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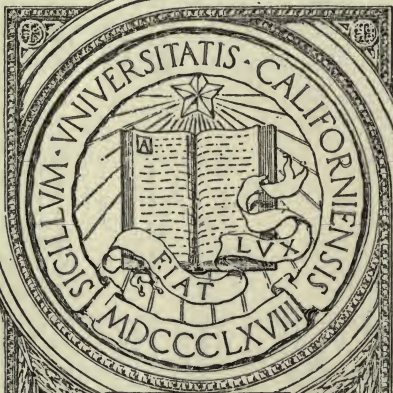
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The Sies Dahlia Manual



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H. E. SIES
POINT LOMA, CALIFORNIA*



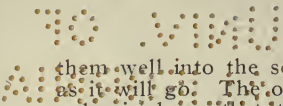
DAHLIAS

No flower has made such rapid progress and come into universal favor to as great an extent as the dahlia has during the past few years.

It is not my intention to go into its history or to treat on the different types, but in as clear a manner as possible, to give in detail, for the benefit of the beginner, the HOW to handle his or her dahlias from the planting season to the next. They require intelligent care and attention, if the best results are to be obtained.

Preparing the Soil and Fertilizing

Dahlias will grow in soil that is almost sand to clay or adobe, providing there is a sufficient amount of humus or plant life in the soil for the plants to feed upon. Heavy soils can be greatly improved by adding either sand or lime, or both, and working



them well into the soil with a spading fork as deep as it will go. The object is to get the ground well pulverized, so that the thousands of little fibrous roots can work through, getting the plant food necessary for the plants growth and development.

Where the soil is good no fertilizer should be used until the plants are beginning to make good growth.

By not having the soil too rich or fertilized, keeps them from growing all to stalk and foliage. Many visitors to my gardens marvel at how I keep my dahlias from growing so tall.

There is no special kind of fertilizer that is required to get the best results. Fresh chicken manure worked into the soil, not thrown up against the base of the plants, but scattered evenly over the ground for at least eighteen inches in the soil surrounding the plant and worked in. How often have I seen inexperienced persons pile fertilizer on the very tops of small plants, thinking they had fertilized them. It does them just as much good as a good dinner would me, just to have the privilege of looking at it. Plant life gets only that part which is soluble and is carried down into the ground to the roots by either the rains or irrigation. Fresh barnyard or stable manure spread on the ground to the depth of a couple of inches, allowing the rains or overhead sprinkling to leach it, carrying the liquid into the ground after which it can be worked into the soil, care being used not to have the manure come into contact with the tubers as it is liable to cause them to have scab. The liquid from fresh chicken, sheep or goat manure is extra good, but must be well diluted with water. To prepare the

liquid manure, get some recepticle suited for the purpose, fill it $\frac{1}{4}$ full of manure. The other $\frac{3}{4}$ with water; letting it stand for one or two days, before using. Stir it well before using, adding three parts water to one of the liquid. It is advisable to make it up fresh each time as it will lose much of its strength if allowed to stand a few days. There can also be added to each gallon of the prepared liquid at the time of using one tablespoonful of household ammonia. This can be given once a week during the blooming season, one quart to each plant being sufficient. Do not give the liquid manure when the ground is dry but a few hours after a rain or watering.

Bone meal is very good, if the soil is poor, put in two or three handfuls, to each plant, thoroughly stirring it into the soil before planting.

Blood meal is extra good to put color into the bloom and foliage; a small handful stirred into the soil every two or three weeks during the blooming season should be sufficient.

Chemical fertilizers as a rule are to be avoided. There is no doubt but that the use of Nitrate of Soda will weaken the vitality of the tubers, frequently causing them to decay.

Owing to the diversified conditions of the various soils, it is impossible to give any specified amount of fertilizer to be used or how often, only close observation and experience will solve this problem, choosing such fertilizers as are obtainable at the least expense, and will produce the most favorable results.

Here is the method of fertilizing by one of New

Englands most enthusiastic and successful amateurs. He says his land is rich and nothing is used at the time of planting, but when the plants are about one foot high, he gives each plant two or three handfuls of chicken manure from the brooder. In about two weeks after this he works in two or three handfuls of soot from the chimney, which is for color. Then when they commence to bloom, he thoroughly mixes up four parts bone meal and one part potash, to each plant he gives three good handfuls and works it into the ground. He says that if he could get wood ashes, that and the chicken manure would be all that he would use. He has been highly successful in producing exhibition blooms.

