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## **The Nebraska bee-keeper and irrigator. Vol 7, No 7 July, 1896**

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# The ❖ Nebraska ❖ Bee-Keeper AND IRRIGATOR.

A MONTHLY JOURNAL DEVOTED TO APICULTURE AND IRRIGATION.

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Vol. 7.

YORK, NEBRASKA, JULY, 1896.

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# The \* Nebraska \* Bee-Keeper AND IRRIGATOR.

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## The North American Program.

I was hoping to get the program for the meeting in all the July bee-journals, but have waited so as to get the time set. So far as arranged for, the following can be announced:

The Past and Future of Bee-Keeping—Mrs. J. N. Heater, of Columbus, Nebr.

Bee-Keepers' Exchange—Prof. A. J. Cook, of Claremont, Calif.

The Wild Bees of Nebraska—Prof. Lawrence Bruner, of Lincoln, Nebraska.

Improvements in Bee-Culture—Ernest R. Root, of Medina, Ohio.

Some of the Conditions of Nebraska—L. D. Stilson, of York, Neb.

The Union and Amalgamation—Thomas G. Newman, of San Diego, California.

Economic Value of Bees and their Products—C. P. Dadant, of Hamilton, Ill.

Artificial Heat and Pure Air, Properly Applied in Wintering—R. F. Holtermann, of Brantford, Ont

The Honey-Producer and Supply-Dealer—Rev. Emerson T. Abbott, of St. Joseph, Mo.

An original poem by Hon. Eugene Secor, of Forest City, Iowa.

Importance of Watering in the Apiary—Hon. E. Whitcomb, of Friend, Nebr.

Honey Adulteration and Commission-men—George W. York, of Chicago, Ill.

Sweet Clover as a Honey-Producing Plant—Wm Stolley, of Grand Island, Nebr.

The President, Mr. A. I. Root, will give an address, and it is expected that "Somnambulist" will be present with one of her inimitable papers, but as she must now be asleep, I have not been able to learn the subject of it.

It is the present intention to devote most of the second evening session to an address of Welcome by the Hon. Geo. E. McLean, Chancellor of the Nebraska State University, with a response by Hon. Eu-

gene Secor, of Iowa. The Hon. Alvin Saunders, an old-time bee-keeper and a War Governor of Nebraska, will also address the convention, and if time will allow, other addresses will be made or papers read.

A. B. MASON, Secretary.

## Dealing with Foul Brood--Experience.

By Hon. R. L. Taylor, Superintendent of the Michigan Experiment Apiary.

It is coming to be more and more important, apparently, that a thorough knowledge of the disease called foul brood, and of the steps necessary to exterminate it, should be disseminated among those who keep bees, for it seems to have a foothold in many widely separated portions of the State, and it must always be terribly destructive when it is not dealt with intelligently; so a record of my experience with it during the past year will have its value.

For the purpose of study and experimentation I have aimed, latterly, to keep a colony or two having the disease, but last summer the disease broke out afresh, making the number of diseased colonies uncomfortably large; there being now eleven colonies which underwent treatment, not to speak of others that first or last were united with one or another of these. The cause of this marked reappearance, as I think, was owing to the fact that on account of the dearth of nectar during June and July, the bees encroached on their oldest stores, even to their almost entire consumption, more or less of which had been in their hives for years, and contained, in a quiescent state, the germs of the disease.

These colonies were treated according to the plan described in my report of two years ago, by driving or shaking the bees into a clean hive furnished with foundation. The majority of the colonies were so treated at the beginning of honey gathering from fall flowers, the rest two or three weeks later when the honey flow was nearly over. The decided advantage of treating diseased colonies when there is a considerable flow of nectar was clearly seen by an inspection of these two lots of bees after the treatment. Of the first lot every colony went to work at once contentedly, and with a will, and at the close of the season were fair colonies with natural stores for winter. Of those treated later, all were discontented, and all, or nearly, attempted to swarm out, some of them frequently. The consequence was that all were weak even after some had been united.

