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# ACUTE
# CATARRHAL INFECTIONS

BOREAS

The North Wind in Greek Mythology

BURROUGHS WELLCOME & CO.

*Printed in England*

## BOREAS

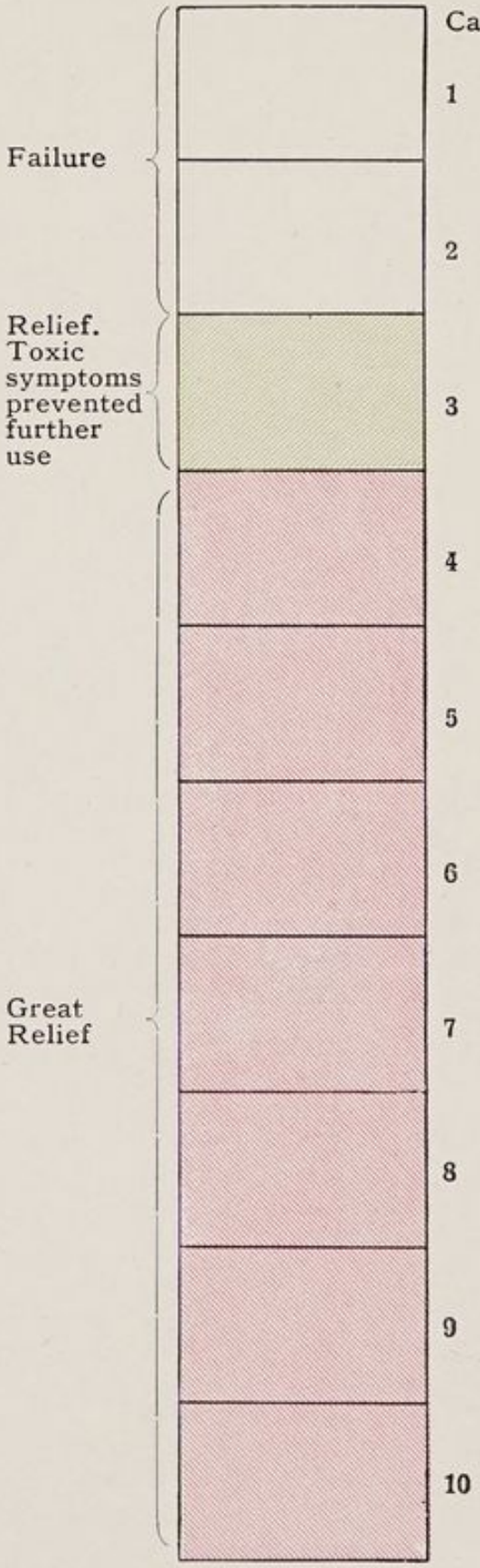
The illustration on the front cover represents Boreas, who, in Greek mythology was a personification of the North Wind. He is bearded, clothed against cold, and winged, and was accustomed to gain his ends by force. He carried off the beautiful Oreithyia, a daughter of Erechtheus, king of Athens, whom he found gathering flowers by the banks of a river, and took her to Mount Hæmus in Thrace, where they lived as king and queen of the winds. They had two sons, Zetes and Calaïs, and two daughters, Cleopatra and Chione. The Athenians afterwards counted Boreas as an ally, and were assured when he sent storms which wrecked the Persian fleet at Athos and at Sepias. They built him an altar near the Ilisus, and held a festival there in his honour. A colony of Athens, Thurii, offered a sacrifice to him every year, because he had destroyed the hostile fleet of Dionysius the elder.

EPHEDRA—MA HUANG

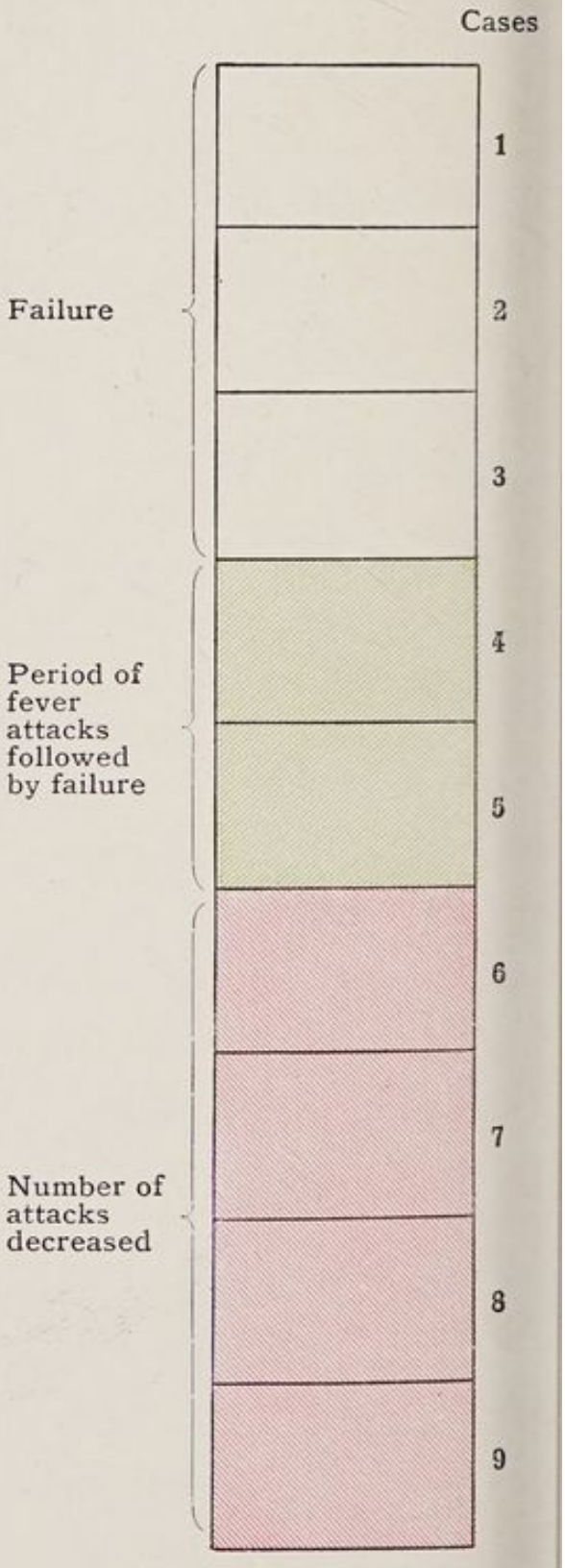
# ASTHMA

## SOME RESULTS OBTAINED BY ORAL ADMINISTRATION OF EPHEDRINE HYDROCHLORIDE

*("British Medical Journal," Feb. 16, 1929, pp. 291-296)*




Ten cases of pure asthma (acute)




Nine cases of asthma complicated with bronchitis and emphysema

# ACUTE CATARRHAL INFECTIONS

## Sectional Index



Acute catarrhal infections are the result of various causes which, by lowering the general resistance of the body, render the tissues suitable for invasion by micro-organisms occurring singly or combined. These infections may be suitably treated by means of mixed vaccines in addition to local applications.