Do not destroy your rubbish such as weeds, vegetable tops, leaves, lawn cuttings, even corn stalks and the tops of your dahlias. Break or cut them into short lengths and spade them in between the dahlia rows. This helps to conserve the moisture and enriches the ground. Then the following season, plant the dahlias in the ground that was the space between them this season.

Dahlias should be planted three feet apart in the row with a space of four feet between the rows.

Planting

Plant the tubers almost in a horizontal position, not vertical or straight up and down as nearly all inexperienced persons do. The end that has the eye or bud on (see illustration on page 6) should be a little higher in the ground. I plant my tubers with a drop of 20% from the eye to the base end. This

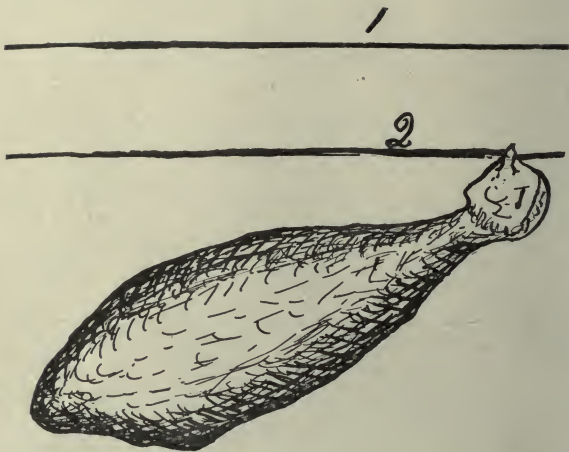
for the most part is the natural position in which they grow, and lessens the liability of digging into them when cultivating the ground if you should happen to get too close. The depth of the soil over the tuber when planted should be four inches from the bud to the top of the ground.

See that the soil is worked well around the tuber and pressed down with the hands.

Strong stakes should be driven in the holes before planting in such a way that the bud will be close to the stake. Do so in a uniform manner so that if any of the tubers should fail to come up you will know where to dig down and ascertain the cause without running any risk of injuring the tuber, that is almost sure to occur if you have to dig around in a haphazard way to locate it.

Here, I am able to procure fence pickets the shape of lath but much stronger. I use three foot lengths for low growing varieties and four foot ones for tall growing varieties. Dahlias do not require tall stakes, only something to keep them from falling over or breaking off at the base, when the ground has become soft from moisture or there are high winds.

I sharpen one end of the stake and dip that portion going into the ground in Creosote which preserves the stake and acts as a preventative against fungus growth which may appear and spread to the plants, doing them much injury. If the prevailing winds are from the west, drive your stakes so they will be on the East side of the plant, frequently they become untied or the string fails to hold, and would blow over but the stakes being on the opposite side hold them up.



The above illustration shows the correct position of the tuber in the ground after it has been planted.

Line No. 1 represents the surface of the soil and the space between line No. 1 and No. 2 represents the depth of the soil, which should be four inches from where the bud of the tuber shows in line No. 2.

Any strong twine can be used to tie them to the stakes. Strips of new muslin an inch wide are good to use, as they are strong and being soft, do not cut into the plant.

The ground should be full of moisture when the planting is done, which should be sufficient until the dahlias are growing nicely.

In sections where they have the winter freezes, planting is done as soon as the soil has warmed up in the Spring-time, which is usually in May. In frostless sections, planting can be done from February to July, the extreme early planting being conditional upon the soil being of a sandy nature with good drainage. But heavy soil with poor drainage, will rot the tubers if there are heavy rains.

Where the planting is done in a dry climate after the rains are over, the air contains but little moisture and the ground quickly dries out. When this condition prevails, there is little or no danger of their decaying from too much moisture, in fact the ground has to be kept quite moist or they will stand still and make no growth at all. It is not unusual to have a dahlia make a few inches growth and stop. This is either due to the tuber being in a state of decay or not receiving sufficient moisture to cause it to put out any root growth. If the tuber is decaying and is not too far gone, cut off the decayed portion, keep the tuber out of the ground a day or so to let the cut end dry off a little and sear over, which will lessen the liability of its continuing to decay.

