

1-1-1954

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Harald A. Pedersen

Arthur F. Raper

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Cotton Plantation
in
Transition

By
HARALD A. PEDERSEN
and
ARTHUR F. RAPER

MISSISSIPPI STATE COLLEGE
AGRICULTURAL EXPERIMENT STATION
CLAY LYLE, Director

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Department of Sociology and Rural Life
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION
in cooperation with
Bureau of Agricultural Economics
United States Department of Agriculture

THE COTTON PLANTATION IN TRANSITION
The Case Studies of a Mechanized and An Unmechanized Cotton
Plantation In the Yazoo-Mississippi Delta

By
Harald A. Pedersen and Arthur F. Raper*

The casual observer driving through the Yazoo-Mississippi Delta will be impressed with the fact that though the old ways of life still obtained new ways are becoming increasingly apparent. The mid-summer tourist traveling along US 61 from Memphis to Vicksburg or on US 82 from Greenwood to Greenville may well see four or five self-propelled combines moving through a field of grain on the right and a hundred or more field hands with hoes, seemingly stationary by comparison, in the cotton field to the left. In late summer and fall the mechanical cotton pickers replace the combines and the cotton sacks replace the hoe, but men and machines still work side by side.

These are the outward and visible signs of transition in the Yazoo-Mississippi Delta. Less obvious, but nonetheless real, is the change in the attitudes in plantation operators and plantation workers. The value system which has characterized the culture of the area for generations is being changed. The planter's wife complains that there are no new recruits among the plantation labor families to take over the jobs of the aging domestics. The domestic in the big house no longer enjoys the prestige of yesterday among his fellow workers. The tractor driver has failed to attain prestige in the occupational hierarchy of the plantation labor force. Planter after planter complains that though the drivers are paid well there is no rush for the jobs.

Yes, the Delta is in transition. This is in evidence when looking at the new machines and the old tenant houses,

when listening to the plantation owner talk about his operations today and his hopes for tomorrow and when listening to the conversation of the plantation folk around the store and filling station or on the street corner.

The old has not yet gone and the new has not fully arrived. The mixture of the old and the new is the thing. This mixture bids fair to remain prevalent until some sure method other than hand labor is developed for the control of weeds and grass in growing cotton.

There is still considerable hesitancy in the matter of using machines. The mechanical picker can operate well only when the ground is dry, when weeds and grass are under control, when the cotton is defoliated and when the fields are large and regular enough. The planter is torn between conflicting objectives and irreconcilable operating alternatives. Time and again planters have remarked, "If the kind of labor we had twenty years ago were available today they could keep all their machinery."

The plantation is a social institution which is characterized by primary or "face-to-face" relations. The "good" worker, good both in terms of production and in terms of his relations to the boss and to his fellow workers, is rewarded with better land to work and more off-season employment around the plantation. He also is assured of a house to live in and odd jobs around the place when he is too old or other-

*Harald A. Pedersen, Associate Professor, Sociology and Rural Life, Mississippi Agricultural Experiment Station, and Arthur F. Raper, formerly with Bureau of Agricultural Economics, United States Department of Agriculture.

wise unable to work in the fields. The plantation is an institution in which traditional controls are dominant.

The plantation is also an economic institution which is dependent on a highly competitive commodity for its existence. It must produce cotton at a cost that can compete with the cost of production on the world market if it is to survive. The economic and social objectives are not always in harmony and cannot necessarily be attained through the same operating policies.

The increasing scarcity of labor in the area has raised the labor cost from a dollar a day less than fifteen years ago to four dollars and more. True, the latter is an inflated dollar compared to the former but the rate of inflation is not 400 percent. Even at this higher rate the planter frequently finds himself unable to obtain labor enough to perform the essential operations during the peak work-demand periods.

The alternatives available to the planter are to reduce the acreage in cotton or increase the labor efficiency of his operation through higher capitalization in the form of mechanization. The second alternative is limited in its application by the level of technology. Weed control remains as a primary operation in cotton production for which successful technological substitutes for hand labor have not been developed. This continuing need for hoe hands limits the substitution of machines for manpower on the plantation.

The purpose of the present analysis is to describe the process of adjustment which is taking place on individual plantations in response to the challenge of mechanization and the problem of labor scarcity. The study is concerned primarily with the distribution of people on the land. This then is the story of two plantations and their people.

Case Study Plantations

The plantations selected for study represent fairly typical modes of adjustment to the changing operating situation in the Delta. The one plantation, Tractor Plantation,¹ is relatively advanced in mechanization. The other

plantation, Mule Plantation, is relatively unmechanized.

The plantations are not extreme types.² There are plantations in the Delta that have progressed farther in the substitution of machines for human and animal labor than has Tractor Plantation. There are plantations that more nearly follow the practices of a quarter of a century ago than does Mule Plantation. There are plantations where practically all the cotton is picked with machines, where mules are never seen in the cotton fields. This is not the case on Tractor Plantation. There are plantations where all the cotton is harvested with hand labor and mechanical pickers have never been seriously considered, where a cropper family with the help of a mule "make" the cotton crop. This is not the case on Mule Plantation.

Though the two plantations are not extreme types, cotton production on Tractor Plantation is tractor oriented whereas on Mule Plantation it remains mule oriented.

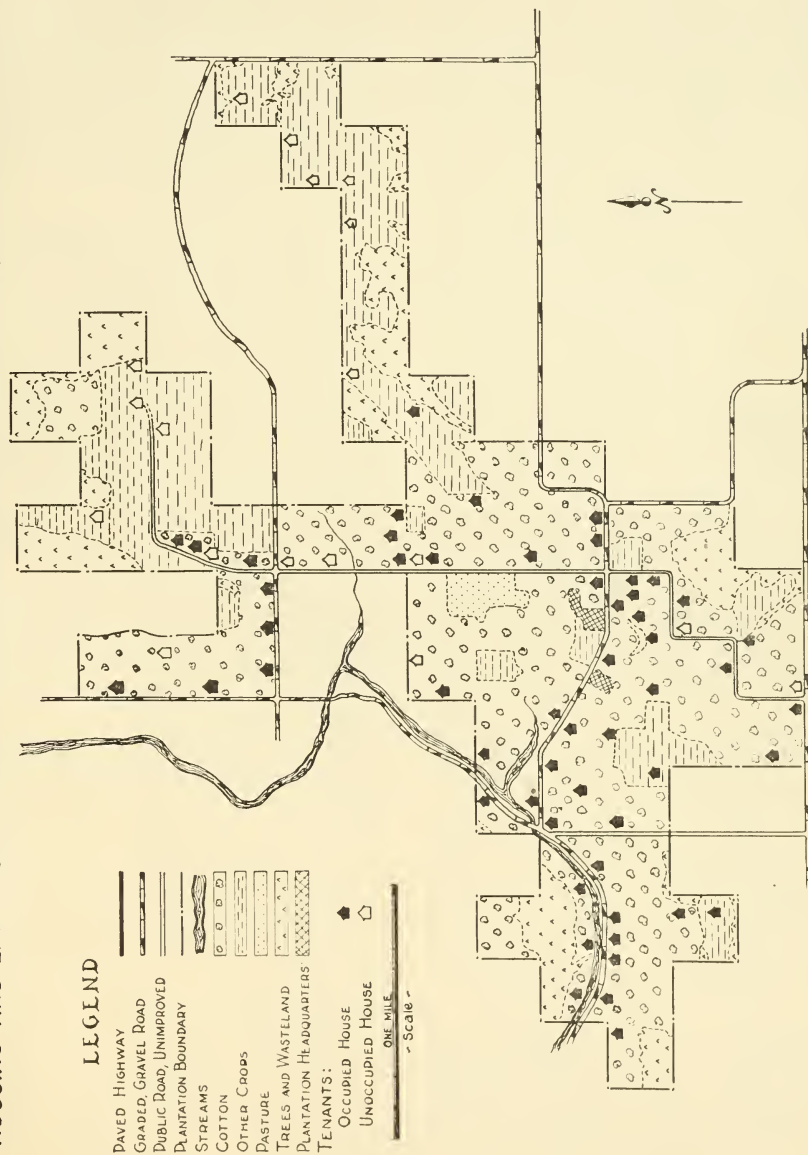
Both plantations were established around the turn of the century. Mule Plantation was cut out of the swamp by the father of the present owner. The large block of land surrounding the plantation headquarters of well-drained silt loam soil, good cotton land which was seldom been planted to other crops, was acquired first (Figure 1.). Subsequently, additional "forties" were added to the east, west, and north. Some detached tracts not shown on the map complete the holding—3160 acres in all, 2700 in the home place. The track was completed prior to World War I and no land has been bought or sold since.

The sprawling profile of the unit atests to the characteristics of the planter himself. The story is told that the wife of the planter frequently sought to prevail on her husband to fill in the gaps and square out the planta-

¹The names by which the plantations are designated are fictitious in the interest of preserving the anonymity of the cooperators in this study.

²For a discussion of the tractors, mules, and heavy equipment available on each of the plantations, see the section "Machine vs. Mules."

HOUSING AND LAND USE PATTERNS ON AN UNMECHANIZED PLANTATION, MISSISSIPPI, 1951



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Figure 1. Housing and land use on Mule Plantation, Bolivar County, Mississippi, 1951.

tion. The planter's pet response was "What would I do with the land? It's no good for cotton. Let others pay the tax on it."