## PROPHYLAXIS

*For prophylactic use*, a vaccine must be prepared with cultures obtained from patients already infected. Hence, stock vaccines are always used for prophylactic inoculation.

**Prophylactic treatment**

The advantages which such stock vaccines present to the practitioner are obvious. An initial dose can be administered at once without waiting for the collection and examination of the patient's secretion, or for the preparation of a specific vaccine to suit the infection. Acute catarrhal infections are attributed by many workers to filterable virus or viruses.

Others believe that the organisms found in large numbers during acute catarrh are the main or, at least, a contributory cause of the catarrh. It must be admitted that most investigators who have carried out control observations on large groups of people find no clear evidence of protection after the use of anti-catarrhal vaccines. Notwithstanding this, many clinicians are convinced from their experience that they can successfully protect their patients against these infections by injecting a stock vaccine containing these micro-organisms.

Therapeutically, for the treatment of patients suffering from acute rhinitis, laryngitis, bronchitis, etc., the clinician may prefer to isolate from the patient the infective organisms, to prepare a vaccine, and to inject a suitable dose. On the other hand, stock vaccines containing many strains of organisms isolated from numerous patients suffering from catarrh may be used.

## TREATMENT

There is considerable difference of opinion amongst clinicians whether vaccines are of any use in the *treatment* of catarrhs, and probably the majority do not use them. Some, however, use vaccines regularly and report good results, either from organisms isolated from the patient suffering from acute rhinitis, laryngitis, bronchitis, etc., or from stock vaccines containing suitable organisms. 'WELLCOME' BRAND CORYZA VACCINE, No. 4, may be used for this purpose. An initial dose as high as 0·5 c.c. has been used. Most clinicians would prefer to begin with a fraction of this dose.

After the first injection, the dose is regulated according to the effect produced. In the treatment of acute cold, it is unusual to endeavour to produce any reaction, but, in chronic conditions and for prophylactic purposes, some physicians aim at obtaining a definite, though not a severe, reaction consisting of a swelling, which is red and tender, at the site of injection. This may appear in a few hours and subsides after a lapse of from 18 to 24 hours. It is usually accompanied by constitutional symptoms, such as fever and headache. It is generally considered that the best time for injection is in the evening, and the site most favoured is beneath the skin of the abdomen or upper arm. An 'AGLA' Hypodermic Syringe, carefully cleaned and then boiled for a few minutes in water, may be employed. Antiseptic precautions should be observed. *(See circular enclosed in packing, which also gives instructions for opening the phial, etc.)*

**Treatment**

**Preparation**

TRADE MARK 'WELLCOME' BRAND CORYZA VACCINE, No. 4

[TRADE MARK B. W. & Co.]

1 c.c. contains 50 million each of *B. hofmanni*, *B. friedländer*, *M. catarrhalis* and Staphylococci, mixed; and 10 million each of Pneumococci and Streptococci, mixed.

*Hermetically-sealed phials of* 1 *c.c.*

*The above Vaccine is also supplied, to special order only, in* 10 *c.c. and* 25 *c.c. self-sealing rubber-capped bottles*

'Wellcome' Brand Vaccines are British-made, under expert supervision and ideal conditions, at The Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent (Eng.)

## Hay Fever

Hay Fever is a severe catarrh, often accompanied by paroxysmal sneezing, affecting chiefly the nasal, but often also the bronchial mucous membrane, causing contractions of the bronchial musculatures. Such conditions of hay fever seem to be due to the individual manifesting a sensitiveness to certain foreign proteins, so that small amounts provoke a violent reaction of the respiratory mucous membrane. The type of allergic reaction produced may be hay fever in some individuals, or urticaria or intestinal disturbances in others. The offending protein in many cases of hay fever is the pollen of certain grasses—hence the chief incidence of the diseases in the summer months.

Cause and effect

During an attack of hay fever, there is a vascular engorgement of the erectile tissue of the nasal mucosa, which causes obstruction and an enormously increased glandular secretion. Cavernous or erectile tissue is normally present, chiefly in the inferior conchæ, to a lesser extent in the middle conchæ and the posterior edge of the septum. The nasal mucosa is provided with a system of elastic fibres which causes a return to normal size as soon as the vascular engorgement of the erectile tissue has passed off. In this fact lies the possibility of prompt

Adrenalin locally

symptomatic relief in hay fever—namely, a reduction of the engorgement of the cavernous spaces, which is immediately followed by disappearance of the disagreeable symptoms. Such a reduction in the size of the conchæ is possible by the local application of adrenalin.

The issue of 'TABLOID' BRAND EPHEDRINE HYDROCHLORIDE by Burroughs Wellcome & Co. has now, however, made the obtaining of this effect a much easier matter. Ephedrine, taken by the mouth, causes prompt and long-sustained shrinking of the engorged turbinated bodies in hay fever, with immediate relief. Sustained local application of ephedrine may be obtained by the use of 'VAPOROLE' BRAND EPHEDRINE SPRAY COMPOUND with an atomiser.

**Superiority of Ephedrine**

## EPHEDRINE

EPHEDRINE is an alkaloid obtained from Ma Huang, a species of Ephedra. In 1924 and onward the work of Chen and Schmidt led to the investigation of the pharmacology of ephedrine and the present wide clinical use of the substance.

Both adrenalin and ephedrine manifest optical isomerism. There are four optically active ephedrines: lævo-rotatory ephedrine, dextro-rotatory ephedrine, and a lævo- and dextro-pseudo-ephedrine. The *l*-and *d*-ephedrine together in equal quantities form racemic (optically inactive) synthetic ephedrine.

The only naturally occurring forms are *l*-ephedrine and *d*-pseudo-ephedrine, and these both occur in Ma Huang.