The reason that all were not treated at the earlier date was that it was deemed desirable to save some of the brood taken from the first lot by giving it to others; to be cared for, till it should hatch. The event showed that it would have been more profitable to have sacrificed all the

brood, and had the treatment performed at the opening of the honey-flow.

These colonies have been kept distinct from the other colonies of the apiary and carefully watched for evidence for or against the effectiveness of the plan of treatment used. The result, so far, is that all are entirely free of the disease at this writing (May 25, 1896) unless one be excepted, in which were found two cells of dead brood which bore some resemblance to that affected with the disease, and which it is barely possible may yet prove to be an incipient stage of foul brood, but, should this be the case, so much time has elapsed since the treatment it is extremely improbable that it had its source in the case of the disease with which the colony was afflicted before treatment. For a full description of the disease and the above method of cure, I must refer to my report for the year ending May 31, 1894.

Other methods of cure have been, or are still, recommended. The fasting cure, so-called from its requirement that the bees be shut up in a box till the honey carried with them is consumed, and individual bees begin to drop from hunger, I experimented with extensively at one time and found that while it has no advantage in any particular over the method I now recommend, it is subject to several weighty objections.

The method of cure by the administration of drugs, once recommended by high authority, is not practical, even if it really effected a cure, and yet drugs have a place in the management of the disease. To prevent the spread of the infection when opening the hives and handling the combs of colonies having the disease, Benton recommends a solution of  $\frac{1}{8}$  ounce of corrosive sublimate in one gallon of water, to be used to wash thoroughly the hands and all tools used about the hive before opening another hive. If for any reason the treatment of a colony must be delayed, I have found a preparation of  $\frac{1}{4}$  ounce of salicylic acid dissolved in one ounce of alcohol and well mixed in one pint of water, and this added to rather thin syrup or honey for feeding at the rate of one pint to four quarts, and then given freely to the colony, has a surprising effect upon the disease and the bees in thoroughly checking—not curing—the former and increasing the prosperity of the latter. One part of carbolic acid or phenol to about 600 parts of such food, syrup or honey is recommended for the same purpose. It is reasonable to suppose that if this sort of feeding prevents the increase of the disease within the hive, as it certainly does, it would certainly prevent its spread to other colonies—a very desirable thing.

It is of the highest importance that everyone who keeps bees should become thoroughly acquainted with the characteristics of the disease under consideration in so far as that acquaintance may be had from the de-

scription of those who have had experience with it, that he may recognize it at once if it should invade his domain. Prompt efforts on its first appearance would be by far the most effective. Especially should every colony lacking in activity or any other sign of waning prosperity be carefully examined. On the first appearance of the scourge, before the honey containing the spores is scattered through the apiary by robbing or careless handling, it should be stamped out by the most thorough measures. This will be found the cheapest course. Burning utterly every affected colony at this stage, hive, combs and bees, letting no bee escape, will in the end be more profitable than a good crop of honey with traces of the disease retained. In connection the antiseptic food preparation herein before described should be administered freely to every colony and every attention given to the destruction of every particle of the virus. If by ignorance, robbing, or carelessness, many colonies have become affected, then curative measures would probably be preferable, but no less care in mastering directions, and intelligence and energy in applying them, should be exercised than though there was a prospect of the immediate eradication of the disease by more drastic measures.—Review.

Lapeer, Mich.

### Bee-Keepers of Nebraska.

Another month and the doors of the Nebraska State Fair buildings will swing open to the public. The management of the fair this year are doing all in their power to make this the greatest and best of all our state fairs. Their efforts are being seconded by the grand army of workers who in the past have learned so well how to make the fair a success. Articles for exhibit in every department are being prepared with more skill than ever before. Nature, not to be outdone by man, has furnished a greater variety, and of better quality, than scarce ever before, of the products of the soil. The years of drouth are now being made good in a wonderful prodigal manner. Every department of agriculture will be filled to overflowing. Let the bee-keepers of the state not be behind in the good work of making the fair a success. The bee and honey department has one of the best premium lists ever put out by any society. Last year a committee was appointed by the State Bee-Keepers Society to raise the premium list and present to the State Board of Agriculture and ask its adoption. This was done, and adopted as it came from the committee. Last year the society furnished this department with the best building, in which to show our products, of any similar society on the American continent. This year they are putting in more show cases so that all the honey will be shown in glass cases. With the liberality accorded us by the state fair management, there can be no

