

Against

**BEE DISEASES.
PARALYSIS
NOSEMA
ACARINE
FOUL BROOD**



**NEWTON
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Paralysis, Nosema, Acarine, Diseases of Bees

The Capital of the Beekeeper is Healthy Stock

.. "The 'stock' of the apiarist is the 'honey bee.' Fundamental amongst the necessities for the pursuit of bee-keeping is 'healthy stock,' and nothing shows more clearly and quickly the dependence of the industry upon science than when the calamity of disease falls upon the bee itself."—Dr. JOHN RENNIE, F.R.S.E., F.A.C., *The Crucial Problem of British Bee-keeping*, p. 4

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Paralysis

CAUSE.

THE cause of this mysterious disease—which is widely prevalent in this and other countries, especially in the spring—has long been a matter of conjecture, until recent scientific research conducted in Sweden proved it to be due to *pollen moulds*, the metabolic products of which are now believed to be the exciting cause of the disease.

SYMPTOMS.

AFFECTED bees show a peculiar trembling motion of their abdomens, which become swollen, and such bees are unable to fly. This crawling symptom is *not* characteristic of the disease, for it is met with in Nosema and Acarine Diseases as well, and also in various undetermined disabilities of bees, but the shaking movement is somewhat characteristic. The disease has the mysterious feature of a sudden attack and similarly of a sudden disappearance. This feature, however, is easily explained once the cause is realised. The affected bees are to be seen dragged out of the hive by the healthy members.

EFFECT.

IT is a fact that Paralysis is capable of rapidly weakening stocks if not taken immediately in hand, such stocks

consequently failing to be profitable, at least during the season of attack. In fighting Paralysis, therefore, the bee-keeper will be fighting one of the serious causes of Spring Dwindling.

Paralysis is not such a serious trouble as Acarine Disease, for instance, but it is bad enough for any commercial bee-keeper, or for that matter for anyone who expects profit from his bees. As already pointed out, this disease demonstrates itself early in spring and consequently may be responsible for Spring Dwindling with its serious after-effects, which would be specially felt in fruit and clover districts.

Furthermore, it is not generally appreciated that a combination of two or even three diseases may be met with in one stock, thus leading to its collapse. It would be most foolish, therefore, to neglect the treatment of a disease on account of its mildness, forgetting its predisposing influence to the attack of a more serious disease.

TREATMENT.

FOR a long time the treatment of Paralysis has been anything but satisfactory. Our present knowledge of the cause of the disease now helps us to adopt more rational treatment.

PREVENTIVE TREATMENT.—Do not allow bees to have, for wintering, combs that contain an abundance of pollen, especially side combs which will be deserted by the cluster for a long time. Spraying of pollen

combs during the season with a dilute *Izal* solution is a good practice. Since the queen is the life centre of the colony, it is sound practice not to tolerate poor queens in the apiary. See that your hives are waterproof and your colonies are provided with porous dry packings.

ACTIVE TREATMENT.—(1) Remove the cause by taking out of the hive of the affected colony, combs with pollen which appears to be mouldy or “stale” and replace with clean combs.

(2) If the queen is failing, re-queen at the earliest opportunity with a young queen from a reputable strain.

(3) Stimulate with medicated cane sugar syrup. By such active treatment the disease is quickly brought under control and the affected colony saved.

N.B.—For *Izal* dilutions and medications see page 21.





SPRAYING THE COMBS



SPRAYING THE COMB AND BEES AFTER REMOVING QUILT

Nosema Disease

CAUSE.

SCIENTIFIC research conducted in Britain, Germany, America, New Zealand, and many other countries has confirmed the existence of a widespread disease of adult bees known as Nosema Disease, which is due to a protozoon called *Nosema apis*. Although not necessarily fatal, this disease is weakening to colonies and may be responsible for the degeneration of stocks, resulting in the diminution or even loss of the honey harvest.

SYMPTOMS.

THIS disease, if present, is not difficult to diagnose microscopically by examination of the Chyle Stomachs of suspected specimens. It is no more correct to assert the presence of Nosema Disease or its absence than to do the same with Acarine Disease, purely guided by outward symptoms which are often very slight. The suspicion of the apiarist is generally aroused by the slowness or the failure of the affected colony to develop normally. Some crawling may also be witnessed in bad cases with the crawling bees suffering from distended abdomens. Many affected bees are lost whilst foraging.