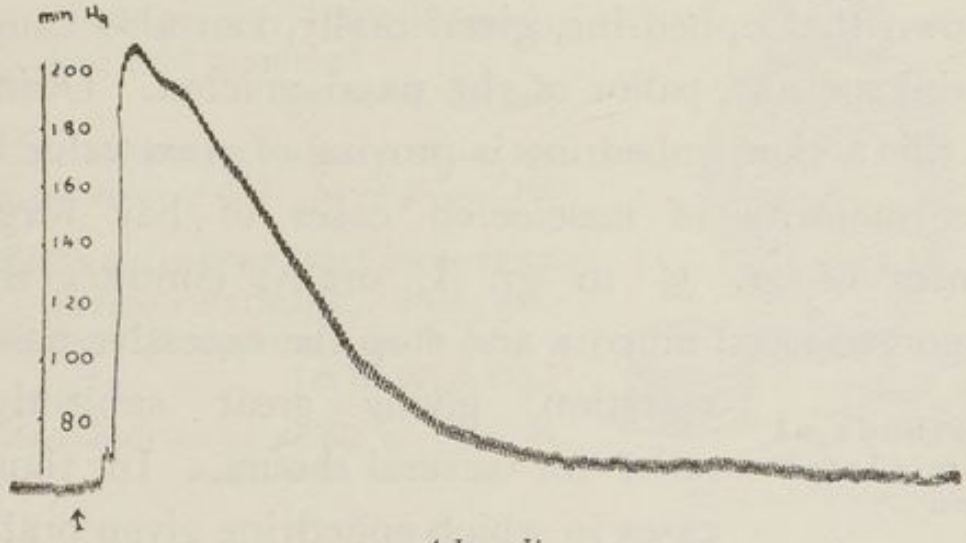
The plant, when collected in the autumn, contains about 1 per cent. of total alkaloids, of which 80 per cent. is lævo-rotatory ephedrine and 20 per cent. dextro-rotatory pseudo-ephedrine, with small quantities of similar alkaloids.

As often occurs in the case of substances exhibiting optical isomerism, it is the lævo- variety which is most active physiologically. The Ephedrine Hydrochloride issued by Burroughs Wellcome & Co. is prepared from *genuine* Ma Huang and consists of lævo-rotatory ephedrine only. The total alkaloids extracted from the plant are submitted to processes which ensure entire freedom from dextro-pseudo-ephedrine and other subsidiary alkaloids. Of these latter, *l*-methyl-ephedrine and nor-*d*-ψ-ephedrine were first isolated in the Burroughs Wellcome & Co. Experimental Laboratories.

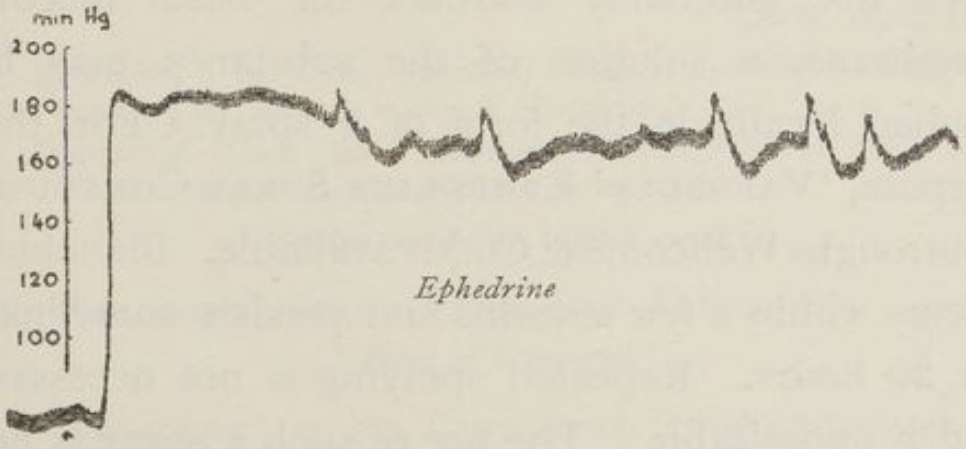
Isolation of lævo-rotatory ephedrine

In general, the qualitative action of ephedrine is similar to that of adrenalin. Ephedrine is less powerful; its effects are, however, more prolonged than those of adrenalin. Ephedrine exerts its physiological action when administered by the mouth, whereas adrenalin is effective only when

given hypodermically. Although the action of ephedrine on the circulation, on smooth muscle, and on secretion is analogous to that of adrenalin, in that it may be considered to be due to a stimulation of the neuro-muscular and neuro-glandular intermediate substance, yet experiments have indicated some differences in the mechanism of action.




*Adrenalin*




*Ephedrine*

Kymographic Records of the effect of Adrenalin and of Ephedrine on the carotid blood-pressure of a pithed cat, showing the prolonged rise caused by Ephedrine

The rise of blood-pressure due to ephedrine, although less than that due to adrenalin, is more

prolonged. Ephedrine, in a dose 500 times as great as that of adrenalin, produces a similar rise in blood-pressure, but the height is more slowly attained and its duration about seven times as long.

It was to be expected that ephedrine in solution, applied locally to the nasal mucous membrane, would give relief in hay fever cases. But trial has shown that ephedrine, given orally, can also cause shrinkage and pallor of the nasal mucosa. Owing to this action, ephedrine is proving of great value in the majority of unselected cases of hay fever. Doses of gr. ¼ to gr. 1, orally, contract the engorged nasal mucosa and stop the excessive nasal secretion, giving great subjective relief for several hours. In those cases in which ephedrine given orally does not effectively contract the nasal mucous membrane, a solution of the substance may be applied locally in the form of a spray. For this purpose, 'VAPOROLE' EPHEDRINE SPRAY COMPOUND (Burroughs Wellcome & Co.) is available. Blanching occurs within a few seconds and persists sometimes for 20 hours. Repeated spraying is not necessary and is undesirable. The use of such a spray is not followed by the irritation which often succeeds the local application of adrenalin.

Methods of administration

Ephedrine has been found valuable in the treatment of nasal conditions in which shrinkage of the

nasal mucosa is desired. It is instilled as a 2 per cent. solution. The effect is stronger and more prolonged than that given by a 5 per cent. cocaine solution. The addition of 0·5 per cent. potassium sulphate to the 2 per cent. ephedrine solution obviates any irritation in hypersensitive cases.

**Preparations**

TRADE MARK 'TABLOID' BRAND EPHEDRINE HYDROCHLORIDE, gr. 1/4 (0·016 gm.); gr. 1/2 (0·032 gm.); and 0·03 gramme*
[℔ B. W. & Co.]