possible excuse for our not making the best display ever made in the west. There is no finer honey produced on this continent than is gathered from the flowers of this state. Basswood and white clover in the eastern and central, with alfalfa in the western portion of the state, with a sprinkling of sweet clover all through, with the wild flowers as a reserve, at all times, gives us honey this year as never before. We should make an extra effort to get out the best. The premiums are ample to pay expenses, and in putting up this exhibit we make an advertisement for our surplus in the years to come. The past drouthy years almost wiped bee keepers out of existence, but the seasons of 1895-6, have given the industry a boom, and to-day we have recovered at least fifty per cent. of our past losses and what bees we now have have gathered a larger amount of honey than in many years previous.

From the exhibit at the State Fair will be taken samples of honey to make an exhibit at Lincoln a month later.

On October 7th and 8th will be held at Lincoln, Neb., the meeting of the North American Bee-Keepers Association. We must arrange to give our visitors a royal welcome.

There will be present at this meeting, many of the writers on bee topics, and men of prominence in the business. In this manner we have become acquainted with many whom we have never seen—this will be the chance of a life-time to form their acquaintance, or renew old time friendships. Our Nebraska bee keepers should arrange to attend this meeting from start to finish. If eastern bee keepers can afford to spend time and money to come and see us, we should by all means spend the time to visit with them. This will be the first time many of them have ever visited our fair state. Our surroundings and conditions may seem strange to some of them; let us, one and all, be on hand early to meet them and accord to them a genuine western reception. It will pay you, it will pay the state, it will pay every one to help make this meeting the grandest ever held in the history of the society. Let us show our visiting bee keepers that if we have lost our crops and bees, we have not lost our humanity, our pluck and perseverance or our sweet dispositions. We want to take every bee keeper in Nebraska by the hand both at the state fair at Omaha and again at the meeting of the North American at Lincoln a month later.

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As it is now settled as to time and place of meeting of the North American, we see several comments by outside members as to the way we expect to treat them while here. Our eastern friends need not worry at all, Lincoln is abundantly able and ready to carry out their promises, and the bee-keepers of Nebraska do not propose to see them im-



posed upon and for their protection will say that no person will be permitted to stand at the free lunch counter until after they pay their dues to the North American and attendance at the meeting which will, I trust, either make the attendance and membership larger than ever before, or small bills for the Lincoln people.

The Neb. State Bee-Keepers' Association will hold their Annual meeting at the Bee and Honey hall on the State Fair grounds at Omaha, on Tuesday and Wednesday evenings Sept. 1st. and 2nd. 1896.

An interesting program has been prepared, and consists in part of papers and addresses by practical bee keepers and will be instructive to all interested in the work.

Among the names of those to participate in the work we find, Whitcomb, Kretchmer, Mrs. Heater, Mrs. Hallenback, Whitford, Stolley, Tyrrel, Lewis, Heath, Butterfield, Harris, Barret, Allspaugh, and Saltzbaugh, with forty more to fill up the time and ask questions and we think that unless the theories and practices of the leaders in the discussions are solid and well founded they are liable to be severely handled.

Held in connection with the honey display it is the best apiary school we ever knew as all work can be demonstrated by the appliances at hand. No one interested in bee culture should fail to attend this meeting.

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Wm. S. Barclay, writing in the American Bee Journal, says:—On May 28, 1895, I hived a very large natural swarm of bees, giving it the stand of the parent colony. On June 27 (just one day less than a month after hiving it) it became so populous that from fear of losing one of my best queens if I permitted the swarm to fly, I took from it a large artificial swarm with the old queen. The product of this swarm may be recorded as follows: A good artificial swarm, 20 pounds of comb honey, 47 pounds and 11 ounces of extracted honey, 2 combs of sealed brood, and 3 sealed queen-cells, besides 3 or 4 combs of young bees shaken into two weak colonies to strengthen them; this for one living in a location which is not a good one for honey-production, is, I think, a pretty good one; but in fairness I must admit that last season produced a greater honey-yield than usual.