Mule Plantation was and is a cotton factory and little attention is given to anything else. Livestock feed, except for scant winter grazing, was bought by the car load lot and usually the entire supply was secured in one shipment. This was a bit of bravado permitted himself by the normally conservative planter and, of course, livestock feed is cheaper by the carload lot.

Another concession, this one to sentiment, is that the track just west of the big house on the town side of headquarters has never been planted to cotton. "We don't like to see cotton growing right up to the front door."

Nevertheless, management on Mule Plantation is essentially conservative. "We don't need to try all these new ideas. We have a laboratory all around us. Let others spend their money on experiments." The previous manager took considerable kidding from the neighbors about the conservatism of his operations. His stock response when pushed too far, "Well, we can still pay our bills." The implication is obvious and frequently justified.

Management on Tractor Plantation is more aggressive, more daring, definitely not conservative. After the disastrous White River flood in Arkansas around 1880, the grandfather of the present owner crossed the river to the Mississippi side and bought two small plantations. There are three or four major cotton areas on the plantation which represent the production nucleus of the original small plantations absorbed in the operation (Figure 2).

Management on Tractor Plantation expanded the area by absorbing plantations rather than by buying cotton land as did the owner of Mule Plantation. This is largely a function of the stage in settlement of the two areas in which the plantations are located. Tractor Plantation lies on the river and has access to water transportation, which though not important today means that the area was settled earlier.

Mule Plantation lies 15-20 miles inland from the river and settlement had to await the coming of railroads and other forms of transportation. The owner of Mule Plantation **could not** have developed his holdings as he did if he had settled in the area where Tractor Plantation is located. On the other hand the successive owners of Tractor Plantation **would not** have developed the holdings after the pattern of Mule Plantation had they settled in the latter area.

The present owner of Tractor Plantation gave this thumbnail sketch of the development of the holdings. "Grandfather bought up around 2500 acres. My father added another 1500, but I've managed to add only 240 acres to the plantation." There was an adjoining plantation that was bought in the early thirties and sold back a year or two later. Even today there are several farms or small plantations which seem desirable additions when and if they became available. Today the plantation contains approximately 5000 acres but the plantation area is by no means fixed and stable. The copper supervisor remarked about a finger of land stabbing into the heart of the plantation and not owned by them "When we could buy it, we couldn't; and now that we can buy it, we can't."

The philosophy of management on Tractor Plantation is that if there is a better way to grow cotton or a more profitable crop they want to know about it, and if it looks good they will try it. Power take-off combines, self-propelled combines, mechanical cotton pickers, flame cultivators, chemical weed control are all in use or have been tried on the plantation. The owner laughingly admits that lack of sales resistance rather than sound management may have resulted in some experimentation with innovations. On the other hand, "If we don't try it we won't know if it will work for us. You have to gamble, take a calculated risk occasionally, to make progress."

Housing The Plantation Workers

The history of mechanization in the cotton fields is beclouded by the con-

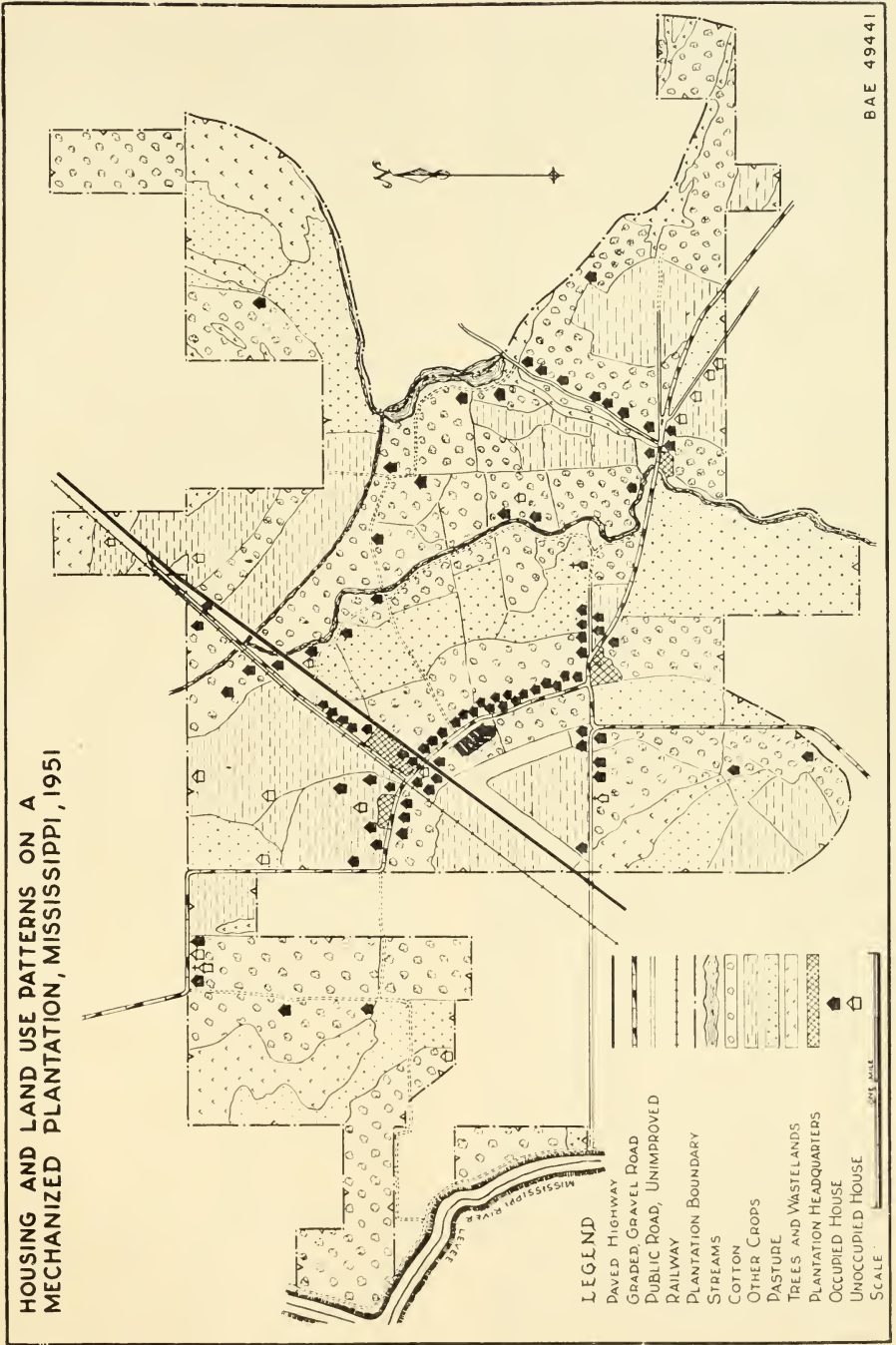


Figure 2. Housing and land use on Tractor Plantation, Bolivar County, Mississippi, 1951.

flict between the need for efficiency and the adherence to the traditional paternalism characteristic of the plantation. The people of the nation's number one problem area of a decade and a half ago, at least from the standpoint of the attention given to the area, have become acutely aware of the human element involved in the transition to mechanized operations. Illustrating this awareness, the Rust brothers withheld their patents for a mechanical picker for several years and endowed a training school for field hands with proceeds from royalties to facilitate the readjustment of the workers. Even today nearly 20 years later, planter after planter and other persons involved in management feel impelled to reiterate and reaffirm the defense which became the byword of the area in the late 30's: "Not one family, not one person has been displaced by machines on this plantation."

The years from 1935 to the present have seen a greatly augmented migration stream move out of the Delta to urban and industrial centers of the South, the North Central Region, and the West. The orientation of management currently is toward ways and means of retaining labor rather than toward ways and means for disposing of or replacing labor. The maintenance of favorable landlord-tenant or employer-employee relations has become and continues to be a dominant function of management. The successful operation of the cotton plantation depends upon the ability of management to maintain an adequate supply of labor to perform the operations which cannot yet be performed successfully by machines.

Traditionally, cotton production has been a hand labor operation, and therefore the plantation has been dependent upon an abundant supply of hand labor at a low cost. The arrangements by which the plantation operator assured himself of the continuing availability of labor range from the slave labor of the antebellum era to the seasonal migratory worker of the current period. The constant in all arrangements is the availability of housing on the plantation for the labor families.

Even a casual inspection of the number and location of houses on the two plantations reveals a basic difference in the underlying assumptions with which the managements approach the operation of the plantation. On Mule Plantation the assumption seems to be that though machines may take over eventually, men and mules will still be an important element in cotton production tomorrow. There are too many partly solved and unsolved links in the process for mechanized cotton production to be an immediate and real alternative. On Tractor Plantation the assumption is that machines—planters, flame cultivators, chemicals, mechanical pickers—will do the work tomorrow, but for the present much hand labor will be needed. Effective chemical and mechanical control of weeds and grass is possible even under field conditions in "normal" years. Next year may not be normal; therefore, hand laborers must be retained and hence employed even in normal years.

The story of housing on Mule Plantation is the story of growth and decline. In 1905 there were 92 houses for plantation workers. This represents the maximum number on the plantation and the houses were maintained until 1930. The owner allows that "We haven't built any new cropper houses since 1910, except to replace those that burned and since 1930 we haven't even replaced those that burned." The number of houses decreased by 7 percent in the decade 1930-40 and by 10 percent in the following decade. The loss from 90 houses in 1930 to 74 in 1951 represents the normal attrition resulting from fire and disuse. "It probably isn't good management," the owner remarked "but we haven't torn any houses down or attempted to salvage the lumber for other uses."