*Gr.* 1/4 *and* 0·03 *gm., bottles of* 25 *and* 100
*Gr.* 1/2, *tubes of* 6, *bottles of* 25 *and* 100

Reduced facsimile

TRADE MARK 'HYPOLOID' BRAND EPHEDRINE HYDROCHLORIDE, 0·03 gm. (gr. 1/2 approx.), in 1 c.c.
[℔ B. W. & Co.]

*Hermetically-sealed phials of* 1 *c.c., in boxes of* 10

TRADE MARK 'VAPOROLE' BRAND EPHEDRINE SPRAY COMPOUND
[℔ B. W. & Co.]

Ephedrine, 1 per cent.; Menthol, Camphor and Oil of Thyme, of each 2 per cent. in a base of 'Paroleine.'

DIRECTION.—Used with a 'Paroleine' or other Atomiser, in hay fever and congested conditions of the nasal mucosa.

*Bottles containing* 1 *fluid ounce*

TRADE MARK 'WELLCOME' BRAND EPHEDRINE ALKALOID

*Tubes of* 1 *gramme*

TRADE MARK 'WELLCOME' BRAND EPHEDRINE HYDROCHLORIDE

*Bottles of oz.* ½ *and gr.* 60

TRADE MARK 'WELLCOME' BRAND EPHEDRINE SULPHATE

*Bottles of oz.* ½ *and gr.* 60

COMPOUND MENTHOL SNUFF [℔ B. W. & Co.]

* *Obtainable in the British Empire Overseas to special order only*

## Asthma

The ætiological classification of asthma is varied. The factors responsible may be present (1) as a specific sensitivity—the allergic type—in which actual contact with the offending substance produces characteristic symptoms; or (2) foci of infection, for which a sensitivity equal to that for animal and vegetable protein may be present. Sepsis of the naso-pharyngeal type, such as infected nasal sinuses, enlarged cervical and tonsillar glands, etc., occurs frequently in asthmatic cases. Dental, intestinal and urogenital sepsis are considered by some authorities as potent factors in the production of asthma. In all these cases temporary and even complete relief from asthmatic attacks may be expected by using 'Tabloid' Ephedrine Hydrochloride in doses of gr. $\frac{1}{2}$ to gr. $1\frac{1}{2}$. By "complete relief" is meant total disappearance of the asthma symptoms within a reasonable time after the administration of the drug. This time should be between 20 and 30 minutes when administration has been by the mouth, and slightly less if the subcutaneous method has been employed. The results do not depend on age or on duration of the disease.

On *page* 2 *of frontispiece* is given, diagrammatically, results obtained in the treatment, by means of Ephedrine, of pure asthma (acute) and of asthma complicated with bronchitis. Out of ten cases of pure asthma treated, great relief was obtained in seven cases and temporary relief in one case. There were two failures. In asthma complicated with bronchitis

the number of attacks was decreased in four cases, the period of pure attacks (followed by failure) in two cases, one case developed toxic symptoms and two were unsuccessful.

Slight toxic effects have been observed in some cases, consisting of headache, thirst, giddiness, nausea, tremor, palpitation, insomnia and bladder irritation. Large and repeated doses should be avoided, as they tend to produce such effects with little if any increase in beneficial action. Repeated spraying of the nasal mucosa is undesirable, as a large total dose of the alkaloid may be absorbed. In cases of asthma and hay fever, the least dose which will give the specific desired effect should be found. In many cases where gr. ½ to gr. 1 has been given with accompanying undesirable effects, a reduction of dosage to gr. ¼ has still given relief, but without toxic symptoms. It is found that some patients need carefully-regulated doses. Very large doses cause diaphoresis. A transient albuminuria has been noted by some observers, which may be due to renal vaso-constriction.

Infectious asthma is encountered chiefly in adult life, although the condition can be traced in some cases to childhood, when it was probably allergic in nature, followed by spontaneous remission during adolescence, as a result of the development of acquired immunity, and later recurrence in association with sinus infection. Perhaps the majority of patients with asthmatic bronchitis should be placed in this group. Less satisfactory response to Ephedrine in this type is probably due to a true

inflammatory condition of the bronchi rather than to a vasomotor swelling and spasm, as in the allergic type.

In addition to treatment of acute attacks, the patient may be benefited by changing his locality and by receiving diets rich in vitamins. The latter may be supplied by the inclusion in the daily diet of 'KEPLER' COD LIVER OIL WITH MALT EXTRACT, which contains Vitamins A, B and D. Rich in Vitamin A, the deficiency of which is correlated with common inflammatory infections, such as diseases of the nasal sinuses, the value of the 'Kepler' product, as a prophylactic to increase the resistance to infection, is considerable.

**Preparations**

EPHEDRINE HYDROCHLORIDE, 'TABLOID' BRAND
EPHEDRINE SPRAY COMPOUND, 'VAPOROLE' BRAND
EPHEDRINE HYDROCHLORIDE, 'HYPOLOID' BRAND
EPHEDRINE ALKALOID, 'WELLCOME' BRAND
EPHEDRINE HYDROCHLORIDE, 'WELLCOME' BRAND
EPHEDRINE SULPHATE, 'WELLCOME' BRAND
COMPOUND MENTHOL SNUFF (B. W. & Co.)

*(For full list of Ephedrine preparations, see page 9)*

TRADE MARK 'KEPLER' COD LIVER OIL WITH MALT EXTRACT
[℠ B. W. & Co.]

DIRECTION.—One teaspoonful to two dessertspoonfuls, twice or thrice daily, after food, taken alone or spread on bread, or mixed with a little milk or water.

*Bottles of two sizes*


Reduced facsimile

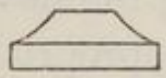
## Accessory Medicaments

For the preparation of agreeable and efficient sprays, douches or washes for the treatment of nose, mouth and throat conditions, 'Soloid' Nasal products present a wide range of medicaments in combinations. 'Soloid' products are distinguished by the exceptional purity and high standard of quality of their ingredients, and are, therefore, of the utmost therapeutic efficiency. The contained doses of each constituent are measured with accuracy and precision, and the products compounded with the utmost skill and elegance.