Beaver, Pa.

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From present indications things point toward a heavy fall flow of honey, and from reports so far the increase in the number of colonies has been exceptionally good.

## IRRIGATION.

"A boat, a boat, to cross this ferry."

Officers of the State Irrigation Association:—President, A. G. Wolfenbarger, Lincoln; Vice President, H. E. Babcock, Ord; Treasurer, Joseph Oberfelter, Sidney; Secretary, James L. McIntosh, Sidney; State Lecturer, I. A. Fort, North Platte. Next meeting will be held at Lexington, Neb.

### Irrigation for the Garden and Greenhouse.

By L. R. TAFT, Professor of Horticulture, Michigan Agricultural College.

The success of irrigation in the so-called arid regions of the West, where the rainfall is often less than 10 inches, has led farmers and gardeners of the Eastern and Central States to consider the advisability of securing water artificially to aid in carrying their crops through periods of drought. While much can be learned from Western irrigators, the conditions are so different at the East that the processes have been greatly modified.

If water can be supplied artificially at a reasonable expense, a season of drought is not without its advantages. 1. There will be no lost time from rainy days; 2. with a proper supply of water in the soil, a better growth can be secured in warm, sunny weather than when it is cloudy or rainy, and not only will the size, numbers, and appearance of the fruits be increased, but the quality will be improved; and 3. there will also be less injury by insects and fungi.

Some crops evaporate from the leaves an amount of water equal to two or three hundred times the weight of the dry matter which they contain. It is estimated that the corn crop gives off water to the extent of thirty-six times its green weight; or 540 tons from the crop on 15 acres, which is sufficient to cover an acre of land to the depth of more than 5 inches. There is also considerable loss from the soil by evaporation. This varies with the nature and condition of the soil, the amount of water present, and the character of the season, but experiments indicate that 1 inch per week during the summer season would be a fair average. To this must be added at least 5 inches in an annual rainfall of 35 inches to compensate for the loss by drainage and percolation. It must also be remembered that a large part of the rainfall comes in winter, when the ground is frozen, and there is a large loss at that time, to say nothing of what runs off at other seasons. In a general way it may be said that, under average conditions, full crops of vegetables and fruits can not be secured with a rainfall of less than 35 inches, one-half of which should be evenly distributed over the six months from March to August.

In some localities water can be obtained from town or city water-works, and, unless a very large quantity is required, it will often be

cheaper than to put in an independent pumping plant. Artesian wells or never failing springs afford a cheap source of water, especially if the water can be carried to the land by gravity. Lakes or streams from which the water may be conducted upon the land can occasionally be found, and, if sufficiently near, will form an extremely cheap source for water supply. As a rule, however, even if the water is available, it is below the land and some method of raising it must be employed, so that the cost of pumping machinery will need to be considered. Driven wells can generally be relied upon in the absence of any of the above sources of water supply. They are in successful use for this purpose in many places, the water in some cases being obtained within a few feet of the surface and in others at a depth of 100 feet. Where the wells need not be more than 60 feet deep, and where the water stands within 40 or 50 feet of the surface, the cost of raising it will not be excessive. If one well does not supply the desired amount, several may be driven and attached to the cylinder of one pump.

Of the lifting pumps there is a great variety, but some of the forms with large cylinders, commonly called irrigation pumps, should be used. They answer well where but a comparatively small amount of water is required and where it has to be drawn from a considerable depth. For very large pumping plants some of the direct-acting steam pumps have been used and they supply the water at a low cost.