If the tuber is sound, cut off what growth it has made to within $\frac{1}{2}$ inch of the tuber, soak in

water for two days, then replant and keep the ground very moist.

This treatment has not failed me in a single instance.

One of my patrons had one make a growth of about eight inches, then stop. At the end of six weeks from the time of planting, he took it up and returned it to me. I treated it in the manner described and it made one of the finest plants I had that season and produced four fine tubers beside. I had several last season that failed to start any growth at all, not even the buds. But everyone of them responded with the water treatment.

Many tubers are dried out but do not show it on account of being so fibrous, that they shrivel very little if any at all.

During the growing season, to the time they commence to bloom, the soil must be kept stirred up or cultivated to a depth of at least four inches but not so deep close up to the plant or you will ruin the tuber.

You can be faithful in the use of water and fertilizer, but unless the top soil is kept loose, your dahlias will be but little short of failures. As soon after each rain or watering that the soil will work up in a mealy condition, not sticky, stir it up. After they commence to bloom do not cultivate more than two inches deep as the ground is packed full of little fibrous roots that are gathering up the moisture and plant food to produce the bloom and keep the plant growing.

These are the little workers that must be kept

supplied or other wise, the plant can not keep growing and blooming. When the blooms begin to get small, it is due to the fact that they are not getting enough water or fertilizer, or both are lacking. There are those who discontinue cultivating when the blooming season starts, mulching with coarse manure or something of that nature. Do not let the mulching come in contact with the base of the plants as the moisture is liable to bring on an attack of root Aphis, causing the plants to frequently rot off.

In a warm, dry climate, extra precautions are needed to see that the dahlias do not suffer for the want of sufficient moisture, both overhead and in the ground.

Where the soil is sandy and loamy, does not pack down and dry out hard, overhead watering will do, this has reference to those sprinklers that revolve, throwing the water in large circles like a gentle rain. It requires several hours for the ground to become thoroughly saturated. The water will not harm the bloom with the exception of some of the white varieties. If the ground is hard, some irrigating may have to be done in addition.

If the plants are in rows dig a small furrow on each side of the plants, about twelve inches from them and let the water run slowly in the furrows until the ground is well soaked. As a rule the ground on the second day after watering is in good condition for cultivating. The soil that I have packs down and I am writing this from personal experience. Last season I tried out one of those crescent lawn sprinklers; they are about ten inches in diameter and screw on to the end of the hose, laying

flat on the ground. It suits me better than any other way that I know about, only that it throws the water a little too fast for the ground to take up readily.

It occurred to me to have some of the small holes in the sprinkler stopped up, shall try it this season, feeling sure that the defect will be eliminated.

Overhead sprinkling in a warm dry climate is a positive necessity to overcome and eliminate dry weather pests, such as Aphis, Thrips and Red Spider, that if left unchecked will ruin the plants. I use a sprinkler on the end of my hose that is of copper or brass about four inches in diameter, the shape is similar to those on watering cans, and as soon as the plants get to growing nicely, they get a nice little sprinkling every other day in the evening. Just enough to thoroughly wet the plants and moisten the surface of the ground a little. This is in addition to the regular waterings.

As to how often to give regular waterings, the nature of your soil, climatic conditions and the size of the plants will govern, for the larger the plant the more moisture it draws from the ground. It may be necessary to water every five days, it may be two weeks or more. Whenever you see the petals of the bloom wilting or the soft stems with buds on drooping or hanging down, water is wanted right away. On hot sultry days the foliage may wilt a little, which does not signify they are in need of moisture.

In procuring dahlias from another section of the country, I try as much as possible to get two of each variety, as one of them may for some reason

not do well while the other one will come to perfection. It is no uncommon occurrence for dahlias going from one part of the country to another to make a very poor showing the first season, but make good the second.

Never discard a new variety until you try it out the second time. It frequently occurs that a good old stand by that has been a success for several continuous seasons, will be a failure this season and come back alright next season.

As the season advances and the days begin to shorten and the nights are getting cool, avoid watering or wetting the foliage after the noon hour, keeping them well trimmed out so the air can circulate freely through them, as they are liable to mildew. If mildew makes its appearance, which shows on the foliage at first in little white spots and will quickly cover the entire surface, destroying the foliage if not checked, dust the plants with Sulphur in the morning while they are wet with dew, which will cause the sulphur to adhere to the foliage. In dusting it on, I use a flour sieve. A low grade of Sulphur can be procured of almost any dealer in commercial fertilizer and is inexpensive.