EFFECT.

IN the presence of a good queen the disease may follow a slow course and ultimately die out. Under other

circumstances it may seriously weaken the affected colony, especially if breeding be at a standstill (e.g., during mid-winter), predispose to the loss of the honey harvest and may prepare the way to an attack of Acarine Disease, resulting finally in the complete extinction of the colony.

TREATMENT.

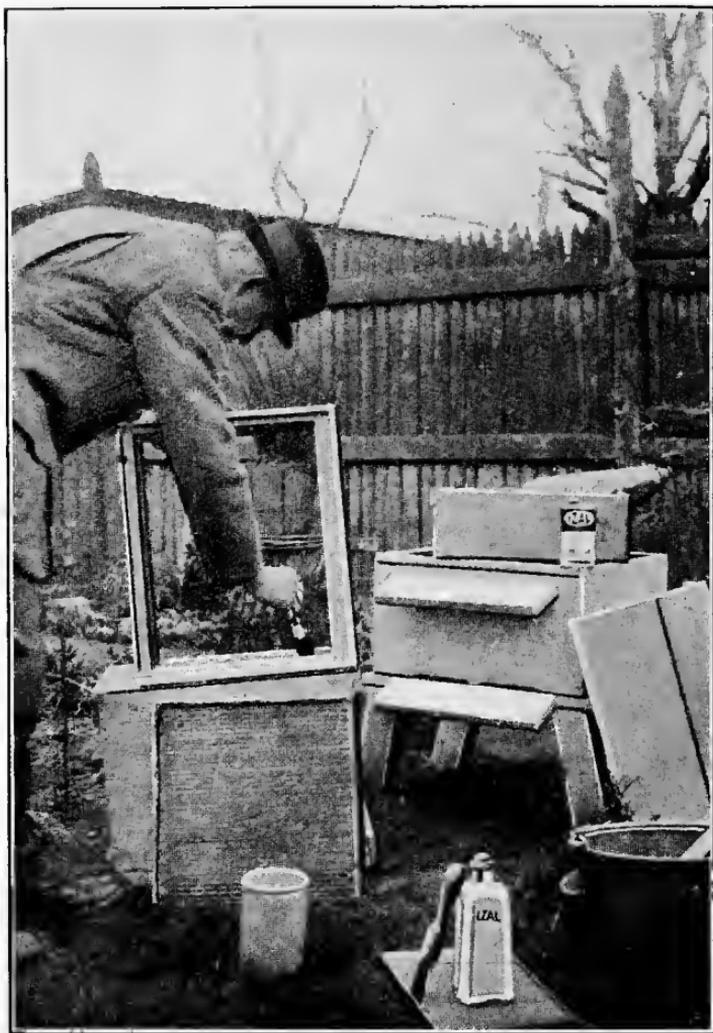
PREVENTIVE.—Aim always at keeping strong stocks, headed by young virile queens and follow rational methods of management.

In conducting manipulations in the apiary, and especially when dealing with infected hives, always keep your hands moist with dilute *Izal* solution (1-400).

Empty hives should be washed inside and outside with *Izal* double strength solution. (See page 21.)

Entice your bees to a prepared water fountain and charge its water with one teaspoonful of *Izal* to every ten pints of clean fresh water. The fountain should be situated in a conspicuous though protected place in the apiary.

ACTIVE.—Once the disease is diagnosed as present, it is wise to fight it by germicidal procedures which depend in their degree of utilisation on the course the disease is taking, the time of the year and other practical considerations. You are, therefore, the best judge as to when weather or other conditions will compel limiting or modifying your procedures.



TREATING THE HIVES WITH IZAL FLUID



WASHING FRAMES

(a) Medicating the food.—In a bad case it is advisable to extract all honey or syrup stored, medicate with *Izal* as directed (page 21) and feed back to the bees. Fresh feed should similarly be medicated.

(b) Spraying Bees and Combs.—This is a beneficial practice during the season. Use a tepid dilute solution of *Izal*. Do not use a common rubber spray syringe, but a fine vaporiser such as the *Izal Simplex*, damping the bees thoroughly to just that extent, they will not crawl away from the hive. Replace quilt quickly over tops of the frames, the whole operation to take less than three minutes.