Reduced facsimile

**High standard of purity**

One of the important recommendations for these products, in practice, is the facility which they offer for the immediate preparation of fresh solutions, of strengths suited to individual requirements. This method, which is simplicity itself, obviates the weighing or measuring of ingredients—excepting only the volume of water. 'Soloid' products dissolve easily and quickly in water. They keep indefinitely, having been proved to retain their full strength and activity unimpaired under the most trying climatic conditions. The solutions obtained are, in every way, superior



*Trade Mark*

Distinctive shape of 'Soloid' Product

**Simplicity of preparation**

to stock solutions liable to contamination, deterioration and variation in strength. The physician who insists on the use of 'SOLOID' products knows that wherever his patient goes, and whenever the prescription is dispensed, the treatment can be carried out—as he intended it should be—with standardised preparations of uniform quality and of constant and assured activity. 'SOLOID' products are packed in specially-designed triangular-shaped bottles, which clearly differentiate them from the containers of products intended for internal administration.

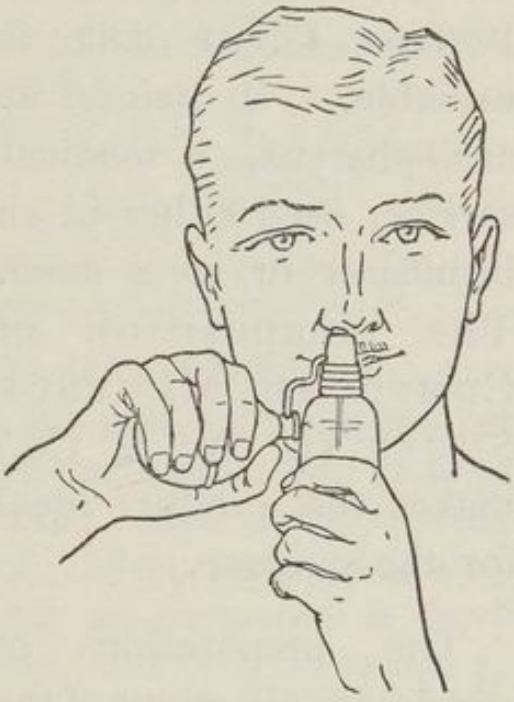
## TRADE MARK 'PAROLEINE' BRAND LIQUID PARAFFIN FOR SPRAYING

'PAROLEINE'—for spraying—is a neutral, colourless and odourless liquid paraffin, of suitable viscosity for use in atomisers for spraying the nose and throat. Amongst the medicaments that may be dissolved in 'PAROLEINE' for this purpose are—essential oils, menthol, 'Pinol' (the volatile oil of *Pinus pumilio*), 'Eucalyptia' (a volatile oil distilled from the fresh leaves of Eucalyptus, B.P.), carbolic acid and camphor. 'PAROLEINE' is easily and readily applied as a fine spray by means of the 'PAROLEINE' ATOMISER, which provides a convenient and efficient means of spraying the nose, throat and upper respiratory passages with appropriate medicaments. It produces a very finely-divided spray, which ensures an effective and evenly-distributed application to the mucous membrane.

'Paroleine' Atomiser

The 'PAROLEINE' ATOMISER is simple and durable in construction, and, as all parts, except the

rubber bulb, are made of glass or metal, it is easily sterilised. It is distinguished by two valuable characteristics One is the wire gauze sieve, which prevents dust or other deleterious matter being forced through the spray, and the other is the special rubber washer fixed to the bulb, which ensures all the air passing from the bulb being utilised, thus forming a larger volume of spray. This washer prevents premature wear of the bulb, besides obviating repeated and abortive attempts at spraying.



'Paroleine' Atomiser in use

In chronic laryngitis, bronchitis and bronchiectasis, oil of pine may be used to advantage and, for this purpose, 'PINOL,' the volatile oil of *Pinus pumilio*, is issued. Where there is much secretion, the inhalation of "nascent" ammonium chloride is, in many cases, distinctly beneficial.

**Preparations**

TRADE MARK 'PAROLEINE' BRAND LIQUID PARAFFIN [B. W. & Co.]
*Bottles containing* 4 *fl. oz. and* 16 *fl. oz.*

TRADE MARK 'PAROLEINE'—FOR SPRAYING [B. W. & Co.]
DIRECTION.—To be used in a 'Paroleine' or other Atomiser.
*Bottles containing* 4 *fl. oz. and* 16 *fl. oz.*

TRADE MARK 'EUCALYPTIA' [B. W. & Co.]
DIRECTION.—*Bronchitis kettle*—five drops to one pint of water.
*Bottles containing* 2 *fl. oz.*

TRADE MARK 'PINOL' [B. W. & Co.]
DIRECTIONS.—*Bronchitis kettle*—five drops to the pint of water. *For Inhalation*—five drops added to *hot* water (140° F.), and vapour inhaled. *Bottles containing* ½ *fl. oz. and* 1 *fl. oz.*

As an inhalation, to relieve spasmodic cough due to acute naso-pharyngeal irritation, 'VAPOROLE' CHLOROFORM AND ETHYL IODIDE COMPOUND is, in some cases, found valuable. In painful affections of the nose and naso-pharynx, a medicated powder may be of service, used either in an insufflator or as a snuff. The composition of COMPOUND MENTHOL SNUFF (B. W. & Co.) makes this product ideal for the purpose.

Reduced facsimile

The preparation of gargles for affections of the pharynx is conveniently effected by the use of one of the special 'SOLOID' products. Application of medicaments to the naso-pharynx by means of a brush is sometimes necessary. Applied in this way, 'PAROLEINE' SPRAY COMPOUND, or 'SOLOID' (NASAL) 'EUCALYPTIA' COMPOUND will be found very effective combinations. Several 'TABLOID' BRAND products for solution in the mouth have been specially devised for the treatment of irritable conditions of the pharynx. 'TABLOID' MENTHOL COMPOUND, 'TABLOID' BENZOIC ACID COMPOUND (with cocaine or $\beta$-eucaine and menthol), or 'TABLOID' CARBOLIC ACID AND SLIPPERY ELM, will be found very useful combinations *(see pages* 9, 18 *and* 19*)*.

**Preparations**

TRADE MARK 'VAPOROLE' BRAND CHLOROFORM AND ETHYL IODIDE COMPOUND [℔ B. W. & Co.]

| | |
|---|---|
| Chloroform, | min. 10 [0·592 c.c.] |
| Ethyl Iodide, | min. 5 [0·296 c.c.] |
| Menthol, | gr. 1/8 [0·008 gm.] |

DIRECTION.—One capsule to be crushed and the contents inhaled.

*Boxes of* 6

TRADE MARK 'PAROLEINE' SPRAY COMPOUND [℔ B. W. & Co.]

| | |
|---|---|
| Menthol, | gr. 5 [0·324 gm.] |
| Chlorbutol, | gr. 6 [0·389 gm.] |
| 'Eucalyptia,' | min. 15 [0·888 c.c.] |
| 'Paroleine,' | ad fl. oz. 1 [28·42 c.c.] |

DIRECTION.—To be used in a 'Paroleine' or other Atomiser.

