Persistence of the Plantation and National Agricultural Problems

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There are two objectives that I hope to satisfy in this discussion. The first is to establish the persistence, the viability and flexibility under a wide variety of conditions, of the plantation as an agricultural operational type from medieval times in the Mediterranean to the present on the American scene. The second objective is to assess some of the problems confronting the management of properties of the plantation type in regard to our national agricultural problems, and the potentials therein for changing the directions of policymaking.

It is necessary to define the term "plantation", and the operational system which it compasses, at the outset. Plantations have been variously defined by scholars in different fields. My definition, that of a geographer, is broad enough to encompass the interests of most specialists in other disciplines and it has withstood examination by scholars here and abroad for more than two decades. I have defined the plantation as comprising the following five elements (Prunty, 1955):

1. a large landholding, large enough to be distinguishable from the "family farm";
2. a distinct division of labor and management functions, with management customarily in the hands of the owner. Generally it has taken the equivalent of at least five full-time employees to permit management to emerge as a full-time function embodied in one individual;

3. specialized agricultural production, usually involving two or three specialties per proprietorship, and most of the production destined for cash sale;
4. distinctive settlement forms and spatial organization which reflect, to a high degree, centralized control of cultivating power (frequently the settlement forms display nucleation of employee housing adjacent to the residence of the management, or to the location of the cultivating power and associated tools); and
5. a relatively large input of cultivating power per unit of area.

No one of the foregoing elements alone characterizes the plantation; instead, all five are necessary and interdependent. The term "plantation" should not be applied to a "system" of labor or capital employment alone because, viewed geographically, any labor system is but one element in plantation occupance. While the plantation is a prime case of capitalism at work in an agrarian setting, it should not be viewed solely in terms of its capitalistic traits.

Some scholars have gotten "hung up" on the notion that, to be a plantation, a property must be a producer of "staple crops"—this apparently because production of staples was the focus of most plantation activities during the 17th, 18th, and 19th centuries. It is more accurate to view plantations as entities whose specialized production, in volume, is destined for cash sale. The distinction is related to the development of transportation and market facilities since 1900 which have made it possible for plantation operations to specialize in production of goods that, because of perishability, could not have been considered as plantation product options in the 19th century and earlier. As the plantation concept spread to many parts of the world during the 19th century, tree and bush crops of many sorts became parts of the suite of commodities which plantations placed upon world markets. It logically follows that continued improvements in transportation during the 20th century have expanded the range of commodities produced by plantations to include such things as hogs, oranges and woodstuffs (Prunty, 1955, 1963).

ORIGINS OF THE PLANTATION TERM

The origins of the plantation as an occupance system, or type, lie in the Levant in medieval times. However, the origins of the *land*

occupance system and of the English *term* "plantation" are not the same. While the ultimate derivation of the term may lie in the Latin *plantare* (to plant) and *plantatio* (the act of planting) as suggested by Thompson (1979), the English term derives directly from the old German-Saxon word "pflantung," meaning a small tract or a field planted to anything, i.e., "a planting." The plural, "pflantungen," meant two or more plantings and therefore a group or collection of fields–hence a plantation. Throughout the last ten centuries in Britain itself the term "plantation" has meant no more than that: simply a collection or group of tracts planted to something (New English Dictionary, 1933). Even today in Britain "plantation" is universally employed to refer to tracts of land under reforestation or afforestation, i.e., tracts that have been planted to trees. Frequently we find a carryover of this usage of the term in the hands of contemporary American foresters. The land usage involved in the original British employment of the term had practically nothing to do with the operational system that evolved in Mediterranean localities and which we have called "plantation" from approximately 1650 to the present.

British usage of the term gradually expanded in the 16th and early 17th centuries as Ireland was conquered. The establishment of the Irish "plantations" as frontier colonizing schemes modified its usage (Johnston, 1958). The tracts which the British Crown gave English and Scottish settlers in Ireland were granted with the understanding that each recipient would take men at arms plus their families with him, that he would house them adequately, that he would settle his followers on the land and engage in some sort of agricultural production, and that he would build a central house or manor which would be fortified. A collection of "plantings" (fields), cultivated by the residents, was implicit for each property–hence each was a "plantation." In Munster some of these grants were as large as 12,000 acres, but most grant-holdings were smaller and the numbers of retainers the English grantees were required to settle on the land varied from one part of subjugated Ireland to another (Maxwell, 1923). While the objective of the British Crown was to settle armed men with a captain on each plantation unit–and thus to have an army *in situ* whenever the Irish clans rebelled–the objective of the recipients of these grants was to obtain large landholdings which would enable them to live in

the style of an English squire. Thus, during the period of Irish subjugation the term "plantation" was expanded to mean a frontier colonizing and settlement scheme within which there were collections of plantings.

The establishment of the Irish plantations overlapped the era of the first colonial settlements in North America. It is not surprising, then, to find that the Massachusetts Bay Company–the financial backers of the Pilgrims–referred to their Massachusetts endeavors as their plantations. The London Company, the backers of the Virginia colony, used the term in the same manner. When Roger Williams and his followers broke away from the Massachusetts Puritans and moved to the shores of Narragansett Bay, the resultant landholdings were known as plantations and some of these were as large as five or six square miles (Brown, 1948). Derivative from that condition is the official name of the State of Rhode Island today: Rhode Island and Providence Plantations! Also derivative is the use of the word "plantation" in Maine to refer to its minor civil divisions; this practice began during the days when Maine was a frontier area and before its separation from Massachusetts to attain statehood. The foregoing is sufficient to make the point: in early colonial American settlement, the term was used to refer to frontier colonizing, and definitely not to refer to the large scale commercial agricultural entity subsequently known as the plantation. Obviously the British used the term in the same context to apply to their colonizing ventures on their several Caribbean island outposts in the 17th century.