(c) Steaming.—Take a tin holding just over a pint, put a small pipe through the top, attach a piece of india rubber tube, put in a pint of double strength *Izal* solution, place over a small spirit lamp and when boiling partly remove the quilt of the hive, drive back the bees with the smoker, put the end of the tube under the corner of the quilt, and steam the bees for two or three minutes, not more.

N.B.—For *Izal* dilutions and medications see page 21.



Acarine Disease

CAUSE.

DR. RENNIE'S discovery that the disease is caused by a parasite, "Tarsonemus Woodi," breeding in, and living at the expense of the tissue of the Respiratory system, has disposed of many former theories. The parasite remains in these organs, and until the worker is fully grown, the disease does not usually become fatal.

SYMPTOMS.

VISIBLE signs of disease are more usually confined to the inactive period between late autumn and early spring. In the adult worker's symptoms are crawling, inability to fly, with distention of the abdomen, and at certain times of the year a form of dysentery is prevalent. Hence the necessity for helpful treatment in preparing the bees to withstand the critical periods.

An infected stock is sluggish, does little work and is vicious when disturbed. The disease has an irritating effect upon the workers. In winter a healthy stock is quiescent, whereas infected bees are restless and form no complete winter cluster, so that they gradually diminish in numbers.

During the active working months excessive crawling and bees with their wings dislocated or "split" are less frequently seen.

In this milder type of disease some of the earlier signs are often absent.

SPRING TREATMENT.

THE necessity of getting rid of the infected workers and re-populating the hive is of first importance in treatment. Before disease has an opportunity of getting a very serious footing in the apiary, the constant use of *Izal* is recommended in order to strengthen the bees' resistance.

When brood rearing is encouraged and progresses rapidly, the disease, if present, makes little headway in the stock strong in young bees.

Weak and feeble colonies cannot be treated separately, but should be united together when the weather becomes sufficiently warm. Crowd the bees by a division board on either side of the cluster, giving extra room when it becomes necessary. When syrup can be used with safety, feed slowly until honey can be gathered in the fields.

The stock, as it grows stronger, will become active and carry pollen plentifully. Fewer crawling bees will then be seen.

If symptoms of disease appear, stimulate all stocks with soft medicated candy.

During mild weather spraying can be practised with advantage. Use the *Izal Vaporiser* with a tepid dilute *Izal* solution. Transfer the bees to clean hives, which

have previously been washed out with double strength *Izal* solution.

SPRAYING.

Remove the quilts and spray gently over the frames, taking care that the bees are not driven off the brood. A little smoke given at the entrance will ensure that the bees are well to the top of the combs. When these are exposed, use a fine mist spray and avoid saturating the stock and drowning any of the bees. Spray only on fine days when the brood chamber can be opened without risk of chilling the brood.

The floorboard should be occasionally cleaned to free it of any dead which may accumulate. Combs which may have been removed should be sprayed with *Izal* dilute solution before using them again.

Re-queening is strongly recommended. A young prolific Italian queen given during May or June may often sever the chain of disease and enable the bee-keeper to build up a strong colony for honey production.

Favourable conditions brought about by the fine warm weather have a marked effect upon colonies, and little trouble is usually experienced at this period.

Replace old combs with those newly built whenever possible.

AUTUMN TREATMENT.

ON removal of the supers the brood nest should be examined. Re-queen during August if not previously

done, to ensure ample bees before winter sets in. Stimulate breeding by feeding slowly, and, if stores are short, feed rapidly in September the necessary amount of medicated syrup needed as winter stores. Late swarms should be united together to make strong stocks.

If disease makes its first appearance in the autumn, unite the infected colonies and spray, as advised for spring treatment.

PREVENTIVE MEASURES.