When the comparison is made in terms of occupied houses a better evaluation of the labor force is obtained. In 1951 only 56 of the 74 houses were occupied, leaving nearly 25 percent of the houses empty (Table 1). On Mule Plantation this represents a loss of only 7 percent since 1940. The sharpest decline in the number of oc-

cupied houses, 31 percent, came in the depression decade from 1930-40, (Table 2). Prior to that, in the judgment of the owner, there never were more than one, two or at the most three empty houses in any crop year. Before 1930 management frequently found it necessary to turn workers away, except during the relatively short period of labor shortage in 1928-29 and during World War I.³

As noted above, no new houses have been built since 1920 and there has been no attempt to relocate the houses (Figure 3). The houses that are less accessible have been allowed to fall down or have not been replaced. The summary figures show a net loss of 37% in the number of occupied houses from 1920-1951.

The unoccupied houses on the plantation are, with few exceptions, located on the back "forties" away from roads and inaccessible to the plantation headquarters (Figure 1). The adjoining fields, it will be noted are no longer in cotton. When the plantation manager rode out on a horse it was still possible to supervise work on the back forties but now that he rides around in a car, supervision becomes difficult and furthermore most croppers⁴ today want access to a road. For all practical purposes the houses on the back forties have been abandoned.

A second reason for the abandonment of these houses is the dominant soil type in the area. This is a heavy clay soil, locally known as "buckshot," which has poor internal drainage and hence is difficult to work in wet years. During the 1920 decade with the depletion of the lighter soils, cotton was planted on these heavy soils with reasonable success. However, with the promotion in the 1930 decade and following of extensive use of commercial fertilizers these heavier soils were

again taken out of cotton because they did not respond as well to fertilizers as the lighter soils.⁵

The unoccupied houses that are located along the roads are not in use for various immediate reasons. In one case the cropper farming the tract lives in town. In another the family skipped out during the night and if the survey had been made a week earlier the house would have been occupied. Another had been rented, but the cropper failed to move in when he was supposed to and then it was too late to get another family.

The houses on Tractor Plantation are assembled along two main roads and around the plantation headquarters (Figure 2). There are 107 tenant and labor houses on the plantation, but only 90 of them are occupied (Table 1). The few houses still standing in the fields will be moved or torn down as soon as there is time. The houses that have been moved have been repaired and electricity has been installed. It is significant that the houses have not been enlarged or otherwise improved. It is apparent that even though management has gone to the expense of relocating the houses the possibility of eventual abandonment is real and not too distant. This practice of relocation may represent an intermediate step in the transition to full mechanization. Eventually, as the labor force becomes stabilized and the need for field hands sharply reduced, it is possible that even some of the relocated houses will be torn down and further improvements will be made on the remaining houses. This, at least, has been observed on one or two plantations, where the labor force consists of the tractor drivers and mechanics necessary to maintain and operate the equipment.

³ The extent to which curtailment in labor can be ascribed to partial mechanization, is discussed in the section "Machine vs. Mules." A second factor—that of the "cotton acreage reduction program" is discussed at the end of this section.

⁴ Cropper is the term generally used in the area to designate the worker family which supplies only the labor in the production of cotton and receives its remuneration in the form of a share, usually one-half of the crop. (See section on "Tenure Arrangements.")

⁵ The distribution of soils by type is discussed more fully in the section, "Land Use."

Table 1. Number of cropper and labor houses on the Case Study Plantation, Bolivar County Survey, 1951.

| | Tractor | | Mule | |
|--------------------|---------|-------|------|-------|
| | No. | % | No. | % |
| Total houses | 107 | 100.0 | 74 | 100.0 |
| Occupied | 90 | 84.1 | 56 | 75.7 |
| Unoccupied | 17 | 15.9 | 18 | 24.3 |

HOUSING HISTORY ON AN UNMECHANIZED PLANTATION, MISSISSIPPI, 1920-1951

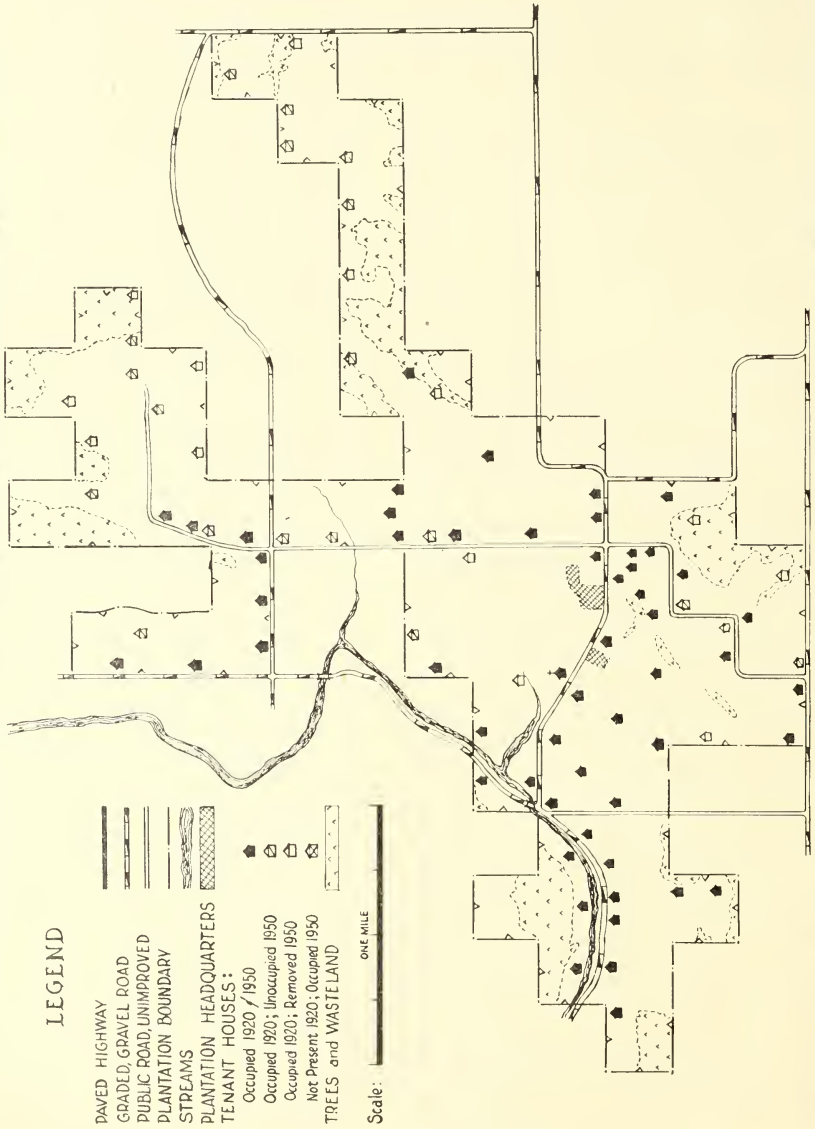


Figure 3. Housing history on Mule Plantation, Bolivar County, Mississippi, 1920-1951.

In 1920 there were 136 houses on the land which now comprises Tractor Plantation.⁶ By 1951 the total number of houses as noted above had decreased to 107 with only 90 occupied. This represents a net loss of 34% as compared to 37% on Mule Plantation. The lower proportionate loss on Tractor Plantation can be ascribed in part to the higher yields and in part to the higher proportion of lighter soils on the plantation. Management on Tractor Plantation was able to expand cotton acreage following the removal of controls without taking in much of the heavier soil area on the plantation. Mule Plantation, in contrast, would have to expand into the heavy "buck-shot" soil which were abandoned when controls were introduced.

The sharpest decline in the number of houses occurred in the decade 1930-40. If we assume that all houses on the plantation were occupied in 1940 and earlier, then there is a more marked decline in the number of occupied houses in the decade 1940-50 (Table 2). This assumption is not entirely justified since defense production with an expanding labor demand in industry had already begun by 1940. The number of houses indicates that there has been a consistent but increasing reduction in labor on the plantation since 1930.

The relocation of housing presents an even more marked transition than does the reduction in number (Figure 4). In 1930 the 136 houses were scattered over the plantation but in 1951 they had been assembled. By relocation of housing and turn rows the fields have been opened up to accommodate the new 4-row equipment which was adopted on the plantation in 1946.

The comparative figures for the two plantations present strong evidence in support of the contention that factors other than machines have been instrumental in bringing about the reduction in labor force. Production controls, no doubt, contributed to dissatisfaction and a high level of mobility among cropper

Table 2. Number of occupied houses for selected years on the Case Study Plantations, Bolivar County Survey, 1951.

| | Tractor | | Mule | |
|------------|---------|----------|------|----------|
| | No. | % change | No. | % change |
| 1905 | 117 | — | 90 | — |
| 1920 | 136 | 16.2 | 89 | -1.1 |
| 1930 | 133 | -2.2 | 87 | -2.2 |
| 1940 | 114 | -14.3 | 60 | -31.0 |
| 1951 | 90 | -21.1 | 56 | -6.7 |

families in the first decade of the period. For the nation as a whole the acreage planted to cotton declined 38 percent from the 1931-33 average to the 1940-42 average which roughly coincides with the two earlier periods for which housing data were obtained.