Insect Pests and Diseases.

Dahlias have their insect enemies, the same as other plants, but fortunately are almost free from disease.

Insects that infect the soil can be done away with in the spring time before planting. After the soil

has been prepared, is loamy and moist take a crow bar or sharpened stake and drive into the ground to the depth of twelve inches, withdraw the stake without letting the dirt fall back into the hole and pour a tablespoonful of Carbon Bi-Sulphide into the hole and immediately close it up, continue in this manner until the entire ground to be planted has been gone over, spacing the holes twenty inches apart, this forms a gas that destroys all insect and plant life. Do not get closer to plants or shrubs than 2 or 2½ feet. The gases will evaporate in a few hours and seems in addition to destroying the insects to have benefited the soil. Then go ahead with your planting. When early planting is done and the dahlias have a good growth before the warm, dry weather comes, it is seldom that the Aphis, Thrips or Red Spider have much of a chance at them, but the little overhead sprinklings of evenings should be done just the same during the hot, dry weather. Aphis, Thrips and Red Spider the last two named are classed as mites. Thrips have long white bodies. The Red Spiders look like little red specks and can be seen in motion as a rule on the under side of the leaves. Plants only a few inches out of the ground will become infested with them, working down into the crowns of the plants just as fast as the little leaves loosen up the least bit. The foliage comes out stunted and all wrinkled. White and light colored dahlias being more subject to their attacks.

To eradicate them, take the garden hose with the sprinkler on, with the top of the plant in one hand, let the water play in the center of the plant with as much force as can be done without bruising or injuring the plant, let the hose play on the underside of the leaves, let the washing be complete. Do this

every evening for several days and it will rid them of the pests.

Cut worms and other insect pests often attack the plant as soon as it makes its appearance. I have found nothing better than dusting slacked lime on the plant. Nothing touches them and it is harmless to the plants. This can be applied to other plants as well as dahlias.

Where overhead sprinkling is done, it is best to apply Arsenate of Lead for the extermination of all leaf eating insects, and can be procured at any seed store with full directions as to its use. It adheres to the foliage even though it rains.

Ants are among our worst pests in this locality, or section. They not only destroy the foliage but eat holes into the base of the plants and work down into the ground.

I have tried out a great many remedies but the one that has proven the most effective with me, is to get some beef, boil until well done, run it through a meat grinder, making it very fine. Scatter some of it around where the ants are, if possible locate the ant hills and place some there. This acts as a decoy and by the next day it is all cleaned up and they are thoroughly excited for more. This time add a little Paris Green and distribute as before. It is only a few hours until there is not an ant to be seen.

In this section, another pest that usually shows up about June is the Rose Beetle. They are brown in color, have no wings, are about $\frac{1}{2}$ inch in length, with a raised or oval back. Their presence is recog-

nized by the leaves or plants being eaten out in little round circles. They secrete themselves as a rule during the day on the under side or at the base of the leaves.

Dust the foliage lightly with equal parts of lime and Paris Green, this will make a clean sweep of them.

For Aphis on plants, a nicotine solution known as Black Leaf 40 is extra good, also procured at the seed stores. In certain sections, the Gophers are to be contended with. I have the best success with the traps, observe where they are working, dig back into the main passageway, set the traps opposite of each other in the main run, this insures getting them either coming or going. Stuff sacking or some similar material into the entrance to darken it and its only a couple of hours until I have the intruder. These traps are procured at the seed stores, where full information in regard to them will be given.

Dahlias like potatoes are subject to scab. A good preventative is to use one fluid ounce of Formaldehyde to each two gallons of water, immerse the tubers for two hours, then after drying off a little, plant them.

Getting Large Blooms

This is done by removing all the side buds from the stem, leaving the center one, and if it is a variety that grows short stems and many of them, then remove a portion of the stems.

Varieties that are large producers of bloom and

have short stalks and stems, I remove one-half of the side shoots from the main stalks doing it as the plant is growing. They appear in pairs on each side of the stalks. I break one off just as soon as it is far enough out for me to get hold of it, and so on up the plant as they appear, working around the plant in a circle, which keeps the plant from being one sided. I do not allow more than two stalks to a plant to grow. Keep the old and faded bloom cut off.