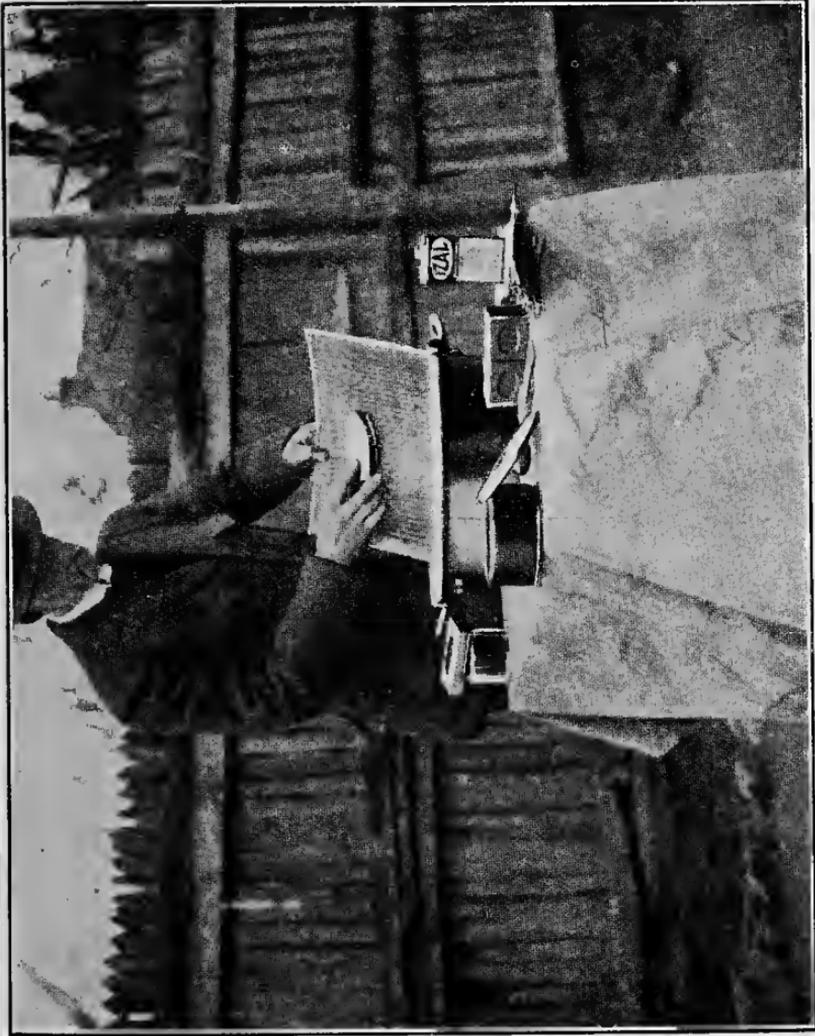
MILD attacks of disease are less difficult to check than when advanced stages have been reached. Precautionary measures are therefore valuable. Keep the hive entrances contracted, and be careful to avoid robbing. Old imperfect combs should be replaced by frames containing full sheets of foundation. Wired-in new clean combs form a strong incentive to brood rearing in the spring.

When manipulating bees, keep the *Izal Vaporiser* at hand and spray slightly before closing the hive.

Make liberal use of *Izal Disinfectant* as directed, and it will be found to ensure a greater immunity from disease in building up successful apiaries.

There is no need for the keeping of bees to be restricted. The methods of controlling the spread of disease now in the hands of all intelligent bee-keepers should render bee-keeping more popular and more profitable as time goes on.

N.B.—For *Izal* dilutions and medications see page 21.



SCRUBBING THE 'QUEEN' EXCLUDER WITH IZAL AND IZAL SOAP

Foul Brood or Bee Pest

FOR nearly twenty years the author of "A Modern Bee Farm" has persistently advocated *Izal* as a simple, harmless, and the only effective remedy in the treatment of foul brood.

While he has been able to prove that the disease can be cured without the aid of medicine, he has at the same time been convinced that the average bee-keeper must have an absolutely effectual weapon at hand which will certainly check infection at the first application. A complete cure must always result where the owner of diseased stocks will carefully carry out the definite and active course of treatment recommended by the above author.

