
Calcis (U. S. P.)—of each equal parts.

Reduce to a fine powder in a warm mortar and mix intimately. Keep in well-closed bottles, and when required for use take as much as sufficient and make into a paste with water.

Actual Cautery.

Galvano-Cautery.

Caustics are of importance in the treatment of many diseases of the throat, and specially of those of the nasal passages. The most reliable of the destructive agents, and therefore those commonly employed, will be found in the above list.

Upon both the nature of the case and the locality of the parts to be destroyed will depend the choice of the particular form of caustic, the latter varies also, according to the views of the particular operator who uses it.

Larynx.

In the Larynx, caustic applications, for the purpose of destroying neoplasms of various nature, are by no means as frequently employed as formerly; the laryngeal forceps in some one of its varieties, or some other mechanical device for their removal, having justly superseded them. Some operators still advise the use of the *Galvano-cautery*, beyond question the best method, should the caustic treatment be adopted, and one very properly employed in some cases for the purpose of destroying the base and site of a laryngeal growth to prevent its reproduction, the greater part or all of which has been previously removed by means of the forceps or *écraseur*.

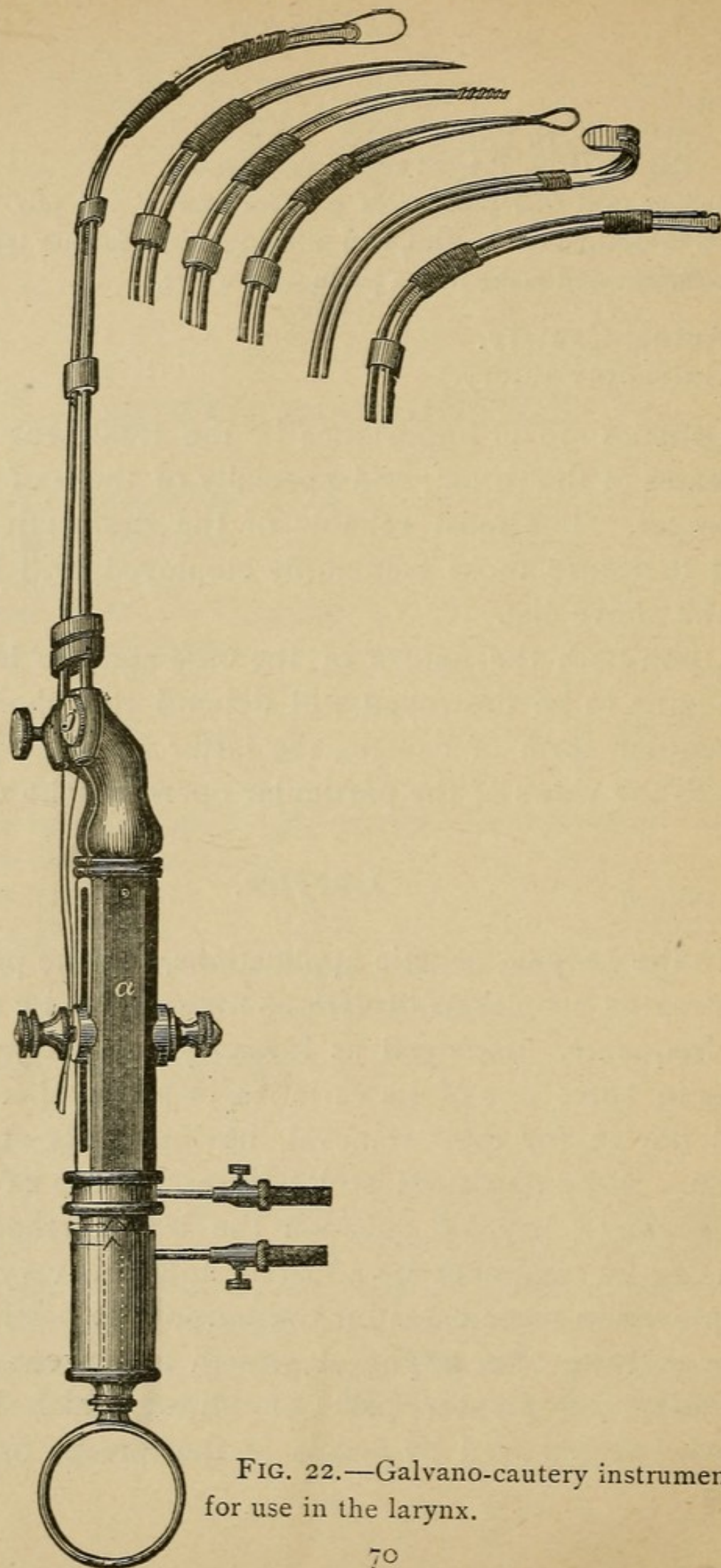


FIG. 22.—Galvano-cautery instruments
for use in the larynx.

The destruction of the base of a laryngeal growth, after its removal by forceps or otherwise, may be likewise accomplished by the use of *Argenti Nitras* or the *Acidum Chromicum*, either salt being carried into the larynx and to the desired point by means of a delicate probe, under the guidance afforded by the laryngoscopic mirror.

Pharynx.

Chronic Follicular Pharyngitis is most satisfactorily treated by the destruction of the individual follicles and their nutrient vessels. Here again the fine *Galvano-cautery* point, carried deeply into each hypertrophied follicle until its base is reached, forms the most efficient means. The *Actual cautery* is recommended by some, and still another method lies in an incision into each hypertrophied follicle (a few only being treated at each sitting) by means of a small tenotomy knife, and the immediate subsequent application to each, of the *Caustica Zinci Iodati*, *Zinci Chloridi*, or of *Acidum Chromicum*, to ensure their destruction.

Secondary Syphilitic Lesions of the Mouth, Tonsils, and Pharynx (mucous patches and superficial ulcerations) may be lightly touched from time to time with *Argenti Nitras* until they disappear.

Tertiary Syphilitic Ulcerations of the throat require the same treatment until each individual ulcer has assumed a healthy aspect and presents a clean granulating base. From this stage onward they are best treated by the application of iodoform in fine powder.

It may not be inappropriate at this point to call atten-

tion to the danger, realized in more than one instance upon record, of the ordinary crayon of nitrate of silver breaking and falling into the air-passages, when used in the throat in an ordinary quill or common caustic holder. The porte caustique shown in the cut will reduce this danger to a minimum, but it may readily be rendered impossible,



FIG. 23.—Porte caustique.

by fusing a small rounded button of the silver salt upon the end of an aluminium or silver probe, a few crystals having been melted in a small porcelain crucible over a gas flame, and the end of the probe having been dipped once or twice into the melted mass and then cooled.