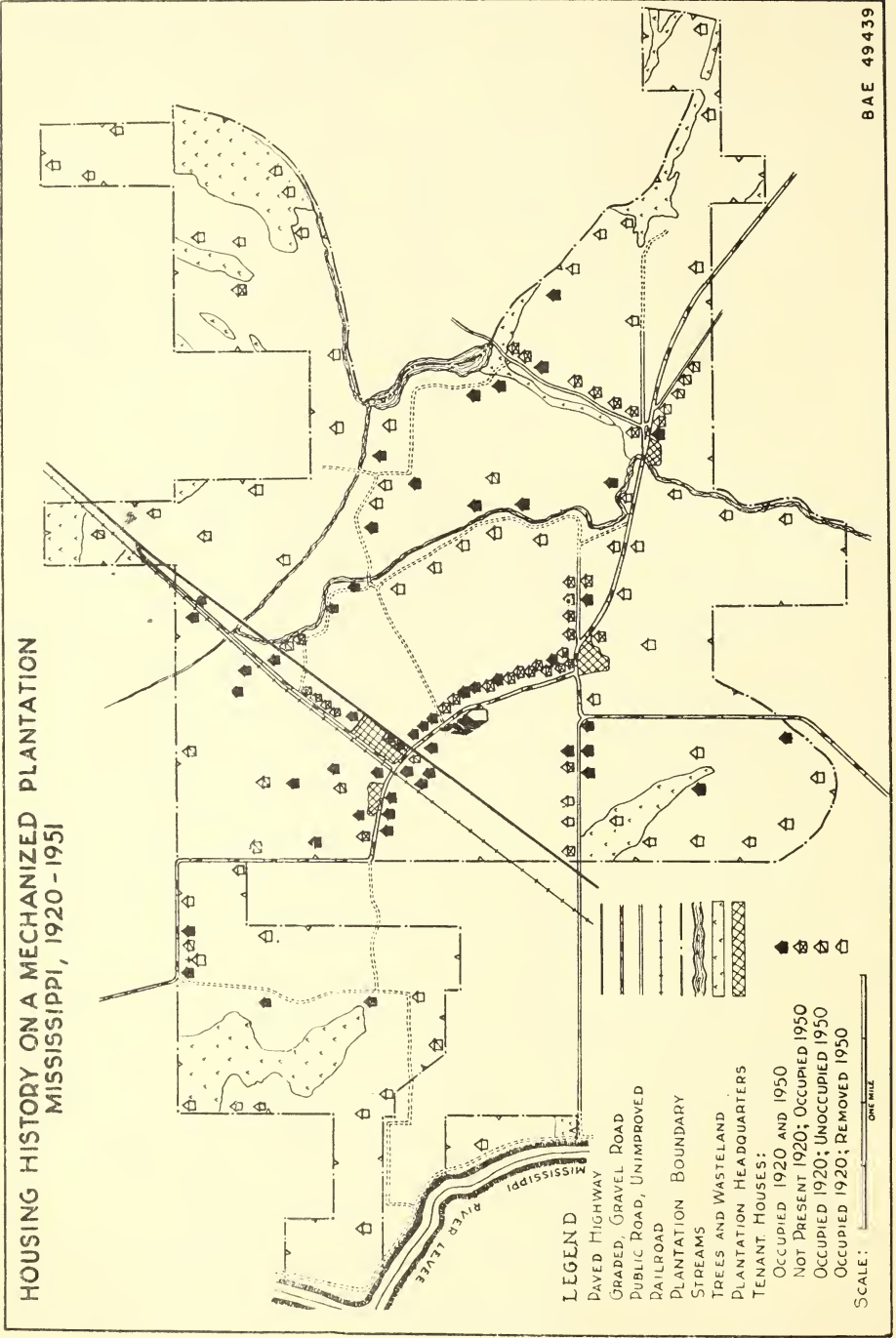
The data for Bolivar County, in which these two plantations are located, is equally revealing. The acreage planted to cotton in 1932 before the imposition of acreage controls was 266,000 acres. In 1934 after the imposition of controls, only 179,000 acres were planted to cotton. This represents a reduction of 87,000 acres or 33 percent of the 1932 acreage. The acreage removed from cotton was at first planted to corn and hay—later to oats, hay, soybeans and pasture—all of which are less labor intensive crops than cotton. After 1934 both the acreage planted to cotton and the yield per acre increased, so that in the late thirties the labor surplus created by the initial reduction in acreage had been partially absorbed. Nevertheless, if a constant ratio of acres per worker were maintained, the plantations could expect to lose nearly a third of their workers during the decade. Since the late 1930's the high level of business activity and industrial employment brought on by the onset of the war in 1939 and our entry in December 1941 opened up alternative opportunities for the plantation labor force and spurred large numbers into migrating from the area.

Plantation Management

The operation of a plantation is a big business which involves the establishment of personal relations between two and three hundred people on each of the two plantations studied. The business becomes more complex as the

⁶ Nearly one-third of the land was acquired since 1920, but it was possible to secure accurate information about housing for the acres added to the plantation.

HOUSING HISTORY ON A MECHANIZED PLANTATION
MISSISSIPPI, 1920-1951



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Figure 4. Housing history on Tractor Plantation, Bolivar County, Mississippi, 1920-1951.

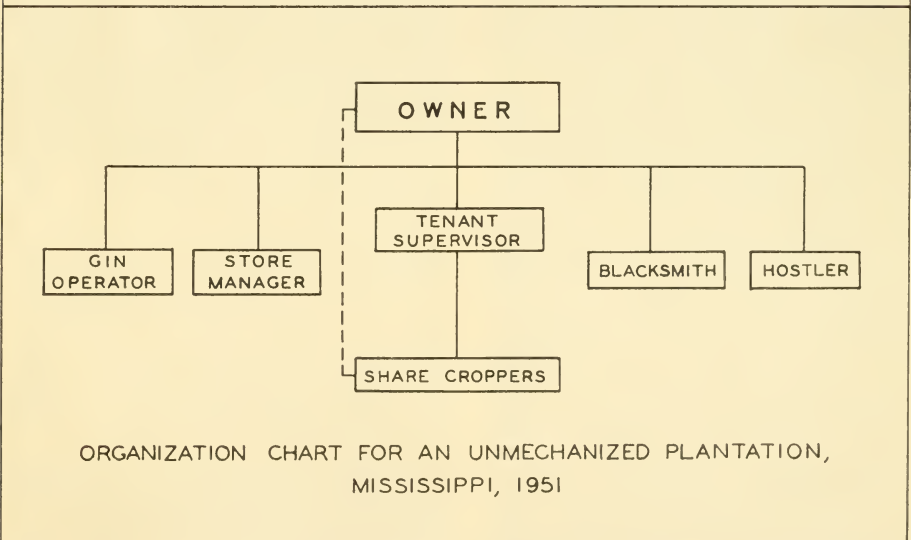
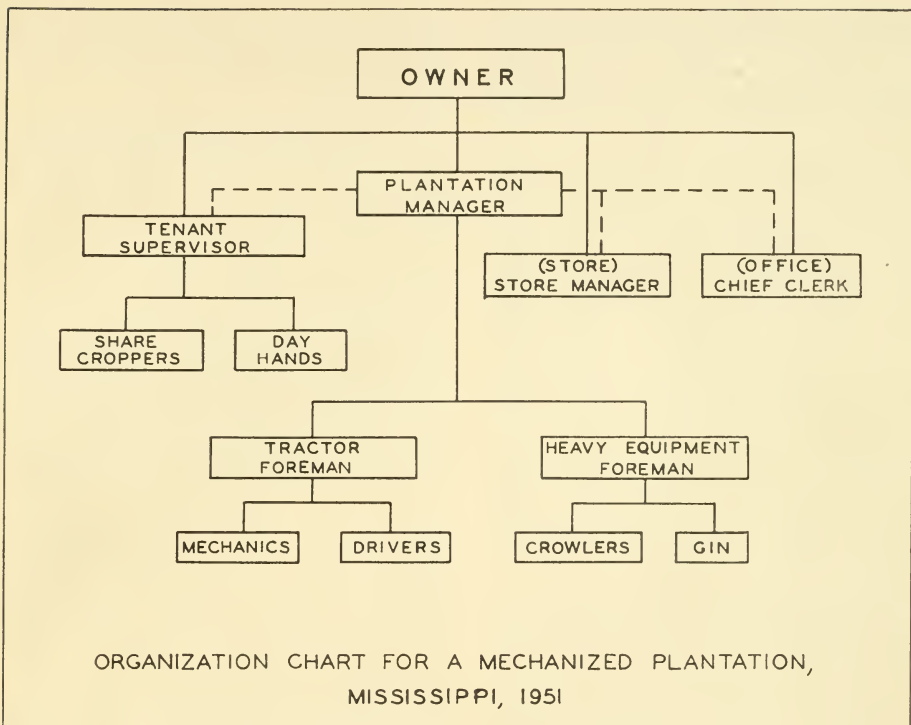


Figure 5. Organizational structure of management on Tractor and Mule Plantations, Bolivar County, Mississippi, 1951.

operation becomes more mechanized largely because the mechanized operation requires a higher capitalization. The increasing complexity of the operation is reflected in the management hierarchy on each of the two plantations.

The organizational structure on Mule Plantation is relatively simple (Figure 5). The owner of the plantation is in direct communication with every tenant and worker on the place. At "furnish"⁷ and settlement time the owner sits behind the counter in the office and deals directly with each of the tenants as they come before him. The tenants are greeted by their first names and the good work of the past year is commended or the slovenly work is condemned. The tenants, furthermore, come directly to the owner with their special problems, such as sickness, trouble with the law, etc., whenever and wherever the occasion arises.