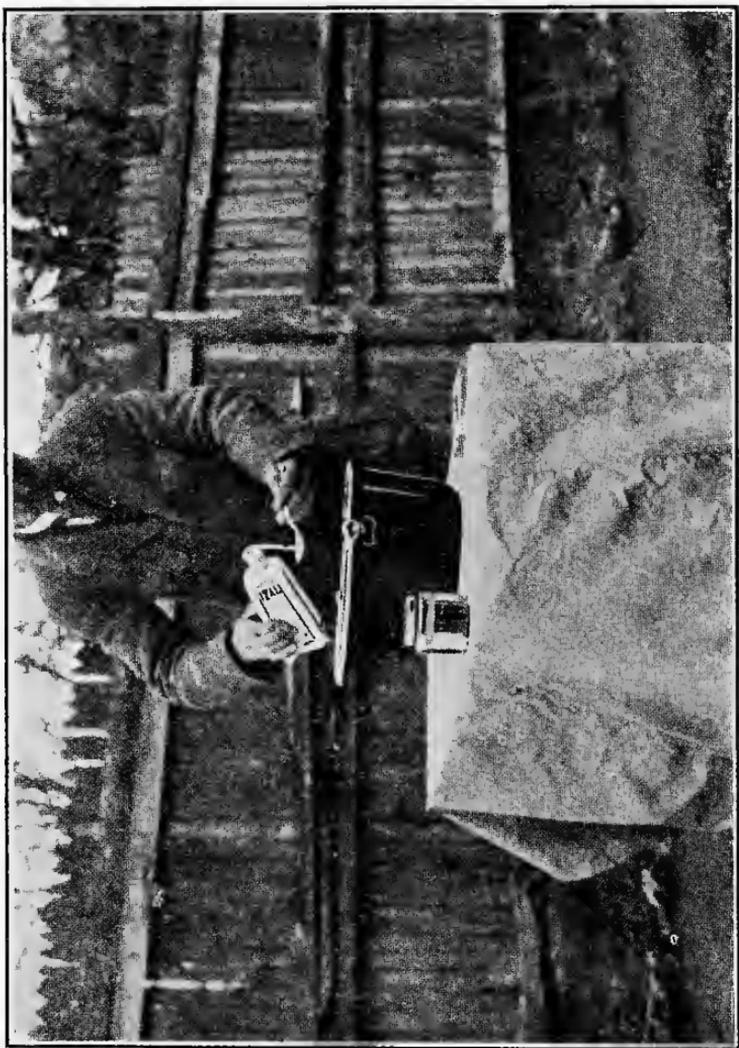
The methods given in "A Modern Bee Farm" are as follows :—

- (1) To begin with, never spray or sprinkle combs having a large proportion of healthy brood with cold disinfectant. Place them near the outside and when all living brood has hatched out, insert one such comb at a time in the centre, after thoroughly spraying both sides.
- (2) In commencing to treat any very weak diseased stock (seeing that this treatment obviates any destruction of combs), first of all give the said

colony a full comb of healthy hatching brood. If this cannot be done, then burn comb, frames and bees at night, first smothering the bees.

- (3) Have a change of hives, and wash out each week (three times will generally suffice) with dilute *Izal* solution. At the same time saturate the whole of the quilting, by dipping it into a pan of the solution, and place on dripping wet. Continue this once a week until satisfied all is well.
- (4) If required to shake bees off their foul combs, they should be sprayed with the solution over-night; bees, combs, and everything. Next day they may be safely started on foundation in a clean hive. Otherwise the disease may be disposed of by spraying combs, brood, and bees with warm solution two or three times weekly.
- (5) If desired to Feed.—Use medicated syrup.
- (6) The Water Supply.—Use one tea-spoonful of *Izal* to ten pints of water.

N.B.—It is useless to place combs in a bath of solution; they must be sprayed with the *Izal* vaporiser, or the base of the cells will not be reached. *Izal* solution has been found the only remedy bees do not object to—they are even attracted by it—and this is half the battle in treatment.



MEDICATING SYRUP.

DIRECTIONS for use of IZAL

THE IZAL SOLUTIONS RECOMMENDED FOR USE THROUGHOUT THIS BROCHURE ARE MADE UP AS FOLLOWS :—

Dilute Solution :—Add 1 teaspoonful of IZAL GERMICIDE to one pint water.

Double Strength Solution :—Add 2 teaspoonsful of IZAL GERMICIDE to one pint water.