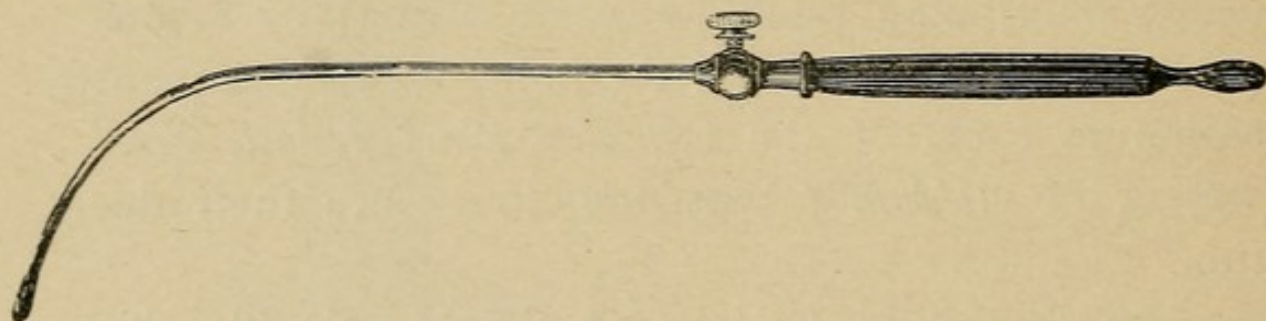


FIG. 24.—Silver-tipped probe, for caustic.



FIG. 25.—Porcelain crucible for smelting nitrate of silver.

After the use of nitrate of silver in the throat, the patient should at once gargle with a weak solution of chloride of sodium in water; all further corrosive action of the

drug is thus prevented, an inert chloride of silver being formed with the excess of the silver salt.

In using this caustic, as well as all of the other forms, the more powerful ones specially, a dextrous and steady hand is required, in order that the application may be made thoroughly yet carefully, accurately and neatly, to the affected point alone.

Tonsils.

The destruction of Hypertrophied Tonsillar Tissue demands the employment of the more active caustics. Aside from the *Galvano-cautery*, the *Caustica Zinci Iodati* and the *Pasta Londinensis* are used, being applied in small quantities by means of a glass rod, at suitable intervals. Any such method of treatment, however, is necessarily prolonged and unnecessarily cruel to the patient, as well as in its ultimate results, far inferior to those gained by the excision of the hypertrophied gland by means of the tonsillitome.

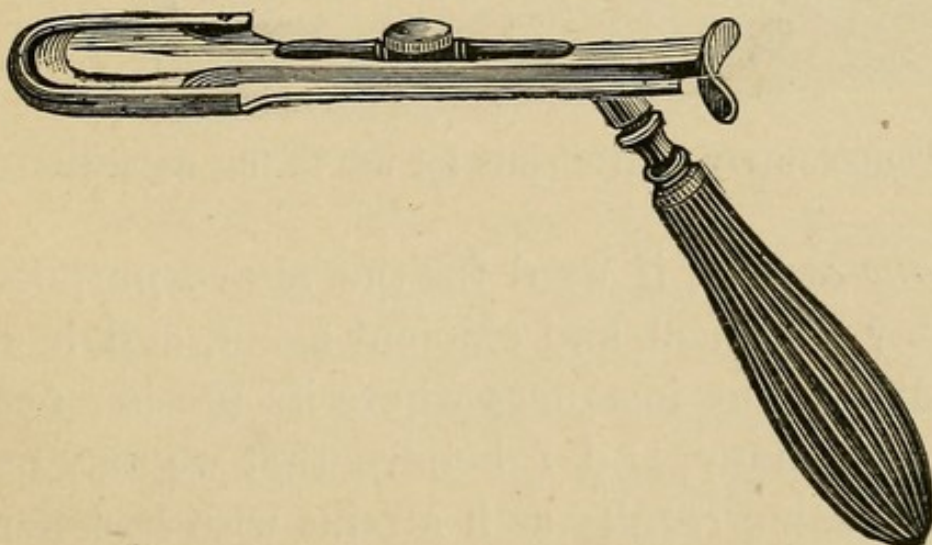


FIG. 26—Tonsillitome.

Nasal Passages.

The Rhino-surgery of the day relies largely upon the use of caustics, as a means of destroying the redundant tissue, in cases of Hypertrophic Nasal Catarrh, and in hypertrophy of the adenoid tissue at the vault of the pharynx,—“Adenoid Vegetations.”

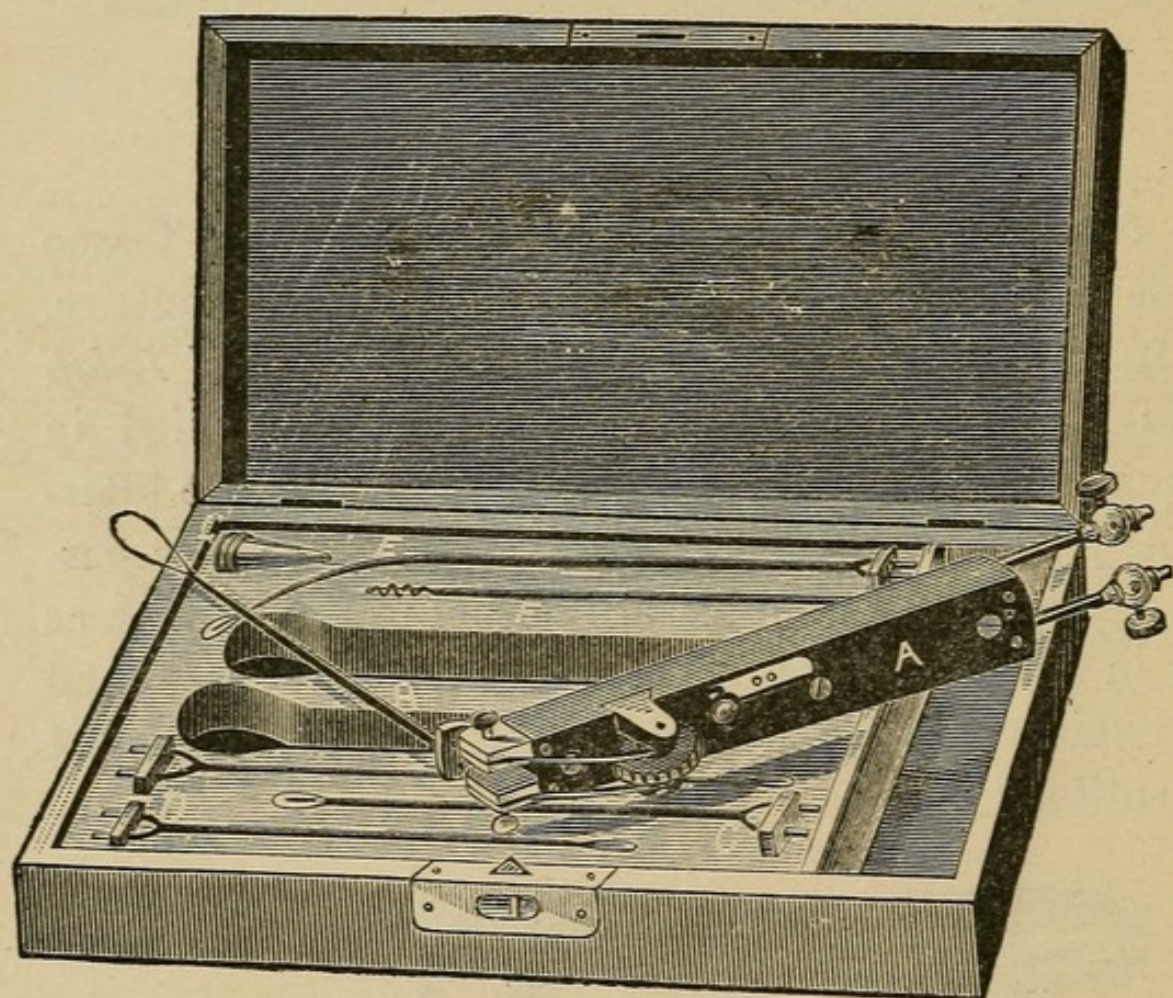


FIG. 27.—Galvano-cautery instruments for use in the nasal passages.