For properly irrigating tracts of much size, a large amount of water should be available, in order that it may be turned upon the land in considerable quantities; and unless the pumping apparatus will supply a steady stream of 100 to 200 gallons per minute; a reservoir or tank is desirable, except in small gardens. While iron or wooden tanks will be best for small amounts of water, basins can be made for large areas by throwing up embankments of soil, and rendering them water-tight by means of cement, tar, or clay. In most parts of the country care is necessary to keep the cement and tar from cracking in winter; clay will answer nearly if not quite as well. The reservoir should be located upon the highest point of ground near the land to be irrigated. The bottom of the reservoir should be as little as possible below the surface, in order that a fall may be secured, and the walls should not be more than 5 or 6 feet high, with a slope of about 20 degrees. The top of the embankment should be from 2 to 4 feet wide, according to the size of the reservoir. If the soil is not of rather stiff clay, it should be covered to the depth of 3 or 4 inches with clay, and after this has been worked until it is fine, water should be admitted sufficient to form a thick mortar, when it should be thoroughly puddled over the bottom and sides. The water should be drawn out from the reservoir through an iron pipe laid

at the bottom of the embankment, this to be provided with a valve by which the flow of the water can be regulated; and to prevent the water of the reservoir from soaking out along the sides of the pipe, it should be laid in grout where it passes through the embankment into the reservoir. Unless the reservoir is filled with water during the winter it will require puddling every spring.

Having the water upon the land, it can be applied in various ways. Flooding, or allowing the water to spread over the surface to the depth of from 2 to 10 inches, was formerly extensively used, but it is now employed only for grain and similar crops. The most common method for vegetables and fruits is to make furrows and run the water along in them, so that it can soak into the soil. If properly arranged, the water can not spread upon the surface, and, by turning back the furrows as soon as the water has soaked in and cultivating the soil, the moisture can be prevented from evaporating. For large areas, a shovel plow is the best tool for making the furrows, although if the soil is loose a man with a hand plow can do as good work, while a hoe or shovel will answer in small gardens.

The artificial application of water to vegetables will be found profitable, not alone because of its use in times of severe drought, but because vegetables have so large a money value that the proper use of water will mark the difference between complete success and entire failure, and will well repay the cost of applying it.

For crops grown in rows more than 2 feet apart, the water can be run in furrows made a few inches from each row while the plants are small, and halfway between them when they have filled the ground with their roots. For narrower rows, down to 16 inches, it will answer if furrows are made in every second row, while for crops grown in very close drills irrigation may be provided for by leaving a slightly wider space every fourth row in which to run the water. When the crops are sown broadcast, the water may be applied by making furrows from 4 to 10 or even more feet apart, and it will be of far more value than when spread upon the surface. This is a far better way than the old plan of throwing the land up into beds about 12 feet wide, with a ditch along the center from which the water could both soak into the soil and run over the edges upon the surface.

Upon muck land a fairly even distribution can be obtained when the furrows are several rods apart, but more water will be required and it may take several days for it to soak through the soil.

If the ground is so dry in the spring that the seed are not likely to germinate evenly, it will be a good plan to plow furrows every 4 feet and then turn on the water so as to thoroughly wet down the land. This

should secure a good stand, and it will seldom be desirable to use water again until the plants have several true leaves.

Before transplanting it is quite important to have the soil moist, and if water is run on the previous day in furrows where the rows are to stand, the soil will be in good condition. For plants like tomatoes, which are set at wide intervals, holes may be made with a spade, in which the plants are placed and the soil packed about the roots. The holes should then be filled with water and the planting completed as soon as the water has soaked in.

The condition of the plants is the best indication of the necessity for applying water. If in a time of drought the leaves wilt or curl, or take on an unnatural, dark color, water can generally be used to advantage. Although one or more waterings are occasionally necessary while the plants are small, potatoes, tomatoes, peas, and similar crops are more likely to suffer from lack of water after the fruits and tubers form, and it should then be used in liberal quantities. For all such crops it is seldom desirable to irrigate while the plants are in blossom, as it tends to start a new growth and prevent setting. After the crop has set, particularly in case of the potato, no check to the growth should be allowed from lack of water, as when it is applied, a new growth will start, a second crop will set, and the result will be a large number of small potatoes.

For orchards as well as for other crops it is better to use a number of small streams rather than one or two strong ones, as there will be less washing of the soil, and a more even distribution of the water can be secured. A flume or head ditch will aid very much in securing this.