The fewer buds to a plant the larger the blooms and vice versa.

Large blooms are the poorest keepers as a rule after being cut. The smaller the blooms, the better they keep.

The best time to cut the blooms is in the cool of the morning or evening. It is best to remove all the foliage, then put the tip ends of the stems (not over an inch) in boiling water for about a minute. A shallow dish is best as the steam from the water is not so liable to come up through the blooms and spoil them, then into a deep vase filled with cold water, the nearer the water comes up to the bloom the better. Shallow vases will not do. If the weather is hot and sultry, they will last about two days. If cool they will last for several days. If blooms are gathered within a day after the plants have been watered, they will last but a few hours, if at all.

Proper Care of Dahlias After the Blooming Season

With the exception of cutting up the clumps in the spring time for replanting, here is where the uninformed have their greatest losses and failures.

In sections where the frost kills the tops, they should be cut off about ten inches from the ground, and taken up, which should be done with great care in order not to break the necks of the tubers from the main stalks. At the time they are dug up the ground should be very moist but not sticky. A spading fork is best to use in raising them. Push the fork into the ground as far as it will go, not less than twelve or fourteen inches from the plant, then gently pry up a little ways, this will loosen or sever the roots from the tubers that may run off into the ground for quite a ways.

Work clear around the plant in this manner. Then get your fork deep down under the clump. By the way remove all the dirt you can from the top of the clump, for the weight of this dirt frequently breaks the tubers loose from those varieties, which are usually the Cactus and Hybrid Cactus types, the necks being long and slender. Take hold of the stump with one hand to steady it and push down on the handle of the fork with the other hand, raising the clump out of the ground.

If all the dirt should fall away from the tubers carefully place the clump on the ground. It frequently occurs that to let the clump sit flat on the ground will cause the neck of some of the tubers

to break. By placing something on the under side for it to rest upon prevents them from breaking.

Under no circumstances shake the dirt out. It is better that it should adhere to the tubers if it will; it helps to keep the tubers from drying out during the winter and acts as a brace to them in the handling. Let them dry off for a day or so, then store away in the basement for the winter with a covering of dry dirt.

In sections that are frostless and have no freezing weather, the treatment is altogether different. Let the tops die down as much as possible if you can before taking them up. Cut them back to within ten inches of the ground. As the stalks are hollow, this leaves an opening into which the water from the winter rains can readily run down to the base of the inside of the stalk, and unless it can very readily seep out will rot the base of the stalk where the buds are located, causing much damage and often times the loss of the entire clump. Tie a thick piece of paper or anything that will turn the water, over these openings.

Take them up in the manner already described, leaving all the dirt on that will adhere to them, select a shady place under a tree, shrub or anywhere out of the way, just so it is cool and shady. Carefully place them in such a manner that you can work fine dirt in and all around them, no farther up around the stalks than to cover the tubers nicely. The winter rains will not do any harm but will be a benefit. It is highly important that there be no vacant places left in and around the clumps as it makes a harboring place for injurious insects and may cause fungus growth to appear on the tubers

that is highly injurious. Where the soil is sandy and has good drainage, it is not necessary to take them up until spring for replanting, but where the soil is heavy and has poor drainage, it is imperative that they be taken up or the winter rains will cause them to decay. If those that are left in the ground should start to grow during the winter months, then it will be necessary to take them up.

Dividing the Tubers for Replanting

I would first call attention to the illustration of the dahlia tubers on page 19. One has what looks like a knot on the end of it with a small projection on it. This is the part that was cut from the base of the old stalk and the little projection is the bud pushing out. The other tuber has no such knob on the end, but was broken loose from the clump, and having no eyes or buds in the tuber makes it worthless. It will start a few roots but no other growth. If it had a piece of the base of the stalk to it and should happen to get the neck broken, so that the sap can not flow from the tuber to the bud, it will not grow.

Before dividing your dahlia clumps, it is best to wait until the buds begin to push out so that you can see where to cut through. There may be two tubers that have grown close together and the bud shows up between them. In that case cut out the two tubers together, leaving them attached. It is not necessary to divide down to only one tuber. Two tubers attached, with one or two good buds makes no difference. When ready to make the divisions for those clumps that retained the soil take



a hammer, and holding the clump firmly in one hand hold it so that it just clears the ground the least bit. But if the tubers are long and slender, do not raise clear off the ground, as their own weight is the cause of many of them breaking their necks.