The *Galvano-cautery*, if used for the above purpose, is unquestionably a radical and efficient agent, and has its warm advocates; but instances where its use is a necessity are not very many, and I believe that we may often accomplish the same results as it attains with less heroic means. I allude here to its employment in the morbid

conditions of both nasal passages and vault of the pharynx. In the former locality the agents employed are, in my experience, as to order of merit, *Acidum Nitricum*, *Acidum Aceticum Glaciale*, *Acidum Chromicum*, and *Argenti Nitras*. The operation is as follows:

In Hypertrophic Rhinitis, where the hypertrophied mucous membrane is found to be located mainly over the inferior turbinated bone, in one or both nasal passages, and where there is partial, intermittent, or permanent occlusion occasioned by its presence, take a small probe, its end wrapped in absorbent cotton, and saturate

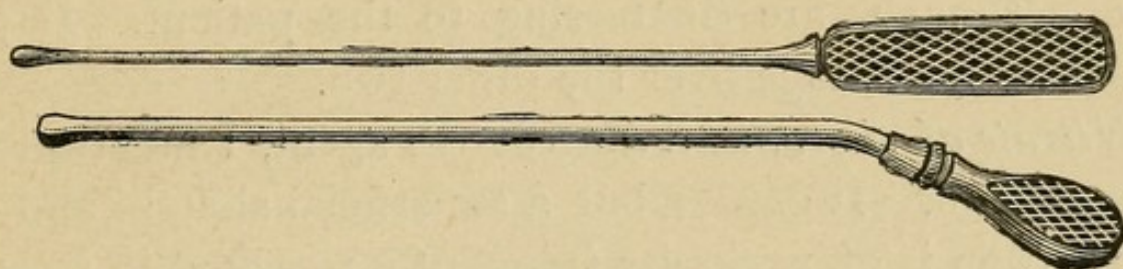


FIG. 28.—Hard-rubber probes.

this with *nitric acid*, press out the excess of acid, pass it then through a suitable nasal speculum into the naris to be operated upon under the guidance of a good reflected light from the forehead mirror, and with a steady hand, draw it along, or press it firmly upon, the turbinated bone at its point of greatest convexity, contact being kept up for a few seconds. The pain quickly passes away, and on withdrawing the probe the parts are seen to have become well whitened or blanched; moderate inflammatory reaction with a slough of varying depth follows, while the consolidation of the sub-mucous tissues by the hyperplastic results of the inflammatory process, and the contraction of the cicatricial tissue occupying the site of

the destroyed parts, serve to reduce the hypertrophy and its resultant nasal obstruction in a most satisfactory manner. Frequently, one application answers all purposes in freeing the nasal passage to the extent of allowing of uninterrupted respiration. The process, however, may require repetition.

The operation with *glacial acetic acid* is performed in the same manner; it is less painful, causes little secondary inflammation, and destroys less tissue. This agent, then, may be selected for the more moderate and more recent cases of hypertrophy.

Chromic acid is less painful in its use than nitric; its fumes, though, are distressing to the patient. It possesses no advantage over the other two.

Nitrate of silver, as a destructive agent, I mention but to condemn. It causes but a superficial slough, and the application is of necessity frequently repeated in treating hypertrophied tissue of any extent; moreover, owing to its powerfully stimulating qualities, it excites cell proliferation, and causes structural changes that are not desirable.

After the use of any form of *caustic* in the nasal passages, immediately upon the withdrawal of the probe, the parts should be flooded with an alkaline solution. The subsequent treatment of the case, at least until the slough has separated and the resultant ulcer healed, is based upon ordinary principles of cleanliness.

In cases where the hypertrophy of the tissues is extreme, and is mainly limited to the posterior extremities of the inferior turbinated bones, a locality inaccessible to the use of caustics, the procedure devised by Jarvis,

for its removal with the wire ecraseur, must be undertaken. In cases also in which the hypertrophied tissue is located, in marked degree, over the anterior extremities of the inferior turbinated bones, the operation of Jarvis is preferable to the use of caustic. (See Lefferts "Chronic Nasal Catarrh," *Philadelphia Medical News*, April 26, May 3, 1884).

Vault of the Pharynx.

In the treatment of hypertrophy of the Adenoid Tissue at the Vault of the Pharynx, mineral caustics, viz., *Acidum Chromicum* and *Argenti Nitras Fusus* have justly been superseded in, I believe, the majority of hands, by the use of instruments. A pair of long forceps, suitably curved, to be passed behind the velum, and furnished with cutting blades at their extremity (Woakes' forceps, modified by Semon), will be found to be the best means.

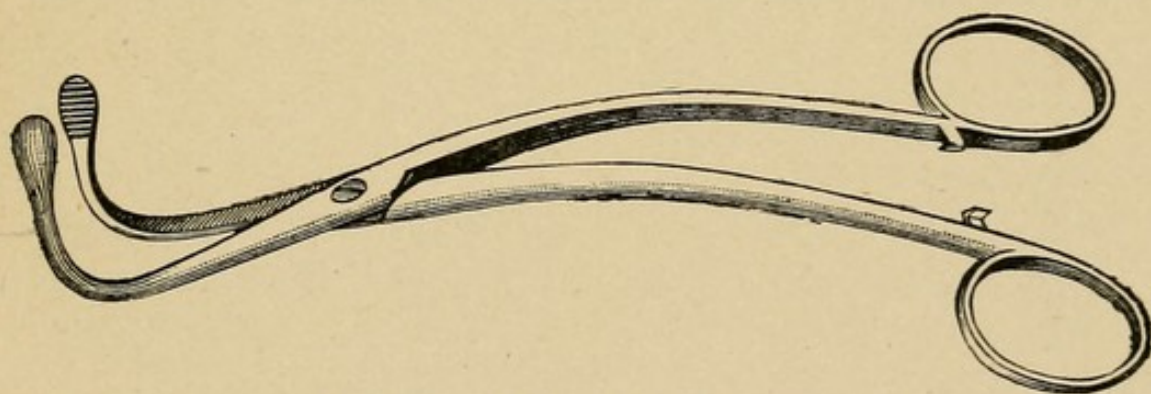


FIG. 29.—Post-nasal forceps.

Except when the hypertrophy of the tissues extends broadly, in the shape of small, slightly elevated, nodular masses, over the entire pharyngeal vault, when a sharp curette such as is used in uterine operations, but suitably

curved to pass behind the velum into the upper pharynx—will answer a better purpose in scraping away the vegetations than the forceps, which would here be difficult of exact application.



FIG. 30.—Post-nasal curette.

XII.

VARIÆ-MISCELLANEOUS.

“Anti-Catarrhal Smelling Salts.”

R_x No. 1

Acidi Carbolici	.	.	.	.	.	3 i
Carbonis Ligni	.	.	.	.	.	$\frac{7}{3}$ ss
Iodi	.	.	.	.	.	3 i

Mix the carbolic acid with one half of the charcoal, mix the iodine with the other, then mix together thoroughly.