*Amber-coloured bottles containing* 1 *fl. oz. and* 16 *fl. oz.*

## SALINE SOLUTIONS

Normal saline solution for use, either alone or in combination, with other medicaments, in nose and throat work, is easily and conveniently prepared by means of 'SOLOID' SODIUM CHLORIDE. The solution so prepared is fresh and free from contamination, and only as much as is necessary for use at once need be prepared.

**Preparations**

TRADE MARK 'SOLOID' BRAND SODIUM CHLORIDE, gr. 40 (2·592 gm.); and gr. 80 (5·184 gm.) [℔ B. W. & Co.]

A normal saline solution may be prepared by dissolving a gr. 40 product in half-a-pint, or gr. 80 in one pint, of boiled *(sterile)* water.

*Gr.* 40, *tubes of* 12 *and bottles of* 100 *and* 500; *gr.* 80, *tubes of* 6, *bottles of* 100 *and tins of* 500

## TRADE MARK 'VAPOROLE' BRAND EPHEDRINE SPRAY COMPOUND

A useful 'VAPOROLE' preparation of ephedrine, for application to the pharynx and nose by means of an atomiser, is also available.

'VAPOROLE' EPHEDRINE SPRAY COMPOUND enables Ephedrine to be applied locally in hay fever and congested conditions of the pharynx and nasal mucosa. Clinical trials have proved satisfactory.

**Preparation**

TRADE MARK 'VAPOROLE' BRAND EPHEDRINE SPRAY COMPOUND [℔ B. W. & Co.]

*For formula, see page* 9

## Other Accessory Medicaments

TRADE MARK 'TABLOID' BRAND MENTHOL COMPOUND [℠ B. W. & Co.]

| | | |
|---|---|---|
| Menthol, | gr. 1/2 | [0·032 gm.] |
| Sodium Bicarbonate, | gr. 3 | [0·194 gm.] |
| White Sugar, | gr. 1/6 | [0·011 gm.] |

DIRECTION.—Dissolved slowly in the mouth, this product forms a local sedative and anæsthetic application for the throat.

*Bottles of* 100

TRADE MARK 'TABLOID' BRAND BENZOIC ACID COMPOUND [℠ B. W. & Co.]

| | | |
|---|---|---|
| Benzoic Acid, | gr. 1/2 | [0·032 gm.] |
| Codeine, | gr. 1/10 | [0·0065 gm.] |
| Menthol, | gr. 1/10 | [0·0065 gm.] |
| Ipecacuanha Powder, | gr. 1/10 | [0·0065 gm.] |
| Cocaine Hydrochloride, | gr. 1/40 | [0·0016 gm.] |
| Peppermint Oil, | min. 1/16 | [0·0036 c.c.] |
| Red Gum, | *q.s.* | |

DIRECTION.—One, dissolved in the mouth, occasionally, in irritable cough associated with pharyngitis.

*Bottles of* 25 *and* 100

TRADE MARK 'TABLOID' BRAND BENZOIC ACID (β-EUCAINE) COMPOUND [℠ B. W. & Co.]

| | | |
|---|---|---|
| Benzoic Acid, | gr. 1/2 | [0·032 gm.] |
| Codeine, | gr. 1/10 | [0·0065 gm.] |
| Menthol, | gr. 1/10 | [0·0065 gm.] |
| Ipecacuanha Powder, | gr. 1/10 | [0·0065 gm.] |
| β-Eucaine Hydrochloride, | gr. 1/40 | [0·0016 gm.] |
| Peppermint Oil, | min. 1/16 | [0·0036 c.c.] |
| Red Gum, | *q.s.* | |

DIRECTION.—One, dissolved in the mouth, occasionally.

This preparation is useful where it is inadvisable to prescribe cocaine.

*Bottles of* 25 *and* 100

TRADE MARK 'TABLOID' BRAND CARBOLIC ACID (PHENOL) WITH SLIPPERY ELM [℠ B. W. & Co.]

*Prepared with a demulcent base*

Each contains: Carbolic Acid, gr. ½ [0·032 gm.].

DIRECTION.—One, slowly dissolved in the mouth; or one to two, taken with water, twice or thrice daily, after food.

*Bottles of* 25 *and* 100

TRADE MARK 'SOLOID' BRAND (NASAL) ALKALINE COMPOUND [℠ B. W. & Co.]

| | | |
|---|---|---|
| Borax, | gr. 5 | [0·324 gm.] |
| Sodium Chloride, | gr. 5 | [0·324 gm.] |

DIRECTION.—One product, powdered, and dissolved in two ounces of warm water.

*Bottles of* 25 *and* 100

TRADE MARK 'SOLOID' BRAND (NASAL) ALKALINE COMPOUND WITH COCAINE HYDROCHLORIDE [℠ B. W. & Co.]

| | | |
|---|---|---|
| Borax, | gr. 5 | [0·324 gm.] |
| Sodium Chloride, | gr. 5 | [0·324 gm.] |
| Cocaine Hydrochloride, | gr. 1/6 | [0·011 gm.] |

DIRECTION.—One product, powdered, and dissolved in two ounces of warm water.

*Bottles of* 25 *ana* 100

TRADE MARK 'SOLOID' BRAND (NASAL) ANTISEPTIC AND ALKALINE COMPOUND [℔ B. W. & Co.]

| | | |
|---|---|---|
| Sodium Bicarbonate, | gr. 5 | [0·324 gm.] |
| Carbolic Acid, | gr. 1/2 | [0·032 gm.] |
| Borax, | gr. 5 | [0·324 gm.] |

DIRECTION.—One product, powdered, and dissolved in two to three ounces of warm water.

*Bottles of* 25 *and* 100

TRADE MARK 'SOLOID' BRAND (NASAL) 'EUCALYPTIA' COMPOUND [℔ B. W. & Co.]

| | | |
|---|---|---|
| Sodium Bicarbonate, | gr. 8 | [0·518 gm.] |
| Borax, | gr. 8 | [0·518 gm.] |
| Sodium Benzoate, | gr. 1/3 | [0·022 gm.] |
| Sodium Salicylate, | gr. 1/3 | [0·022 gm.] |
| Eucalyptus Oil, | min. 1/6 | [0·01 c.c.] |
| Thymol, | gr. 1/6 | [0·011 gm.] |
| Menthol, | gr. 1/12 | [0·0054 gm.] |
| Wintergreen Oil, | min. 1/12 | [0·005 c.c.] |

DIRECTION.—One product, powdered, and dissolved in two to three ounces of warm water.