When the commissary was in operation the store manager was directly responsible to the owner and frequently the owner might help out in the store, at least to the extent of recording the advances to each of the tenants as they came in for provisions. The blacksmith and the mule hostlers, likewise, are directly responsible to the owner in the performance of their duties.

There is, however, a plantation foreman who in some instances serves as the intermediary between the plantation tenants and the owner. The foreman's primary function is to see to it that the crop is put in and taken care of. He is the legman in the management hierarchy. He makes the rounds to check on the tenants during the working season. He is the plantation rider. This doesn't mean that the owner himself doesn't make the rounds of the plantation. He does this several times a week or even a day—sometimes with the manager and sometimes alone.

The manager in addition is responsible for the "day crop"⁸ on the plantation and for the supplementary crops other than cotton. Working the supplementary crops, however, is incidental to his primary function as overseer for the tenants. He has little or no re-

sponsibility for, or contact with, the allied functions of the plantation such as the store, gin, the mule barns, and the blacksmith, except at the direction of the owner.

As mechanization and diversification of an operation increase the management structure becomes more complex. The organization chart for Tractor Plantation still shows the direct line of communication from the owner through the tenant supervisor to the sharecroppers (Figure 5).

However, the organization chart reveals that this phase of management has become a subsidiary phase on Tractor Plantation. The owner has acquired an overall manager and his primary responsibility is for the performance of machine operations on the plantation. He is in essence the supervisor for the "day crop." When it comes to the utilization of labor the division of responsibility between the tenant supervisor and the plantation manager becomes a little cloudy. There are some operations in which he must deal with the tenant supervisor but the manager is solely responsible for the supervision of the tractor work. The supervision is delegated to a tractor foreman and a foreman in charge of heavy equipment. The tractor foreman has supervision over the maintenance and operation of all the row-crop equipment. The heavy equipment foreman is responsible for the crawler type tractors and for the maintenance and operation of the gin.

On Tractor Plantation the line of communication from the individual worker to the plantation owner has been broken. The worker deals almost solely with the tenant supervisor or with the plantation manager. Some few workers of long standing might conceivably find their way to the plantation owner but throughout the pe-

⁷ "Furnish" is the term used to designate advances made by management to the tenants for subsistence during the crop year. In addition farm operating costs are carried by management and collected at settlement time.

⁸ "Day crop" is used here to designate that portion of the cotton acreage which is not allotted to tenants but is handled by management using workers paid by the day. It is sometimes also called "operator cotton" or "wages cotton."

riod of the study which covered about three months during which several conferences were held with the owner, none of the workers did seek access to him.

This is in sharp contrast to the situation observed on Mule Plantation, where each interview with the owner was interrupted by at least one plantation worker seeking the counsel of the owner.

On Tractor Plantation there are essentially two operating units. The one is the mechanized operation and the other is the hand labor operation. The two merge at some points but in essence an independent structure has been developed for the mechanized operation. The hand labor operation survives much as it was prior to the introduction of mechanized equipment.

Tenure Arrangements

Throughout the Delta considerable thought has been given through the years to the ways and means for securing and retaining labor for the plantation. The basic tenure arrangement is the half and half share-cropper agreement. Under this arrangement the tenant supplies all labor required for the production of the crop. The distribution of other costs of production such as poisoning, fertilizer, and other items has been worked out in each area. The presence or absence of a commissary, the kind and amount of "furnish," all enter into the labor recruitment situation. As tractors are introduced to the operation some of the labor normally performed by the tenant is performed with tractor equipment. The cost of the operation is charged against the tenant's crop.

The half and half arrangement continues to be the customary basis for bargaining between landlord and tenant. On Mule Plantation there are two tenants on the home place who farm on the one-third and one-fourth rental agreement and who supply some of the capital requirement for the operation. The plantation also has two wage hands. The remaining 52 labor families are sharecropper families.

On Mule Plantation tractors are used primarily at the discretion of the crop-

per with the exception that where experience has taught the plantation manager that a family consistently gets behind in its work he will insist that the particular tract is machine planted so that it can be cultivated with a multiple row cultivator, otherwise the probability is very great that a crop will not be harvested on that field. The charges assessed against the sharecropper for tractor work on Mule Plantation are minimum charges, apparently based on current operating expenses with little overhead included in the cost.

The tenant has the privilege of applying the seed to the ginning cost or of collecting the seed money and paying a fixed charge of sixty cents per 100 pounds for ginning plus \$3.50 for packing and ties for each bale. In the latter case the cost of ginning is deferred until settlement time.

The commissary on Mule Plantation has been closed for nearly a decade. In the early 20's the commissary was closed for the first time and cash furnish was given to the sharecroppers. This was necessary to meet the competition for labor from other planters who at that time had begun to pay a cash "furnish." During the early 20's the workers wanted cash for automobiles and other luxury items. However, about 1930 the commissary was reopened and "furnish" was advanced in the form of coupons which could be used only in the commissary. The commissary remained in operation until the advent of rationing at which time management again closed the commissary because it was too much trouble to keep up with the ration coupons.

The plantation owner repeatedly commented that they were not in the merchandising business and had no interest in becoming established in it. The primary business of the plantation is cotton production. If it is necessary to run a commissary to maintain labor they will run a commissary, but if they can do without it they have no intention of operating a grocery and dry goods store.

Currently on Mule Plantation a cash "furnish" is made to the plantation

labor force every four weeks beginning the first of March and continuing through July. The last "furnish" is given either in the last week in July or in the first week in August. The "furnish" for the four-week period ranges from \$10 to \$14 for single individuals and from \$50 to \$75 for larger families. At present there are some families that are able to finance themselves.

The tenant can arrange for settlement any time after he has two bales to his credit. Settlement day is Thursday on Mule Plantation and usually begins the third Thursday in October. Traditionally, if a tenant does not make a profit on the crop some adjustment is made. Usually about half of the indebtedness is written off and half of it carried forward on account for the next year. The owner commented that if the debt was too large the tenant would skip out and he would lose his labor; therefore, it has become customary to write off some of the indebtedness.

On Tractor Plantation the prevailing arrangement currently is that of wage labor though the tenure pattern is much more complex than on Mule Plantation. In 1940 only 400 of the 1450 acres in cotton were cultivated with day labor. In 1951, the relationship had been reversed with 1200 acres cultivated by day laborers and only 450 acres by tenants or sharecroppers.

Currently the plantation has one renter and one sharecropper who do all the work with mules. These are exceptions. There are 29 sharecropper families on the plantation and 37 families which though ostensibly sharecroppers represent an innovation in labor relations on the plantation. The male heads of these 37 families are day laborers on the plantation. As an added incentive to stay on the plantation the wife is given a cropper tract of three acres in which she has a share in the crop and on which she is expected to perform the labor. The plantation also has 16 full-time wage hands. These plus the 37 wage hands whose wives have a crop make 53 wage laborers. The tractor drivers and mechanics are included in the 53 regular wage hands.

Beginning as early as 1905 breaking and planting on Tractor Plantation was done by the landlord. Up to 1945 the tenant continued to be responsible for cultivation, chopping and picking, the first operations being performed with mule equipment. In 1945 four-row equipment was acquired and cultivation was added to the operations performed with machines, leaving for the tenants only the hand labor operations of hoeing and picking. The transition to four-row equipment and tractor cultivating was completed in two years with less than a third of the tenants using mules to cultivate their crops in 1946. By 1947 the mule inventory on the plantation was reduced to 12 mules and all field operations were performed with tractors.

By making these adjustments management on Tractor Plantation has made available a plantation labor force which can work on the day crop after they have finished the work on their own tracts. On Tractor Plantation it is unnecessary for management to hire off-the-plantation labor for weed control except during extremely wet periods. The sharecropper labor force is organized into labor gangs and there are four or five labor foremen who are responsible for these when they work in other fields on the plantation.

By giving tenant families first chance at day-labor work, management has reduced the need for continuing advances through the growing season. The tenant families normally draw more in wage labor than the operating charges against their cropper tracts. The wages on the day crop are paid in cash on a weekly basis and the charges against the crop are carried until settlement time. Management, therefore, has been able to do away almost entirely with a weekly or monthly "furnish."

Skilled Workers

One of the major problems confronting management on a plantation that is being mechanized is the recruiting and training of tractor drivers and operators of the heavy equipment being introduced into the farming operation. Neither of the plantations studied has

developed a very definite policy with respect to this problem.

On Mule Plantation in 1951 there were 10 tractor drivers and the manager of the plantation observed that he never went out to look for tractor drivers. There are always applicants for the jobs. Most of the tractor drivers grew up on the plantation or were kinsmen of tenant families on the plantation or they have married into the plantation families. Furthermore, all the drivers on Mule Plantation have a regular crop and drive tractors only when the work on their own crop is caught up.

For 1951 the payroll account on Mule Plantation lists 10 regular tractor drivers with an average of 7 years experience as drivers. Seven are men who have lived on the plantation for 20 years or more, including six who were born on the plantation. Two men have lived there for 10-15 years and one for less than 10 years. The 10 drivers include 3 who have driven for 10 years or more, 4 for 5-9 years, and 3 for less than 5 years. The entire period as drivers for some of the workers has not been on Mule Plantation.