R_x No. 2

Ammonii Carbonatis	.	.	.	.	.	$\frac{7}{3}$ i
Carbonis Ligni	.	.	.	.	.	$\frac{7}{3}$ ss
Camphoræ	.	.	.	.	.	$\frac{7}{3}$ i

M. Add No. 1 and No. 2 together lightly, then add Olei Lavandulæ, gtt. xx., and sufficient quantity of Tincturæ Benzoini Compositæ to make a thick paste; keep in a wide-mouthed, glass-stoppered bottle, from which inhalations through the nose are made from time to time.

Use.—Recommended for acute coryza.

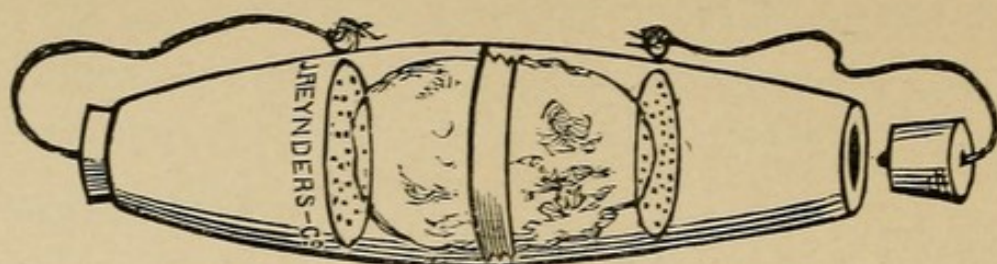


FIG. 31.—Pocket inhaler.

Hager-Brand's Remedy for Acute Coryza.

℞

Acidi Carbolici	.	.	.	.	.	3 i
Alcoholis	.	.	.	.	.	3 iii
Aquæ Ammoniaë Fortioris	.	.	.	.	.	3 i
Aquæ Destillatæ	.	.	.	.	.	3 ii

M. A few drops of this solution are to be sprinkled on the handkerchief, or, more conveniently, some of the solution is placed on the sponge of the pocket inhaler, and inhaled through the nose as long as its strength lasts; this is to be repeated every two or three hours.

Snuff for Chronic Coryza.

℞

Hydrastis Canadensis	.	.	.	.	gr. v
Indigo	.	.	.	.	gr. ss
Pulveris Camphoræ	.	.	.	.	gr. ii
Acidi Carbolici	.	.	.	.	gr. ii
Sodii Chloridi	.	.	.	.	3 i

M.

Oleatum Hydrargyri.

℞

Hydrargyri Oxidi Flavi	.	.	.	3 i
Acidi Oleici	.	.	.	3 ix

M.

Use.—For promoting absorption in cases of Fibrous Goitre, and specially of Indurated Cervical Glands.

Oleatum Hydrargyri cum Morphina.

R̄

Morphinæ (pure alkaloid) . . . gr. x

Acidi Oleici . . . 3 v

Dissolve and add

Oleati Hydrargyri (10 %) . . . 3 v

M.

Use.—Same as above ; in cases where the simple oleate causes much pain.

Unguentum Iodini Compositum, U. S. P., 1870.

Use.—Same as above.

APPENDIX.

Air-Compressing Apparatus.*

A number of different forms of hand-pump apparatus are procurable for the purpose of obtaining a given degree of air-pressure in the cylinder or reservoir, which is connected with them by means of "hydraulic" rubber tubing, and in turn with the glass, rubber, or metal spray-tubes by rubber tubing of small calibre, which should be overspun with silk or mohair, in order that it may possess strength combined with flexibility (see fig. 6), and is firmly secured to the connecting fittings by plated metal collars. The cylinder, or condensed air-receiver, should be wrought of copper—riveted sheet-brass receivers seldom remaining air-tight for any length of time—is bur-nished to a high degree of finish, and usually nickel-plated. Its stop-cocks—of which there should be but two, one of entrance and one of exit for the compressed air—must be well and carefully ground, in order to be perfectly air-tight. A gauge for registering the amount of air-pressure is a very useful adjunct to any form of air-receiver.

* The necessity for such information as is furnished in the Appendix has been suggested to me by repeated inquiries concerning the practical points therein alluded to, on the part of my students.

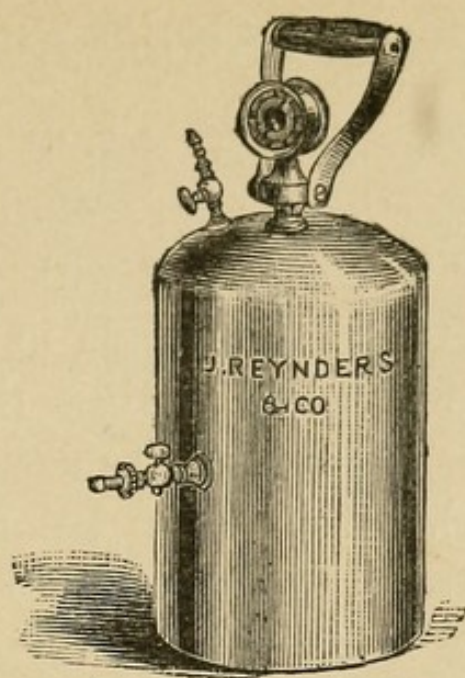


FIG. 32.—Condensed-air receiver.

A more modern device has substituted for the two stop-cocks shown above ; *one*, which consists of a rod, conic at one extremity, supplied with a screw, thread, and a wheel for readily propelling it outward or for gently screwing the conic end of the rod perfectly air-tight into a compartment containing soft metal, thus (when the apparatus is not in use) relieving of pressure the stop-cocks of entrance and exit of the compressed air, and thus preventing the escape of air through them, when worn by active use (see fig. 6).

This receiver is made of the following dimensions : $10\frac{1}{2}$ inches by $7\frac{1}{2}$ inches, and its advantage over the older forms lies in the reduction in size and in the arrangement of the stop-cocks, which reduces the escape of the compressed air from the cylinder, either when in or out of use, to a minimum.

The forms of hand air-compressors that are known to me are as follows :

I. The Burgess Double-Acting Air-Compressor,

in which the construction is simple and manner of working easy and effectual, as a pressure of fifty pounds to the square inch can be obtained with but little effort. The person working the pump stands in an upright position, and can throw his weight against the lever without bending the body or using violent exertion (as with the lift or crank motion). The pump being double-acting, forcing air at each stroke, no power is lost in its manipulation. The pump is made of iron, having two cylinders cast in one piece, each three inches in diameter. The piston heads are connected together and operated by a lever, which can be removed from the socket, allowing the pump to occupy but little space, *i. e.*, 12 inches in length, 9 inches high, 7 inches wide—weight 25 pounds. The valves are carefully adjusted, and seat themselves readily. The packing rings are of leather, and can be lubricated by removing the two screws on top of the cylinder.

II. The Burgess Air-Compressor.

In this apparatus the pump cylinder is made of iron, and mounted on an arched stand, and contains a piston having a valve opening upward. The piston is connected by a forked connecting-rod, and is moved by a slight and easy motion of the foot. The upper end of the pump cylinder is closed, with the exception of a valve aperture opening into a small or sub air-chamber, which is securely attached to a large air-reservoir, made of heavy charcoal tin, measuring 9 inches in diameter, and 14 inches

high. Connection is made between the sub air-chamber and the reservoir by a small brass tube, the air being admitted or confined by a stop-cock. Near the top of the reservoir there is a second stop-cock, to which is attached a flexible rubber tube leading to the spray-tube. In the upper end, near the edge of the reservoir, is secured a small pressure gauge, indicating the pressure to the square inch of the air contained in the apparatus—from one to twenty pounds.