*Bottles of* 25 *and* 100

TRADE MARK 'SOLOID' BRAND (NASAL) PHENOL COMPOUND [℔ B. W. & Co.]

| | | |
|---|---|---|
| Sodium Bicarbonate, | gr. 12 | [0·778 gm.] |
| Carbolic Acid, | gr. 1·1/2 | [0·097 gm.] |
| Sodium Chloride, | gr. 2 | [0·13 gm.] |

DIRECTION.—One product, powdered, and dissolved in eight ounces of warm water, affords a solution of suitable strength.

*Bottles of* 25

TRADE MARK 'SOLOID' BRAND (NASAL) SODIUM BICARBONATE COMPOUND [℔ B. W. & Co.]

| | | |
|---|---|---|
| Sodium Bicarbonate, | gr. 5 | [0·324 gm.] |
| Borax, | gr. 5 | [0·324 gm.] |
| Sodium Chloride, | gr. 5 | [0·324 gm.] |

DIRECTION—One product, powdered, and dissolved in two ounces of warm water.

*Bottles of* 25 *and* 100

TRADE MARK 'SOLOID' BRAND (NASAL) SODIUM BICARBONATE COMPOUND, SACCHARATED [℔ B. W. & Co.]

| | | |
|---|---|---|
| Sodium Bicarbonate, | gr. 5 | [0·324 gm.] |
| Borax, | gr. 5 | [0·324 gm.] |
| Sodium Chloride, | gr. 5 | [0·324 gm.] |
| White Sugar, | gr. 5 | [0·324 gm.] |

DIRECTION.—One product, powdered, and dissolved in two ounces of warm water.

*Bottles of* 25 *and* 100

TRADE MARK 'SOLOID' BRAND NASO-PHARYNGEAL (β-EUCAINE) COMPOUND [℔ B. W. & Co.]

| | | |
|---|---|---|
| Sodium Chloride, | gr. 7 | [0·454 gm.] |
| Borax, | gr. 2·1/2 | [0·162 gm.] |
| Boric Acid, | gr. 3/4 | [0·049 gm.] |
| Sodium Benzoate, | gr. 1/2 | [0·032 gm.] |
| Menthol, | gr. 1/50 | [0·0013 gm.] |
| Thymol, | gr. 1/100 | [0·00065 gm.] |
| β-Eucaine Hydrochloride, | gr. 1/6 | [0·011 gm.] |
| Wintergreen Oil, | min. 1/20 | [0·003 c.c.] |

DIRECTION.—One product, powdered, and dissolved in one to three ounces of tepid water.

*Bottles of* 25 *and* 100

## Local Anæsthesia

Anæsthesia in the nose is usually obtained by permeation. Before examination of the nasal cavities or using the galvano-cautery, strips of gauze soaked in 10 per cent. cocaine solution, with the addition of adrenalin, should be placed in the nose for 10 minutes.

A more thorough local anæsthesia is necessary before such intra-nasal operations as submucous resection of the septum, turbinotomy, removal of the posterior end of the inferior conchæ, intra-nasal opening of the maxillary sinus or removal of nasal polypi with the cold wire snare.

**Method**

Half-an-hour before operation, 'Tabloid' Hypodermic Morphine Sulphate, gr. 1/4, with 'Tabloid' Hypodermic Atropine Sulphate, gr. 1/100, should be injected hypodermically. The nose is then packed with a long strip of half-inch gauze soaked in cocaine and adrenalin solution. This solution may consist of 1 drachm of 10 per cent. cocaine solution mixed with 1 drachm of 1 in 1000 adrenalin solution.

Anæsthesia for more extensive operations, such as opening up the ethmoidal labyrinth, curettage of the agger cells, enlarging the naso-frontal duct or opening the sphenoidal sinus may be obtained by Sluder's trunk anæsthesia. A cotton-wool probe soaked in *saturated* cocaine solution is pushed under the middle conchæ to lie between the posterior end of the middle conchæ and the lateral wall of the nose. At this point the

sphenopalatine ganglion is thinly covered with mucous membrane. Another probe is pushed up into the anterior part of the nose as far as possible, in order to permeate the lateral and medial nasal branches of the ophthalmic nerve. Absolute anæsthesia is obtained in 10 minutes.

Induction of anæsthesia in the larynx may be obtained by the instillation of 10 per cent. cocaine solution from a syringe. Under the guidance of the laryngeal mirror, a few drops of the solution are allowed to fall in turn on the epiglottis, the ary-epiglottic folds, and the true and false cords, with pauses between each instillation. Anæsthesia is obtained in 20 to 30 minutes.

The soft palate and pharyngeal wall may be anæsthetised by the use of a swab of 10 per cent. cocaine applied for 5 or 10 minutes.

Vaso-constrictors in local anæsthesia

The introduction of the use of vaso-constrictor substances in local anæsthesia was due to Corning, who, in 1885, observed that the anæsthetic value of cocaine was increased appreciably, whilst the risks of administration were decreased to a corresponding degree, if its circulation were confined to the part affected, by means of a bandage. Upon this observation rests, historically, the rationale of the combined administration of cocaine and adrenalin, in which the pressor component, by producing intense vaso-constriction, lessens the absorption of the cocaine into the general circulation and,

by localising its effects to the area of application, alike diminishes its toxicity and augments its anæsthetic value.

## COCAINE

Solutions of cocaine rapidly lose their anæsthetic action unless kept under special precautions. For this reason, cocaine solutions which are to be used for permeation anæsthesia in nose and throat work should always be made immediately before use. 'SOLOID' BRAND COCAINE HYDROCHLORIDE provides the ideal means of preparing accurate and reliable solutions.

## BENZAMINE (β-EUCAINE)

Benzamine (or β-eucaine) is slightly slower in action than cocaine, but is considerably less toxic and its action is more prolonged.

## ADRENALIN

For permeation anæthesia, 1 in 1000 solution is added in equal quantity to a 10 per cent. solution of cocaine or β-eucaine. For infiltration anæsthesia by injection, not more than 5 minims of adrenalin solution, 1 in 1000, should be added to each drachm of anæsthetic solution, as the injection of stronger solutions may cause sloughing.

Adrenalin is in some cases invaluable, applied in 1 in 5000 solution, for the control of bleeding in nasal surgery.