Another measure of the stability of tractor drivers on Mule Plantation may be obtained by comparing the roster of drivers for an earlier year with the current roster. Data were obtained for the year 1944, which was 7 years earlier. At that time there were 5 drivers on the plantation. Of the 5, only two were driving tractors in 1951 on Mule Plantation. Of the remaining 3 one had migrated North, one had left the plantation but was still in the county, and one had been committed to the Federal Penitentiary on a liquor charge.

The comparative data indicate a relatively high mobility of the skilled worker. Only 2 of the current group have been driving tractors on the plantation for as much as 10 years. They have lived on the plantation most of their lives and learned to drive tractors in the more recent years. They are replacements for earlier tractor drivers. It is unlikely that more than one or two of the 7 drivers with less than 10 years exper-

ience will remain on the plantation for ten years or more.

The story for Tractor Plantation is not much different. In August 1945 there were only 13 tractor drivers on the plantation payroll. Of these, only 4 still remain as tractor drivers on the plantation, five have moved North, two have been killed, one has been committed to the penitentiary, and one has moved to another plantation.

In 1951 the plantation had 22 tractor drivers. Six of these were Displaced Persons who had been brought to the plantation about two years earlier. The remaining 16 were Negro workers. Nine of the Negro drivers were brought up on the plantation and 3 others have lived on the plantation for 10 years or more. The average length of time that the drivers have been driving tractors is about 6 years. Only 8 were sufficiently skilled to be entrusted with the operation of either the mechanical cotton picker or the self-propelled combine.

In the judgment of the tractor supervisor only about 40 percent of the drivers trained by the plantation remain on the plantation. Of those that leave, nearly 40 percent migrate to northern industrial centers and about 20 percent find employment as bulldozer operators and drivers of other types of dirt-moving and road-maintaining equipment in the Delta. The tractor supervisor remarked that they were planning to initiate a tractor school to train some of their own personnel to operate the equipment.

In terms of both sets of comparative data Tractor Plantation has experienced a higher loss of drivers than Mule Plantation. This may be, in part, a derivative of the differences in tenure arrangements observed on the two plantations. As noted earlier the drivers on Mule Plantation are croppers first and drivers second, thus having an interest in the crop and tenure rights in the land. The drivers on Tractor Plantation are drivers only and have no interest in the crop or tenure rights in the land, except that management has found it expedient in some instances to award a crop to the wife of the

driver on the assumption that this would tend to hold the driver on the plantation.

Machines vs. Mules

Neither of the plantations studied are solely dependent on either tractors or mules in the performance of field operations. The one, Tractor Plantation, depends more on tractors and the other more on mules to supply the work power in the field. The difference between the two is a difference in emphasis, a difference in degree of mechanization.

In 1923 the workstock inventory was at its maximum on Mule Plantation with 98 head. The mule book for the plantation was begun around 1920 and the record of sales, deaths and purchases is available for each year. The mule inventory fluctuates around 85 for most of the period up to 1945. It drops below 80 in the period 1928-34 and again in 1945 when the inventory is 76 head. The year 1945 is the beginning of the period of reduction and the number of mules is 48 in 1951.

The first tractor, a Cleve, was acquired in 1920. The second was purchased in 1929 and sold two years later. In 1935 the tractor inventory is two. Tractors continue to be incidental until 1948 when the inventory rises to 7. In 1951 the plantation has 9 tractors but only 5 of them, including two 4-row cultivators, are equipped with cultivator attachments.

On Mule Plantation tractors are used primarily on the land not planted to cotton. As neighboring planters began to use tractors on cotton land Mule Plantation secured tractors that were made available to the individual tenant on request. This continues to be the policy of management. Whether or not tractor work is performed on a given field is determined between the landlord and the tenant usually when they bargain for a crop in the spring. Even stalk cutting, breaking, and discing operations are not performed "through and through" on Mule Plantation. There are some croppers who perform these operations with mules.

Management insists that the spring work be done with tractors when deal-

ing with some croppers because "Experience has taught us," in the words of the landlord, "that these particular croppers make a habit of getting behind and if we are going to make a crop on their land we have to be able to go in there with tractors during the cultivating season. You can't cultivate a field with a 2-row or 4-row cultivator unless it has been planted with a 2-row or 4-row planter."

The charge for tractor work is figured on a cost basis. The figures quoted for work done on specific plots range from \$1.60 an acre for stalk cutting, breaking, and discing to \$4.40 per acre on a tract where the tractor operations were carried through to two cultivations. These are the actual charges recorded in the plantation record book for two specific tracts.

Spraying and dusting are performed at the sole discretion of management and for the entire acreage. The cost is charged against the cropper tract on a prorata basis. The tenant is charged for all the labor costs on these operations and normally the cost of materials are shared 50-50 between landlord and tenant.

The equipment inventory on Mule Plantation does not include a mechanical cotton picker nor has any of the cotton been harvested with machines. Machine harvesting would entail expensive modernization of the gin which is not necessary as long as the tenants can continue to harvest their own cotton.

On Tractor Plantation the mule records are not as detailed as are the records on Mule Plantation. The maximum number of mules recorded is 105 head in 1935. The mule inventory remained at about 100 head until 1945 when half of them were disposed of at a mule sale. The following year another sale was held and the inventory was brought down to 12 head which has been maintained since that time.

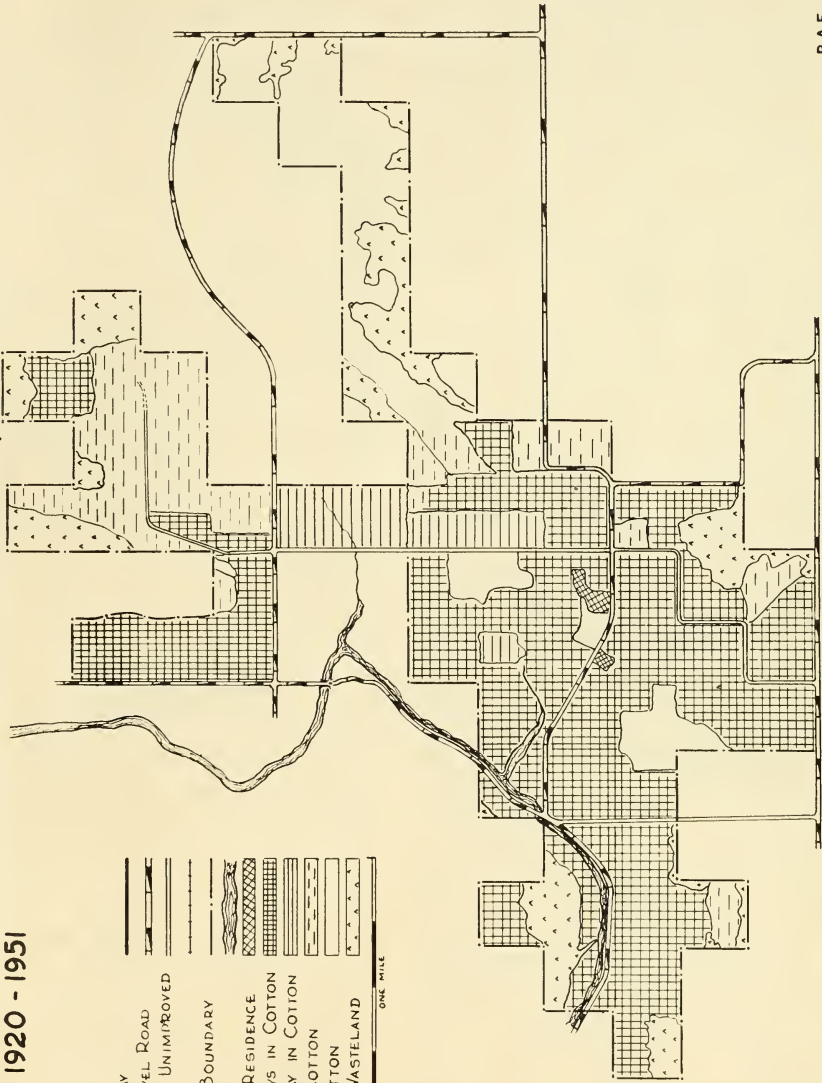
There are two transition years on Tractor Plantation, 1935 and 1945. Prior to 1935 there were three heavy-duty steel-wheeled tractors on the place. In 1935 one of these was replaced with two row-crop tractors and another row-crop

LAND USE HISTORY ON AN UNMECHANIZED PLANTATION, MISSISSIPPI
1920 - 1951

LEGEND

- PAVED HIGHWAY
- GRADED GRAVEL ROAD
- PUBLIC ROAD, UNIMPROVED
- RAILROAD
- PLANTATION BOUNDARY
- STREAMS
- PLANTATION RESIDENCE
- NEARLY ALWAYS IN COTTON
- PREDOMINANTLY IN COTTON
- SELDOM IN COTTON
- NEVER IN COTTON
- TREES AND WASTELAND
- SCALE

ONE MILE



BAE 49444

Figure 6. Land use history on Mule Plantation, Bolivar County, Mississippi, 1920-1951.

tractor was added the following year. The transition was completed in 1937 when the inventory consisted of 7 row-crop tractors all equipped with 2-row cultivator attachments. The inventory increased to 12 by 1942 and remained at that number through the war period.

In 1945, though the tractors found little use in the 1945 crop season, the transition to 4-row equipment was begun and the 1946 crop year finds the inventory at 18 four-row tractors. One crawler or caterpillar was added to do the heavy work in the spring. In 1951 the inventory stands at 21 four-row tractors and 2 crawlers.