III. Wile's Spray Apparatus.

The pump of this apparatus is attached to a bracket with an oscillating piston and lever, and can be pumped to a hundred pounds pressure to the square inch. When the gauge indicates one pound pressure, every full stroke of the piston increases the pressure one pound.

IV. The Novelty Air-Pump (Besseler)

is capable of compressing one hundred pounds to the square inch ; in two minutes will give fifty pounds pressure in an ordinary receiver.

V. The small hand-pump which is usually furnished by the instrument maker, in connection with the complete "Compressed-air apparatus" (fig. 6), I cannot recommend. (It is made of brass and has valves which prevent the return of the air from the receiver, and through the pump, whilst working the latter.) Its disadvantage lies in the fact that it must be held upon the floor by the feet of

the operator, or even if secured by screws to the former, the position of the operator who is using it is both inconvenient and laborious. Moreover, a low degree of air-pressure only can be obtained by its means.

VI. Weindel's Double-Acting Air-Compressors.

The forms of air-compressors that I have used constantly and satisfactorily for a number of years are shown in the following wood-cuts, and I regard them as superior in their working qualities to any other form of hand-apparatus, for the purpose of compressing air, with which I am acquainted. They are manufactured by Weindel, of Philadelphia.

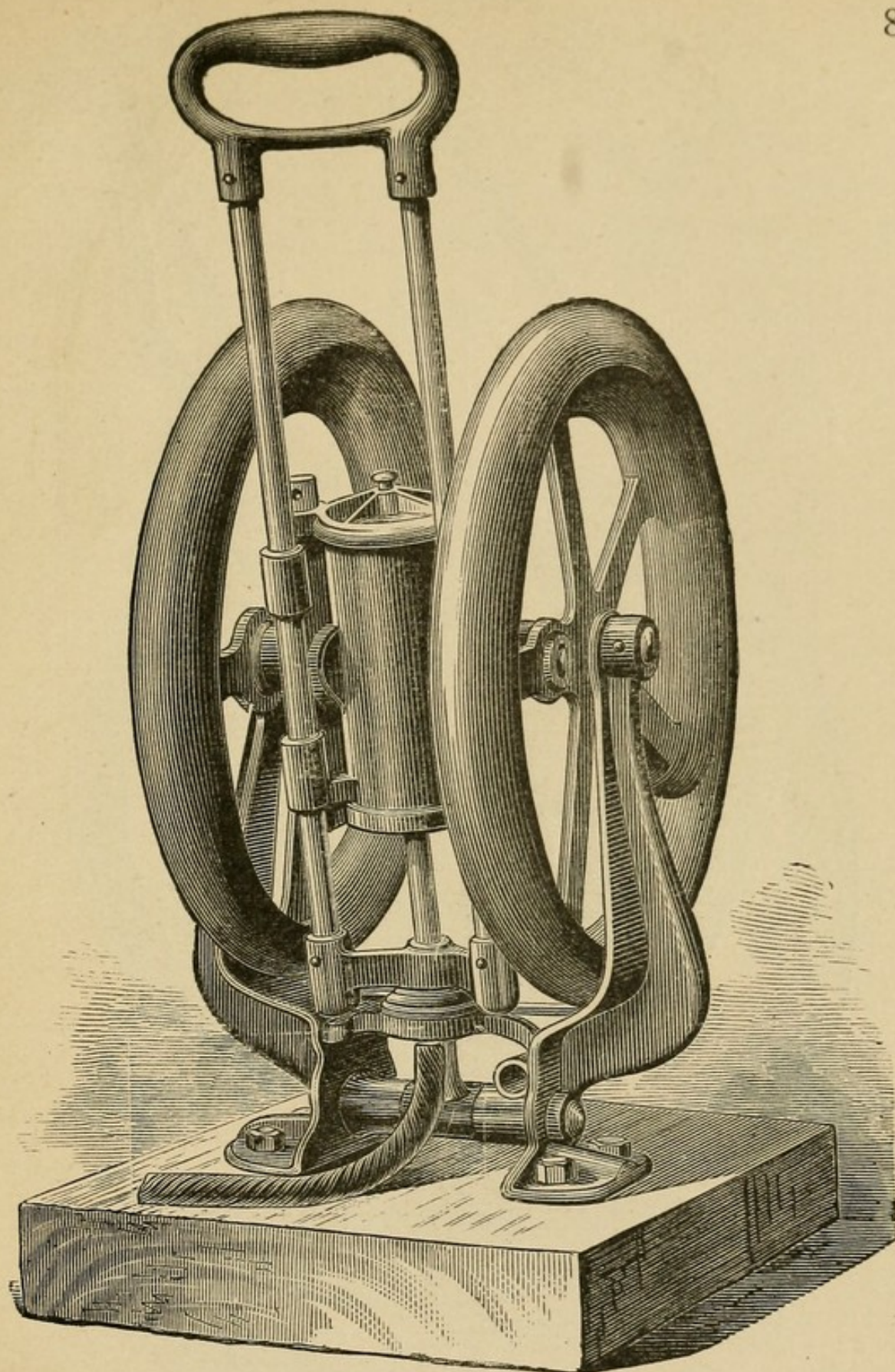


FIG. 33.—“ Acme ” double-acting air-compressor.
 Base-Board, 13 x 9 in. Height, 24 in. Fly-Wheels, 12 in. Cylinder, 2 x 4 in. stroke. Weight, 34 pounds.

A pressure of 30 lbs. and higher, can be reached in a large receiver in little more than a minute, as the regular speed is about 160 revolutions per minute,