In addition to its use as a hæmostatic, adrenalin is of value in 1 in 10,000 to 1 in 5000 solution,

applied as a spray in acute coryza and inflammatory conditions of the nasal mucous membrane. In acute œdema of the pharynx or larynx, a spray of similar strength (with or without 5 to 10 per cent. cocaine) considerably reduces the swelling. Cases of tonsillitis are similarly greatly relieved.

**Preparations**

TRADE MARK 'SOLOID' BRAND COCAINE HYDROCHLORIDE, gr. ½ (0·032 gm.); gr. 1 (0·065 gm.); gr. 5 (0·324 gm.); and 0·25 gramme* [℔ B. W. & Co.]

DIRECTION.—One product of gr. 5, in 100 minims, gr. 1 in twenty minims, or gr. 1/2 in ten minims or 0·25 gramme in 5 c.c. of water, forms approximately a five per cent. solution.

*Gr.* 1/2 *and gr.* 1, *tubes of* 25 *and bottles of* 100; *gr.* 5 *and* 0·25 *gm., bottles of* 25

TRADE MARK 'SOLOID' BRAND β-EUCAINE HYDROCHLORIDE, gr. 1 (0·065 gm.); and gr. 5 (0·324 gm.) [℔ B. W. & Co.]

DIRECTION.—One grain dissolved in 20 minims, or gr. 5 in 100 minims, will form, approximately, a five per cent. solution. β-Eucaine Hydrochloride should be dissolved in *hot* water, which does not decompose it or lessen its anæsthetic value. The most convenient method is to add the 'Soloid' product to the water in a small test-tube, and dissolve and sterilise by boiling.

*Gr.* 1, *tubes of* 25; *gr.* 5, *bottles of* 25

TRADE MARK 'SOLOID' BRAND β-EUCAINE LACTATE, gr. 1 (0·065 gm.) [℔ B. W. & Co.]

DIRECTION.—One grain, dissolved in 10 minims of water, will form, approximately, a 10 per cent. solution.

*Bottles of* 25

TRADE MARK 'SOLOID' BRAND ADRENALIN COMPOUND WITH β-EUCAINE, No. 1 [℔ B. W. & Co.]

| | | |
|---|---|---|
| Adrenalin, | 0·001 gramme | [gr. 1/64 approx.] |
| Sodium Chloride, | 0·9 gramme | [gr. 13-1/2 approx.] |
| β-Eucaine Lactate, | 0·2 gramme | [gr. 3 approx.] |

DIRECTION.—*See overleaf.*

*Tubes of* 6

* *Obtainable in the British Empire Overseas to special order only*

TRADE MARK 'SOLOID' BRAND ADRENALIN COMPOUND WITH β-EUCAINE, NO. 2 [℠ B. W. & Co.]

*(One-tenth the strength of No. 1)*

DIRECTION.—One of No. 1, dissolved in 100 c.c. (approximately 3-1/2 fl. oz.), or one of No. 2, dissolved in 10 c.c. (approximately 170 minims), of distilled water, yields a saline solution containing Adrenalin, 1 in 100,000, and β-Eucaine Lactate, 2 in 1000, suitable for use as a local hæmostatic and anæsthetic.

*Tubes of* 12

TRADE MARK 'HYPOLOID' BRAND ADRENALIN AND β-EUCAINE HYDROCHLORIDE [℠ B. W. & Co.]

| | | | |
|---|---|---|---|
| Adrenalin, | 0·00016 | gramme | [gr. 1/400 approx.] |
| β-Eucaine Hydrochloride, | 0·02 | gramme | [gr. 1/3 approx.] |
| Water, | ad 1 | c.c. | |

This formula is equivalent to Adrenalin, gr. 1/675, and β-Eucaine Hydrochloride, gr. 2/11, in each 10 minims.

DIRECTION.—One c.c. (min. 16), injected hypodermically, for the production of local anæsthesia.

*Boxes of* 10

TRADE MARK 'WELLCOME' BRAND SOLUTION OF ADRENALIN AND COCAINE HYDROCHLORIDE [℠ B. W. & Co.]

Each c.c. contains: Adrenalin, 0·00003 gramme (gr. 1/2200 approx.), and Cocaine Hydrochloride, 0·02 gramme (gr. 1/3 approx.); or each 10 minims contain Adrenalin, gr. 1/3650, and Cocaine Hydrochloride, gr. 2/11.

DIRECTION.—Half to 1 c.c. (min. 8 to min. 16), injected subcutaneously, for the production of local anæsthesia.

*Bottles of* 10 *c.c.*

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NOTE.—The words 'TABLOID,' 'SOLOID,' 'ELIXOID,' 'KEPLER,' 'PAROLEINE,' 'EUCALYPTIA,' 'PINOL,' 'VAPOROLE,' 'HYPOLOID' and 'WELLCOME' are trade marks or brands.

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# MEMORANDA MEDICA, NO. 9

## SCHICK TEST

**To determine whether individuals are susceptible or immune to diphtheria**

The test is carried out by injecting intradermally into left arm, 0·2 c.c. of a standardised diluted diphtheria toxin; into the right arm is injected, as a control, the same amount of diluted toxin which has been heated. The result may be read after 24 hours, but reactions are more easily read on or after the 3rd day.

(1) Negative Reaction (Immune). Both arms show after 24 hours nothing except needle puncture.

(2) Positive Reaction (Susceptible). The right arm shows an absence of reaction, as described above, while the left arm has a flush from one-half to one inch or more in diameter.

(3) Negative and Pseudo Reaction (Immune). Both arms may show the same size pink flush with dark red centre. This false or pseudo reaction is due to presence of some unknown constituent in the toxin broth. The patient who shows therefore an equal or practically equal reaction in both arms is "immune."

(4) Positive and Pseudo (Combined) Reaction. (Susceptible). The right arm which received the control heated toxin may show a persistent red flush with a deeper centre, while the left arm, which received the unheated toxin, may show a very much larger flush with a large dark red centre which later desquamates. This indicates that the toxin in the left arm has given a positive reaction and that there is, in addition, in both arms a pseudo-reaction. The susceptibility of the patient in this case is shown by the greater extent and intensity of the reaction in the left arm.

## DICK TEST

Consists in injecting intradermally into the left forearm, 0·2 c.c. of a dilution of the filtrate from a broth culture of the Streptococcus Scarlatinæ, into the right forearm is injected as a control 0·2 c.c. of the same toxin which has been boiled for two hours. The reaction may be positive, negative, positive and pseudo, or negative and pseudo, as in the Schick Test *(above)*.