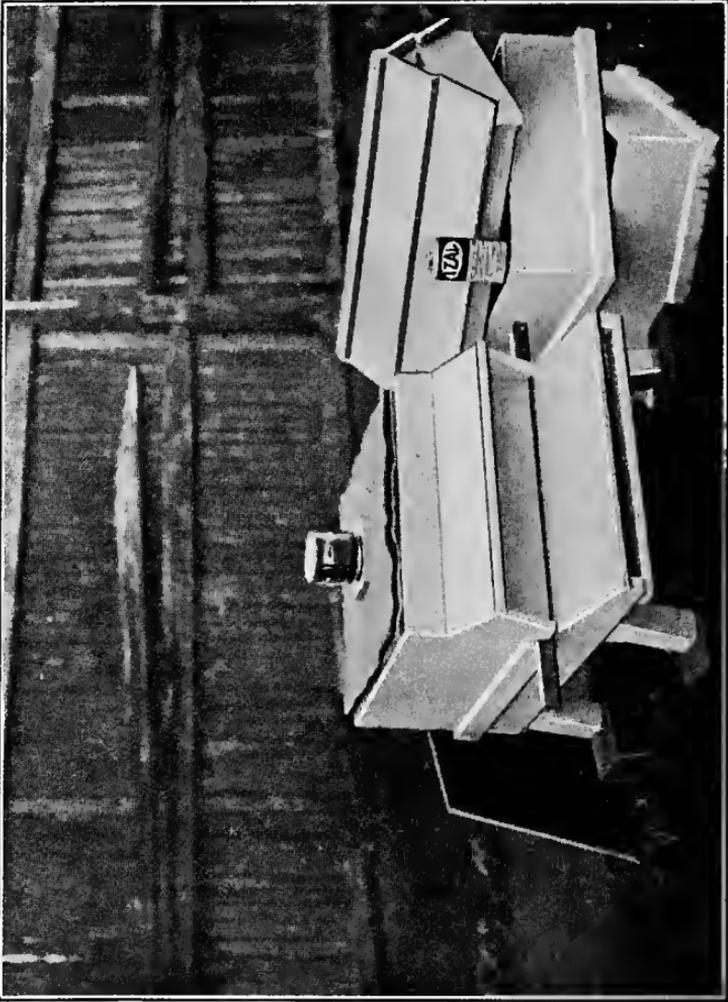
Larger quantities pro rata.

MEDICATED HONEY, SYRUP, CANDY

The following directions for Medicated Food for Bees are recommended in Leaflet No. 349 issued by the Ministry of Agriculture and Fisheries, entitled, "Methods of Obtaining Strong Stocks of Bees for Over-Wintering" :—

To medicate Syrup or Candy, add one teaspoonful IZAL to 8 pints or 10 pounds, as the case may be.

Varying quantities in proportion.



FEEDING WITH MEDICATED SYRUP

The Izal Simplex Vaporiser



Efficient : **Inexpensive**

A single stroke of the pump produces a cloud of IZAL
 _____ in a dew-like spray. _____

The efficiency of the Vaporiser is greatly increased owing to the jets being so arranged that the fluid is not drawn into the plunger chamber.

A HEAVILY ENAMELLED AND REALLY WELL-FINISHED
 RELIABLE SPRAYER.

*Specially recommended for use in the
 APIARY, GARDEN, STABLE, KENNEL, POULTRY
 HOUSE.*

FOR PRICES SEE LIST ENCLOSED.

Hygiene Specialities

— for the —

Beekeeper



Izal Germicide

Bottles, 1/-, 1/6, from all Chemists. Not sent by post.

Tins—1 gallon.

Drums—1 gallon, 5 gallons, 10 gallons.

Izal Simplex Vaporiser

Packed in Case, forwarded carriage paid.

Izal Soap (Household)

1 lb. Doublets.

Izal Disinfectant Powder

In Tins, Bags and Drums.

For use when liquids are unsuitable, and as a Fly repellent.

Prepared by

NEWTON, CHAMBERS & CO. LIMITED,

THORNCLIFFE, near SHEFFIELD,

ENGLAND.

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CHAMBERS & Co.**
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**Household Hygiene
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Brochures containing ex-
pert advice based on many
years' experience on the
above subjects will be
supplied free of charge to
users of Izal.