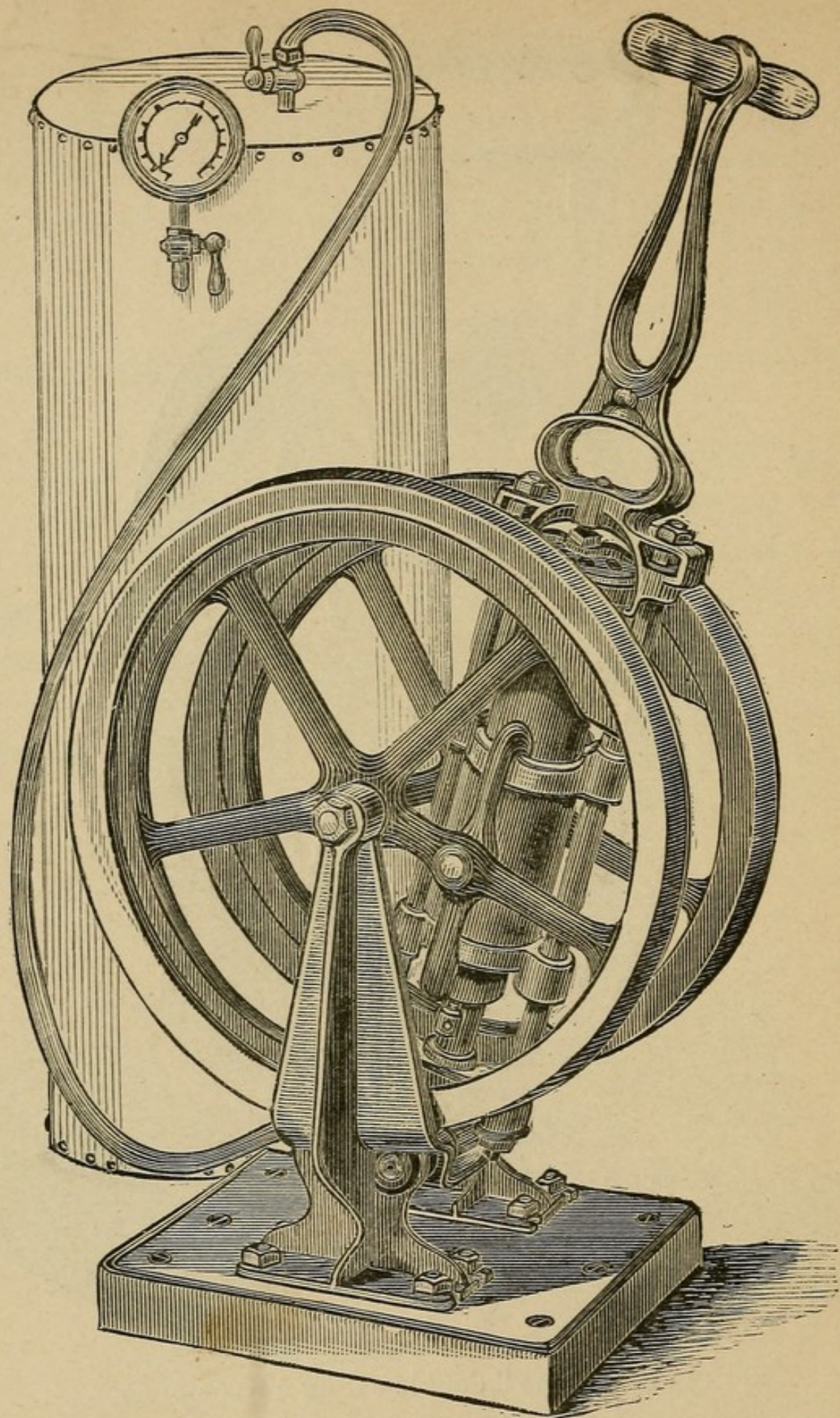
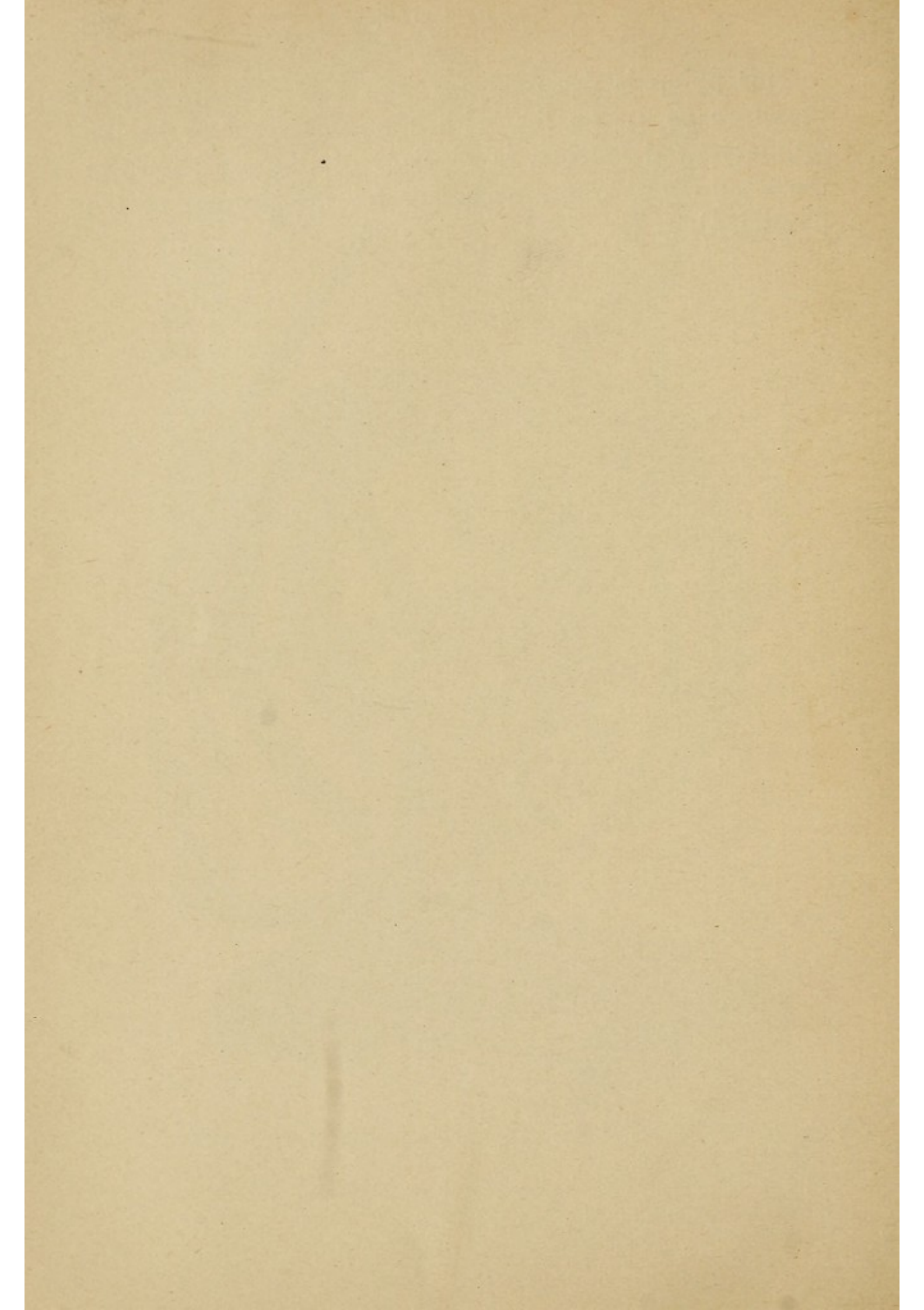


FIG. 34.—“Reliance” double-acting air-compressor.

Wheels, 18 in. Cylinders, $2\frac{5}{16}$ and $1\frac{5}{16} \times 5\frac{1}{2}$ in. stroke. Weight
126 lbs.

This pump is designed for 120 lbs. pressure—gives therefore 50 to 60 lbs. with the greatest ease in the ordinary-sized receiver (a receiver of the size shown in the wood-cut is never necessary for the purpose of the physician).