Mechanical cotton pickers were introduced on the place in 1948 with 4 one-row units. The following year 2 additional one-row units were added and in 1950 two 2-row pickers were added, making a total inventory of 8 mechanical pickers in 1950 and 1951. The 12-foot self-propelled combines complete the inventory of major equipment for 1951.

On Tractor Plantation the cropper's responsibility for the cotton begins when the plants "show green in the row." He supplies the hand labor necessary to grow cotton on the acreage assigned him and must harvest his own crop. When that is done he can work on the "day crop" for cash wages, if there is a need for day labor. The field operations from planting to harvesting is a "through and through" operation.

The present owner may not fare so well in comparison with his two predecessors if expansion is measured in terms of acres added to the plantation. The transition in operating method though is revolutionary. It is a transformation that is equalled or exceeded on few plantations in the area.

Land Use

Prior to 1933 and the advent of government regulation and controlled production, there are few data on acres planted on either plantation. The cropper tracts, as one owner remarked, more or less grew up as the plantation was cleared and the houses were built. These tracts haven't changed much through the years. The number of

acres in each wasn't important. The tract was measured rather in terms of its ability to produce cotton.

The philosophy credited earlier to the owner of Mule Plantation, "Let the other fellow pay the taxes on the poor land" was not an idle boast. This is revealed by the high ratio of the land used for crops, namely, 83 percent and nearly 88 percent if the improved pasture is included. The Plantation, however, is no longer as distinctively a cotton factory as was true before the crop control program was enacted. Cotton acreages which currently range around a thousand acres approached 2000 prior to 1933. The highest measured acreage planted since then was 1466.5 in 1937. The year of the plow-up approximately 1300 measured acres were harvested. Since 25 percent of the planted acres were plowed under, an estimated 1750 acres were planted in cotton in that year. In its heyday as a cotton factory, cotton was harvested from more than 60 percent of the land in the plantation annually.

Aside from the stream beds and adjoining woodland areas there is very little land on Mule Plantation that has never been planted to cotton (Figure 6). The block of land south and west of the plantation headquarters is cotton land and, except for the meadow west of the house, has been used as such every year since the plantation was organized. The tracts of land farther away from headquarters and from the road have been planted to cotton when and if tenants could be secured for them. In periods of labor abundance, families could be secured for the back "forties." Characteristically, these families received little supervision and seldom "paid off." In periods of labor scarcity the back "forties" remained idle.

Another factor contributing to the distribution of cotton acreage on the plantation is the distribution of soil types. The soil survey for the farm reveals that about ten percent of the area falls in the Class I soil group.⁹

⁹The soil surveys for the plantations were prepared by the County Soil Conservation Service. See also G. E. Rogers and H. B. Vanderford, *Bolivar County Soils*, Bulletin 489, March 1952 Mississippi State College, Agricultural Experiment Station.

SOIL CLASSIFICATION MAP FOR AN UNMECHANIZED PLANTATION, MISSISSIPPI, 1951

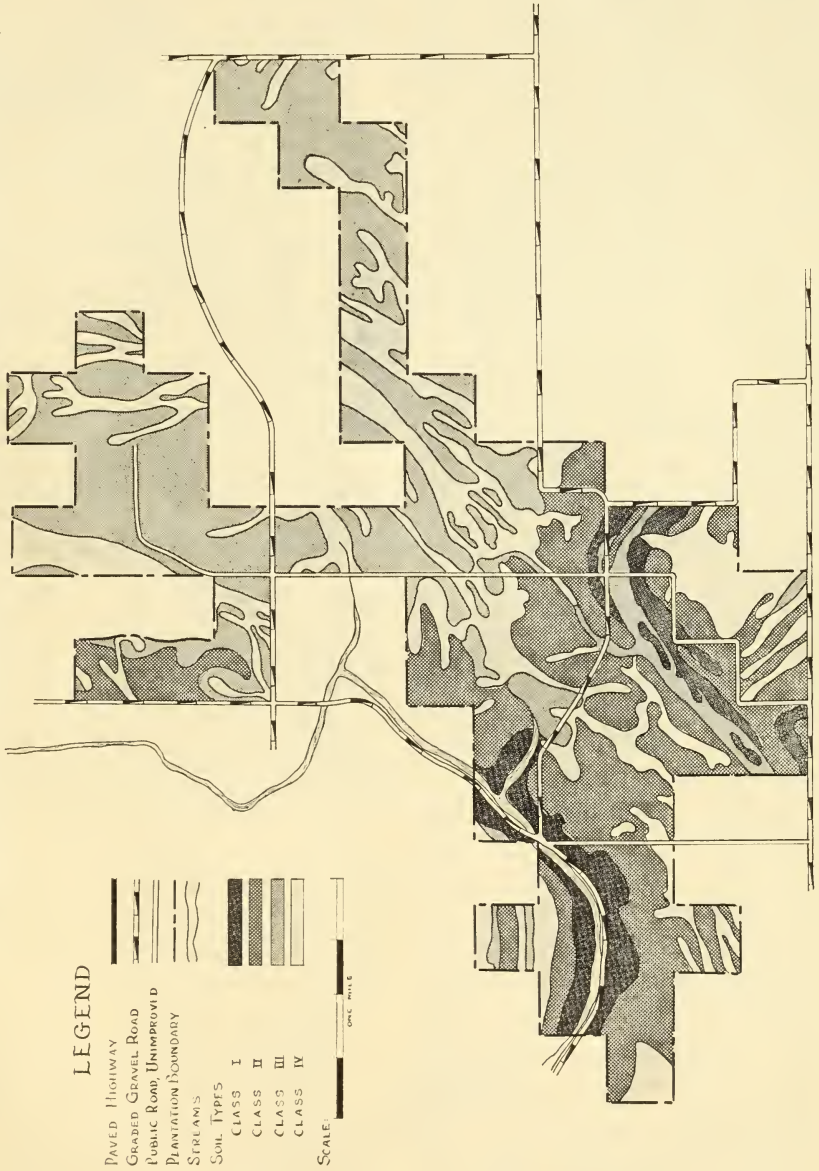


Figure 7. Soils Classification on Mule Plantation.

This is a high proportion for that section of the county. Class I soils are the light sandy loam and silt loam soils which have made the Delta famous as a cotton producing area. The soils on about 25 percent of the area are Class II soils which also are high producing soils but which require more careful management if yields are to be maintained. Soils in the remaining area of the plantation are Class III or poorer soils. These can be used effectively for cotton production only under the most favorable weather conditions and then only if adequate surface drainage can be provided. The latter soils predominate on the back "forties" of the plantation. The nature of the soils, no doubt, is a strong contributing factor to the inability of management to maintain labor on these tracts and helps to explain why the back "forties" seldom paid off (Figure 7).

On Tractor Plantation 56 percent of the land is currently used for crops. An additional 17 percent is in improved pasture, which brings the total improved land up to 73 percent of the total acreage or 3000 acres. Thirty-six percent of the total or 50 percent of the improved land is currently planted to cotton. The acreage in cotton has ranged from around 1300 to 2000 acres. Prior to 1933 the acreage planted to cotton seldom fell below 50 percent of the acreage in the plantation.

Aside from the segments of waste and forest land on the plantation most of the land has been used for cotton at some time or other. Around a third of the acreage has been planted to cotton every year since the tract was added to the plantation. Another fourth of the land has been used dominantly for cotton and then there is some additional land that has been planted to cotton only in exceptional years (Figure 8).

The soil survey for Tractor Plantation shows that with only minor exceptions, all the land always or predominantly in cotton falls in the Class I or Class II soil groups. These soils predominate on approximately half of the plantation area. In years of production controls, when acreage allotments are in effect, some of these soils

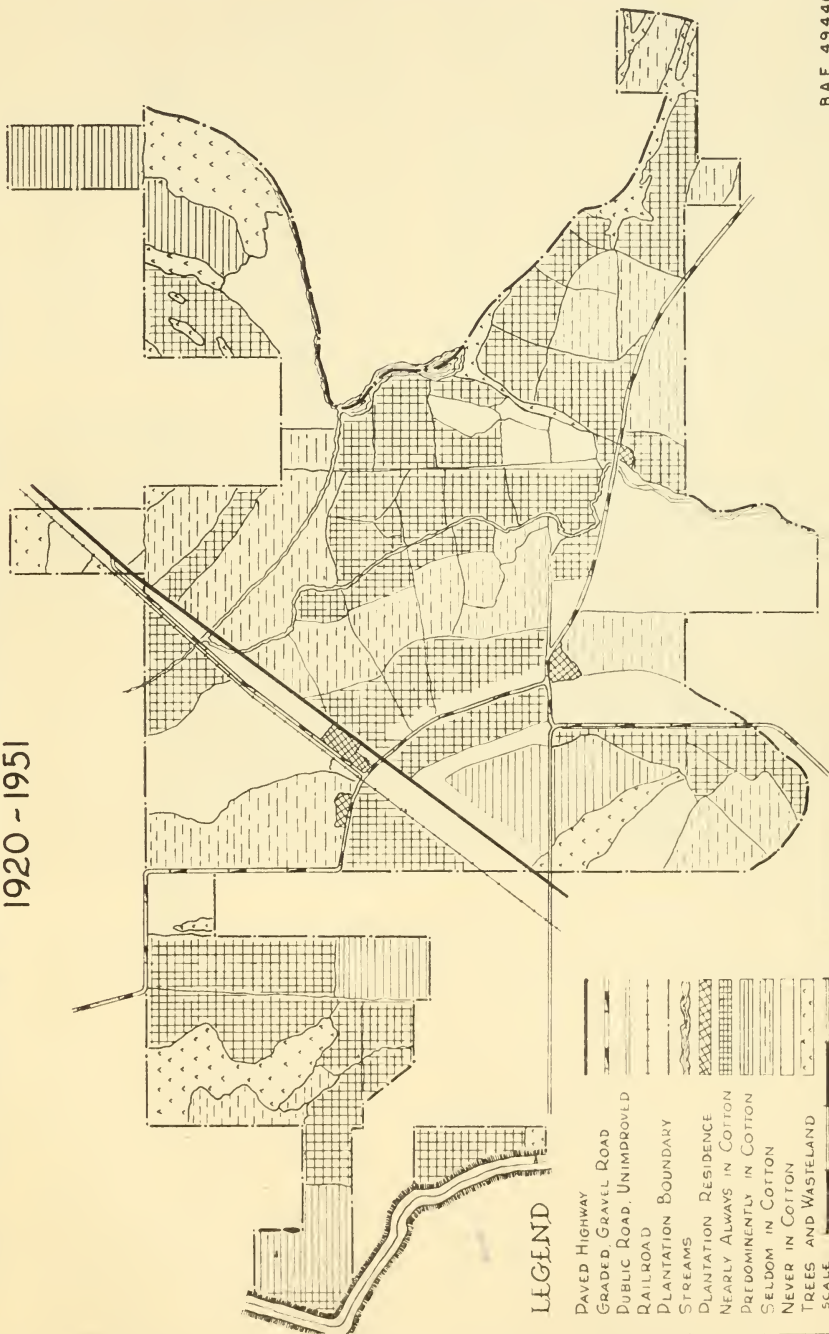
must be diverted to other crops. Even in years of expanding acreages management still has a backlog of fair cotton land that can be brought into production, if labor is available and the price seems to justify it (Figure 9).