In locating the rows such an arrangement should be made as will secure a proper slope for the furrows, which should be from 1 to 6 inches in 100 feet. While the trees are small a furrow upon either side of each row will answer, but as the roots spread, additional furrows 3 or 4 feet apart should be made, until finally the entire space is irrigated. Too much water and too frequent applications are more likely to be harmful than too little water, and ordinarily there will be no necessity for watering until the fruit is half grown, and from one to three applications, the last one not later than the middle of August, in order to allow the growth to ripen, will usually suffice. The use of water during a week or two before and continuing until two weeks after blossoming is not desirable.

Great injury is often done by the drying out of the trees in winter, and if the autumn is very dry it will be well to irrigate the trees just before the ground freezes.

# The Nebraska Bee Keeper

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L. D. STILSON, EDITOR.  
YORK, NEBRASKA.

Official Organ of the Nebraska State  
Bee-Keepers Association.

Entered at the postoffice as second class matter.

Officers of the North American Bee-Keepers' Association 1896:—President, A. I. Root, Medina, Ohio; Vice Pres., Wm. McEvoy, Woodburn, Ont.; Secretary, Dr. A. B. Mason, Auburndale, O.; Treasurer, W. Z. Hutchinson, Flint, Mich. The next meeting will be held at Lincoln, Neb.

Officers of the Neb. State Bee Keepers Association:—Pres., E. Whitcomb; Vice Pres., H. E. Heath, Lincoln; Sec. and Treas., L. D. Stilson, York.

The Nebraska Fruit Growers have just closed the best attended meeting of the State Horticultural Society in the history of its existence. The speakers were all enthusiasm having full houses every session, from start to finish. A very fine display of fruit was brought out, and the talks were all practical by practical men. Many of the home people were much surprised at the magnitude and multitude and magnificence of the display at the meeting as well as the industry in the state.

There were visitors present from ten states and all were unanimous in their expressions of praise and admiration. It was a meeting

which will not soon be forgotten in York and will start a new impetus in the raising of fruit here.

The crops are good but nearly all threshed and marketed before the meeting of the North American at Lincoln, which will be too early for corn husking so there can be no excuse on that time for not attending. Make your arrangements now to spend two full days at that meeting. It will pay you well for your time invested.

Hon. R. W. Furnas, Sec. of the State Board of Agriculture, is doing all in his power to further the interests of the state fair. He is undoubtedly the best state fair Sec. in—America and if the state fair is not a success, don't blame him, but those fellows who always say, "they have better products than those at home."

Fifty years of uninterrupted publication, and a wide circulation among the American people, have rendered the *Scientific American*, New York, a household term. The editors have issued a handsome Anniversary Number, which reviews the progress of the arts and sciences during the past half century, and is enriched with copious illustrations, showing the development of the Steamship, the Railroad, the Telegraph and the Telephone, Printing, the Bicycle and the Reaper; and it includes portraits and sketches of celebrated inventors and men of science, and the full text of the prize essay on the Progress of Invention. Price, 10 cents per copy.

The state fair managers are fitting up the honey hall better than last year and the bee-keeper's should show their appreciation by getting up the best exhibit of honey and apiary fixtures ever seen west of the Atlantic Ocean. It can be done if we only will. We have the goods in reach. We have the men and women to do it. Can we have a combination of these elements of success? Will we do it?

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Ripans Tabules cure dyspepsia.  
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## Sweet Clover Seed.

WE have just received a supply of Sweet Clover seed and will sell at 30cts per pound, by mail, postpaid; 5 lbs. for \$1.00 to be sent by express, purchaser to pay expressage. Send CASH with order.

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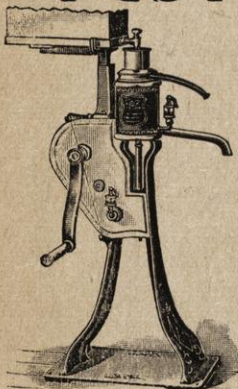
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## TEST OF SEPARATORS



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Hubbardton, Vt., May 20, 1896.

C. A. ST. JOHN.

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