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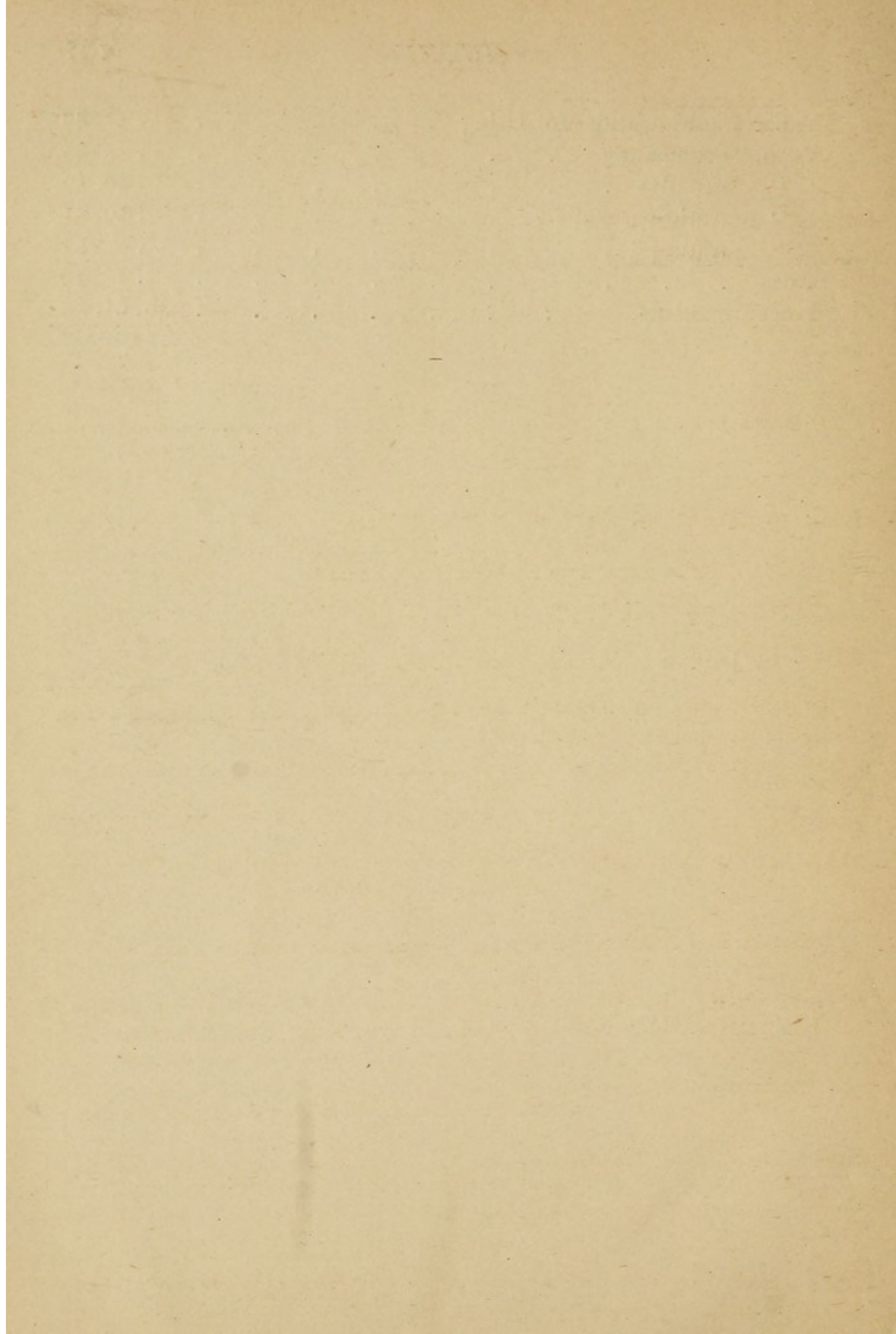
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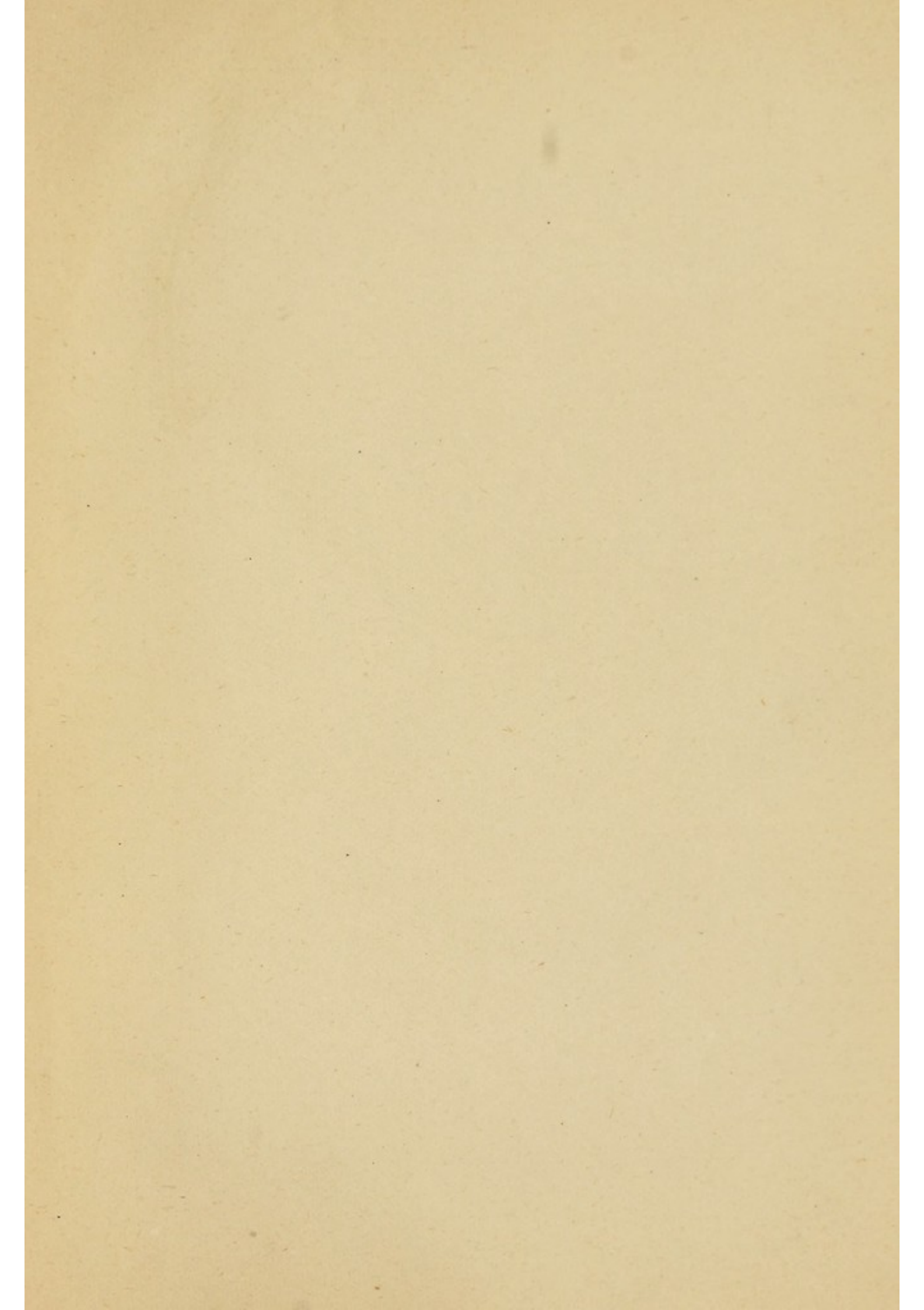