Tap the base of the stalk with the hammer far enough above the buds not to bruise or injure them. It will be surprising to see the dirt let loose and tumble out from among the tubers, doing no harm if the tapping is not done too hard. Wash all the clumps off nice and clean with the garden hose, care being taken not to let the water play with too much force, as it would knock off the buds or the skin from the tubers.

After they have dried off nicely, proceed as follows. Have a bench, old table, anything on which one can work. For those clumps that can not be allowed to sit down flat, I have a small block about four inches square and two inches thick. Then place a piece of old sacking of three or four ply over the block, this prevents the block from bruising or skinning the tubers. Place the clump on the block and proceed to divide it.

There is nothing better than a key hole saw, where a saw is necessary, when the stalk is too hard and fibrous for a knife to cut in. The blade is very narrow, which enables one to get in between the tubers. This saw can be procured at almost any hardware store. It is necessary to have it refiled into a cut off saw. Saw off the old stalk as close as you can to the tubers, not below any buds. If the wood is too hard to cut with a knife, then it will be necessary to saw down through the center of the stalk, keeping clear of the buds. If there are a

large number of tubers attached to the stalk, you are going to lose some of them for there will not be enough of the stalk to go round. There may be as many as a dozen tubers on the entire stalk, and the stalk have only two or three buds, that are cut out of the clump with the tubers that are the nearest to them, the remaining tubers having to be discarded. Then again it will be right the reverse. After sawing through, then proceed with the knife, which should be kept sharp and have a thin blade, something a little better than a potato knife, though a potato knife does nicely.

In using either the saw or the knife, never cut in and attempt to pry them apart as this will bruise them and cause decay.

If you are not prepared to do your planting at the time you make the division pack the tubers away in dry dirt, sand or shavings storing in a cool place. It is important that this be done, for after the tubers have been cut, they will dry out very quickly if left in the open air.

I get quite a number of small tubers from two to three inches long that I put into pots. Give them one good watering, putting them to one side, giving no more water until I am ready for them to grow. When they are about eight inches high, I plant out in the open. They make just as good plants and tubers as the large ones do.

Very large tubers will make but few if any new tubers at all. It is best to cut the lower portion off from a third to one-half, depending on the size of the tuber.

The key hole saw, used in dividing the tubers makes one of the best little general purpose tools I ever had, especially in the pruning of trees, shrubs and vines, the narrow blade enabling one to work anywhere.

When dahlias are put away for the winter, extreme care should be taken to guard them from rats and mice. Also if stored in a basement, do not put them near the furnace.

In sections where the rains and summer showers come, it will prove injurious to do any irrigating, as it causes the plants to make roots near the surface and when those hot August days come, the roots will burn up.

Again the tops may become diseased and make a sickly growth. Do not loose any time looking at them and wondering what to do, but cut them off close to the ground and the chances are they will come along all right.



Following is the Standard or scale of points used by the Dahlia Society of California at their Trial Gardens at San Rafael, California.

Color	25
Stem	25
Formation	20
Size	15
Productiveness	15
Total	<u>100</u>

Following is the scale of points used by the American Dahlia Society in making awards at the Trial Garden at the Connecticut Agricultural College, Storrs, Conn.

Exhibition Varieties

Color	20
Stem and Foliage.....	25
Substance	15
Form	20
Size	20
	<hr/>
	100

Commerical Varieties

Color	20
Stem and Foliage.....	25
Substance	25
Form	10
Floriferousness	10
Size	10
	<hr/>
	100

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Price, 50 cents.

Written and published by

H. E. SIES,

Point Loma, California

March 11, 1881

Dear Sir

I have received your letter of the 10th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. I am sorry to hear that you are dissatisfied with the result of the examination, but I am sure that the authorities will do all in their power to satisfy you. I am, Sir, very respectfully,
Yours truly,
J. C. [Signature]

H. E. SIES
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Prof. J. P. Jones
has been appointed
to the position of
Professor of
Mathematics in
the University of
Texas at Dallas
and will take
charge of the
department on
September 1st
next.

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