The historical land use patterns for the two plantations show that in the pre-depression era nearly 2000 acres on the two units were planted in cotton annually. Both units curtailed the acreage planted when production controls were initiated in 1934. The acreage planted in cotton fluctuates around 1200 acres from 1935-1939 on each plantation. In the next five year period 1940-1944 the acreage on Mule Plantation is reduced to around 1000 acres; whereas, on Tractor Plantation the acreage planted is increased to 1400 acres. In the post-war era from 1945-1949, the opposing trends continue and the acreage on Mule Plantation ranges around 800, whereas on Tractor Plantation the acreage varies around 1600 acres.

The diverging trends in acreage and the difference in the productive capacity of the land on the two plantations have resulted in a lower total production on Mule Plantation. Since 1940 production on Mule Plantation has not been over 1000 bales in any year, whereas on Tractor Plantation production has never fallen below 1000 bales in any year. The range on the former is from 482 to 961 bales and on the latter from 1105 to 2136 bales. Neither the high records nor the low records fall in the same year on the two plantations. The variation in production reflects the vicissitudes of controls, weather, and labor supply and the responses of the plantation managements and the plantation soils to these variables.

The more intensive cultivation and the retirement of the poorer soils from cotton production on Mule Plantation are accompanied by a slight net increase in yields per acre. For the five year period 1935-1939 the average yield of lint per acre is just over 350 pounds, as compared to just under 400 pounds for the period 1945-1949. In contrast, Tractor Plantation has expanded its cotton acreage and substituted tractor power for mule power and hand labor.

LAND USE HISTORY ON A MECHANIZED PLANTATION, MISSISSIPPI
1920 ~ 1951



LEGEND

- PAVED HIGHWAY
- GRADED GRAVEL ROAD
- PUBLIC ROAD, UNIMPROVED
- RAILROAD
- PLANTATION BOUNDARY
- STREAMS
- PLANTATION RESIDENCE
- NEARLY ALWAYS IN COTTON
- PREDOMINANTLY IN COTTON
- SELDOM IN COTTON
- NEVER IN COTTON
- TREES AND WASTELAND

Figure 8. Land use history on Tractor Plantation, Bolivar County, Mississippi, 1920-1951.

During this period the 5-year average yield has dropped from nearly 600 pounds on the restricted acreage in 1940-1944 to below 500 pounds on the expanded acreage in 1945-1949.

At the present level of operation Mule Plantation averages approximately 15 acres of cotton per occupied house. Based on the 5-year average yields this results in a net production of 11 bales of lint per occupied house. The more extensive operation on Tractor Plantation only averages 18 acres in cotton per occupied house but when combined with the higher yields obtained, the plantation shows a net production of 16 bales of lint per occupied house. The higher capitalization has enabled the latter plantation to absorb a 15 percent net loss in average yields and still produce nearly 50 percent more cotton per unit of labor than was produced on the unmechanized plantation.

Summary and Conclusions

The preceding analysis is concerned primarily with the distribution of people on the land, the factors which are associated with the observed historical changes in the distribution, and the resulting differences in distribution between the two plantations. The observations are indicative of the effects which differing management policies will have and should be viewed as tentative hypothesis subject to further verification.

The two plantations were selected because the managements have adopted divergent methods to cope with the problem of labor scarcity. Mule Plantation is a tenant operation and continues to use mules as the primary source of work power, but has a few tractors which are available to the tenants on request. Tractor Plantation is primarily a "day crop" operation and is extensively mechanized with tractors used for all operations at the convenience of the manager. The few tenants remaining are responsible for hand labor — hoeing and picking — on the acreage assigned to them. The "day crop" is machine harvested.

The cropper tract is the unit of operation on Mule Plantation. Housing is

associated with the tract and dispersed on the plantation. If a house is empty, the field adjoining it is idle. If a house stands empty for more than one season, the field adjoining will in all probability be diverted to crops other than cotton. The field is the unit of operation on Tractor Plantation. The houses are no longer associated with specific tracts and have been moved out of the fields to locations on three main roads. The fields are prepared and planted by the tractor crew and at hoeing time a number of rows are assigned to the cropper. The acreage thus assigned accounts for less than a fourth of the total acreage planted.

The decline in occupied houses has been greater on Mule Plantation (37 percent) than on Tractor Plantation (34 percent). The availability of tenants, willing to bargain for specific tracts is the primary determinant of cotton acreage in any given year on Mule Plantation. Historically management has found it difficult in periods of labor scarcity to secure tenants for the heavier, poorly drained soils and most of this land has been taken out of cotton.

Soil type, price, and the availability of labor substitutes—tractors, chemicals and mechanical pickers—are the primary determinants of cotton acreage in any given year on Tractor Plantation. The acreage is determined and labor (resident or non-resident) or labor substitutes necessary to do the job are secured.

Tenure rights in the land are recognized as an important factor in recruiting and retaining labor on both plantations. All workers are tenants on Mule Plantation. The cropper arrangement predominates, but there are some renters. All workers are potential "day hands" on Tractor Plantation. Tenure rights to a crop are assigned to a worker, or to his wife, if this is necessary to secure his services as a hoe hand, tractor driver or mechanic.

The phenomenon which distinguishes the management on Tractor Plantation from Mule Plantation is the new management hierarchy which is being established to operate and maintain the tractor equipment. There are in essence

SOIL CLASSIFICATION MAP FOR A MECHANIZED PLANTATION, MISSISSIPPI, 1951



Figure 9. Soils Classification on Tractor Plantation.

two operating units on Tractor Plantation. One unit is operated under the traditional sharecropper system and in 1951 accounted for less than one-third of the cotton acreage on the plantation. The remaining two-thirds of the crop is in management or day cotton. All hand labor for the operation is hired on the day-wage basis and as much of the work as possible is done with tractor equipment. When possible the day hands who work on the operator cotton are secured from the tenant families on the plantation and paid a fixed daily wage which is determined at the time the families bargain for the current crop.

Mechanization on Mule Plantation is nominal and includes only preplanting operations and some cultivation. Most of the cultivating on Mule Plantation is done with mules. In contrast mechanization on Tractor Plantation is extensive, including even some weed control operations, such as flame-cultivation and chemical weed control. Nearly 70 percent of the cotton crop on Tractor Plantation has been harvested with machines each year for the past 4 or 5 years.

Neither plantation has embarked upon a clearly defined program for selecting and training operators of the mechanized equipment on the farm. Literally, if a man wants to drive a tractor and he can keep the tractor in the row he can become a tractor driver. Tractor Plantation did inaugurate in the fall of 1951 a training school for tractor drivers which was designed to

acquaint the potential drivers with the operation and maintenance of the equipment. It is too early to assess the effect of this program on the skill and efficiency of the drivers on the plantation.

Looking to the future the development of the fully mechanized operation will result in the elaboration and specialization of the mechanized wing of the management structure, and in the deletion of the tenant wing of the structure. It is unlikely that this will be attained, however, until such time as management can see itself no longer dependent upon a relatively large hand labor force. Currently management on Tractor Plantation is willing to pay the additional cost of the sharecropper program in order to retain the labor force for work when needed on the operator cotton. The decision to retain a sharecropper arrangement on a portion of the plantation is made not so much in terms of the economies of the operation as it is in terms of the availability of labor. The operator of a mechanized plantation who does not have an accessible labor force must depend upon the availability of sufficient workers in nearby towns and villages. When he competes for this non-resident labor the cost of weed control becomes higher on a per-day basis, but the critical problem is that he is never completely sure on any given day or in any given week that he will be able to obtain the 100 or 200 workers which he needs if he is to get through the fields in the time available.