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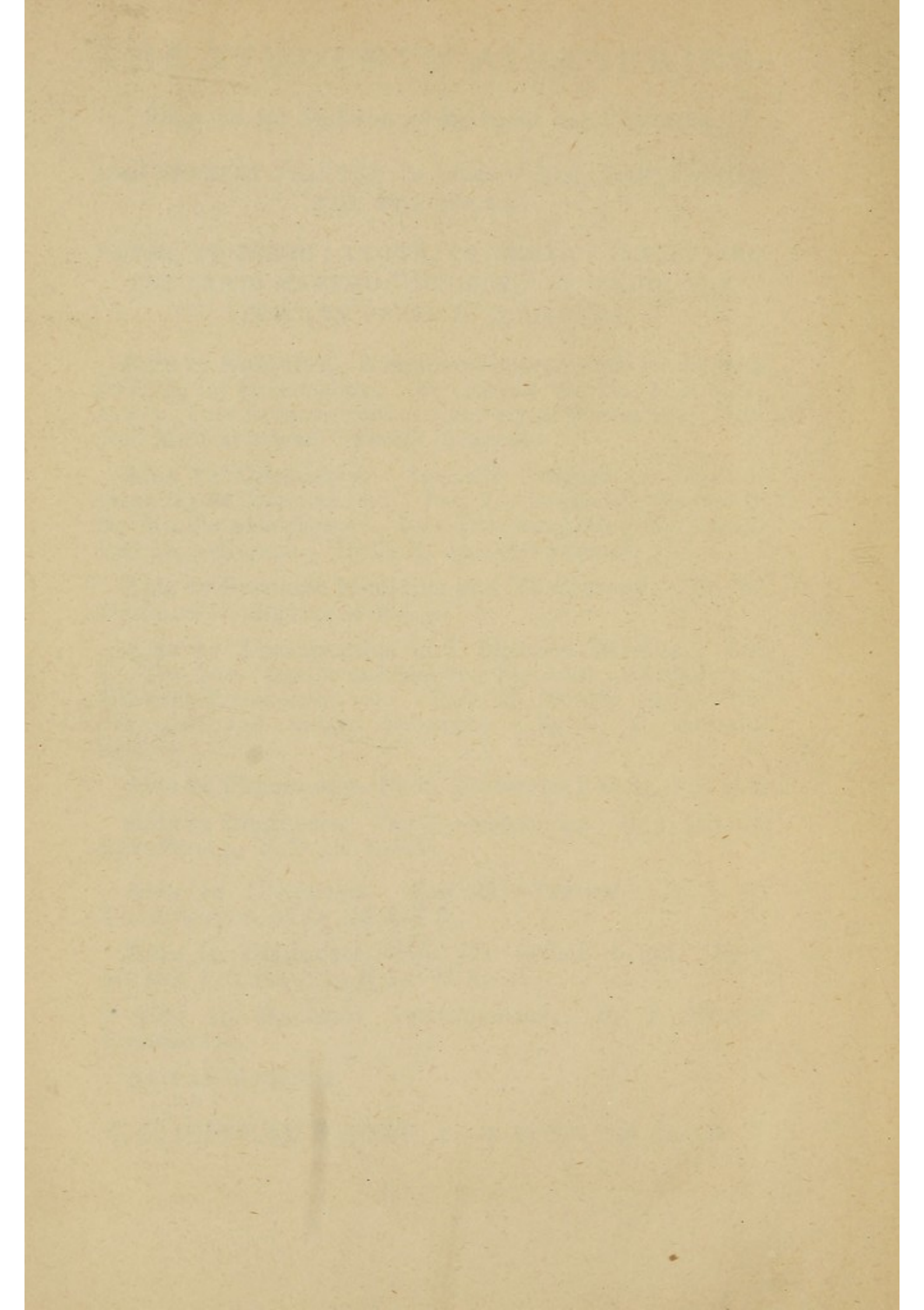
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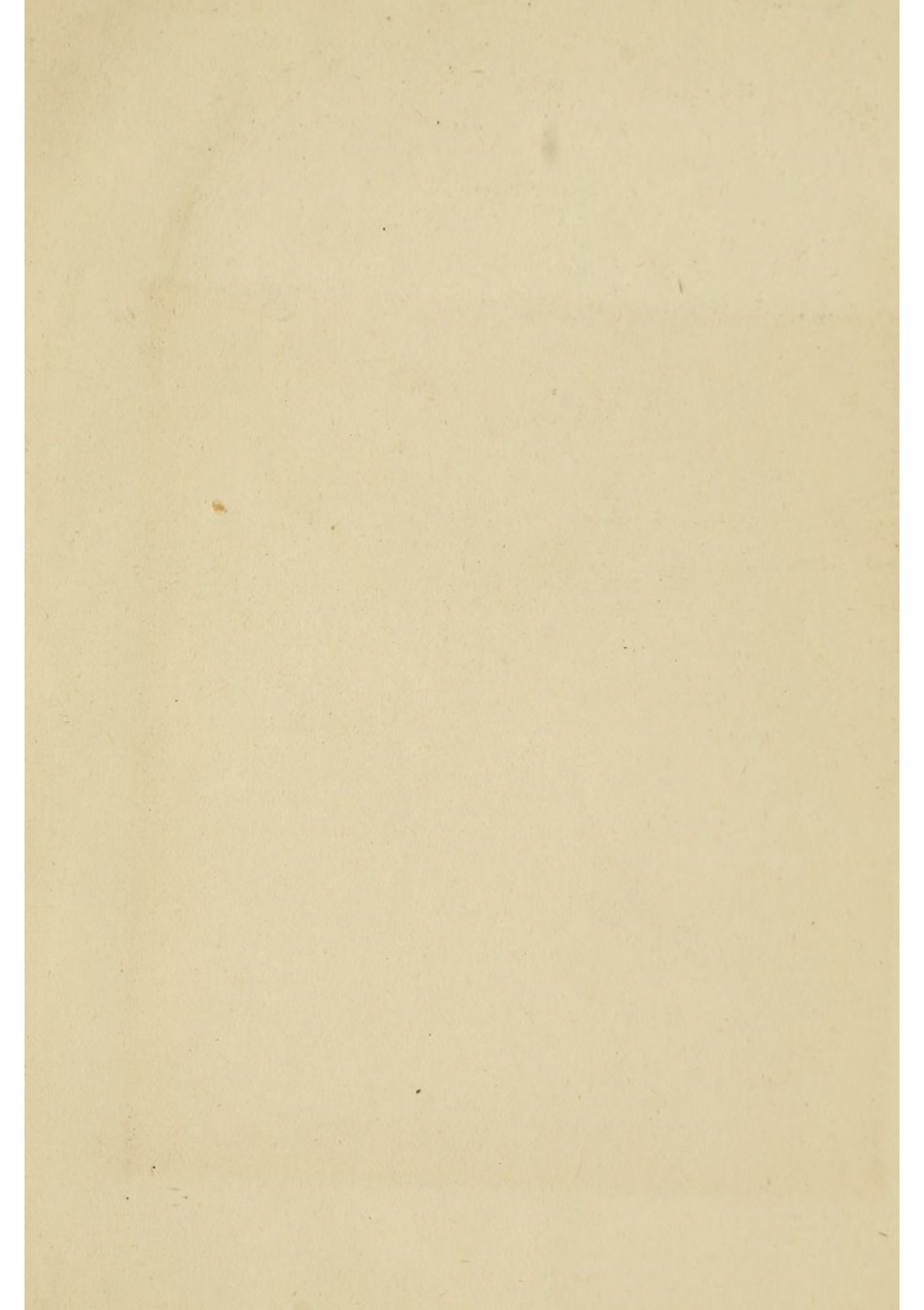
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