ORIGINS OF THE PLANTATION OPERATIONAL SYSTEM

The operational system, on the other hand, was introduced into the east coast of the Mediterranean, principally the Levant and southern Turkey, by the Arabs in about the seventh century. Apparently the Arabs had observed sugar plantations–large scale cultivation, large labor force, nucleated villages for workers, central management, and all the rest–along the coasts of India and transferred the concept into the eastern Mediteranean. They introduced the plantation in association with the production of sugar; it is sugar cane that is primarily associated with the migration of the plantation concept from the Levant into the New World. North Europeans first became familiar

with sugar during the Crusades. "Prior to that time honey was the only sweetening agent available to them. After taking over the Arab sugar industry in Palestine, the Normans and Venetians promoted the production of sugar in the Mediterranean islands of Cyprus, Crete and Sicily. From the twelfth to the fifteenth centuries these colonies shipped sugar to all parts of Europe." (Fogel & Engerman, 1974). Slavery was involved in sugar production on the plantations in these islands. Although the slaves were principally whites, the institutional apparatus of plantation slavery apparently was developed here for the first time and the Europeans attached it to the plantation as part of their operational concept. The Spanish and Portuguese expanded sugar cultivation to the southern shores of the Iberian peninsula and also to the Atlantic islands off the west coast of Africa. Some of those who provided the slave labor forces were natives of the islands, notably on the Cape Verde and Madeira Islands, but most of the slaves were imported from Africa (Rubin and Tuden, 1977). It is in association with the Cape Verde and Madeira plantations that the Atlantic slave trade began in the 1400s (Fogel and Engerman, 1974).

By 1600 Brazil had become Europe's leading source of sugar and the center of sugar production had shifted into the western hemisphere. Spanish and Portuguese colonies were the principal suppliers. During the 17th century British, Dutch and French possessions in the Caribbean were developed as sugar producers and the dominance of the Spanish and Portuguese in the European sugar trade was broken. The British began sugar production on Barbados about 1625. The experience of the British with the Barbados sugar plantations appears to have been related to the rise of the plantation complex of the South Carolina coast, in association with rice, because of migrations of British colonists from Barbados to Charleston.

PLANTATION GENESIS IN COLONIAL AMERICA

The Charleston colony had engaged in limited plantation activities in association with indigo production before 1680, but more important to the early survival of the South Carolina colony was a naval stores industry, some meat exporting, and an extensive trade in hides and skins from the interior. The introduction of rice about 1680 or 1685 provided a reliable, profitable crop at about the same time that

some English from Barbados came into the South Carolina colony. Duncan Heyward indicated that rice was introduced initially from Madagascar in 1685 (Heyward, 1937). There is some confusion as to the exact mode and point in time as to the introduction of the crop, but by at least 1687 the South Carolina colonists were growing the crop successfully in small amounts. In the ensuing two decades the contribution of the ex-Barbadians was their knowledge of the organization and management of the plantation complex under sugar culture. Thus a blending, or melding, of three ingredients occurred on the South Carolina tidewater between 1687 and 1710: (1) the land use system that had transmigrated the tropical Atlantic from the Levant; (2) a viable commercial crop which fitted the plantation mode of operation; and (3) the British usage of the term "plantation" to refer to a frontier colonizing scheme. Obviously, then, the land use system we call the plantation and the term "plantation" were melded in Anglo-America for the first time in the South Carolina tidewater.

By 1710 the South Carolina rice plantation complex was well established, the slave trade was expanding to accommodate the new plantation demand for labor, and the "factory-in-the-field" concept was at work (Mullin, 1976). The South Carolina colonists' contacts with the Virginia colonists were numerous; whether the concept of the plantation management system was formally transferred from the Caribbean isles or from South Carolina to the Virginia colony probably is not important. By about the same time (1710) slave importations into tidewater Virginia began to expand as the "plantations" of that colony shifted from a quasi-frontier status and use of indentured servants into production of tobacco within the commercial plantation format using slave labor. In lower Louisiana, knowledge of the plantation system traces to the French colonial sugar plantation of Hispaniola. The early attempts (after 1752) by the Louisiana French to grow sugar cane on their plantations were successful but it was as late as 1795 when granulated sugar was first produced as a plantation-grown-and-refined crop (Sitterson, 1953). Prior to that time, however, the Louisiana French had produced small amounts of indigo, tobacco, and Sea Island cotton within the plantation format. After 1795 the expansion of plantation sugar production in lower Louisiana displaced most–but not all–of the production of other crops as the plantation complex spread along the principal rivers and bayous (Rehder, 1973).

PRE-CIVIL WAR EXPANSION

The expansion of the plantation occupance system across the interior of the South occurred principally between 1800 and 1840 and was a result of a number of disparate forces which acted approximately concurrently. (Owsley, 1945). These included more than 100 years of population growth and build-up in the South Atlantic seaboard colonies occasioned by in-migration, the slave trade, and high levels of natural population increase; the several removals of the Indian populations from the South Atlantic and Gulf states after 1800; the attraction of huge amounts of cheap virgin land in the interior; the steady rise in demand on foreign markets for all of the cash crops identified with the southern plantations (cotton, tobacco, rice, sugar)–in particular, the foreign demand for cotton associated with the rise of the British textile industry was a powerful force; and the introduction of Whitney's modification of the cotton gin, which made possible rapid separation of seed and fiber of American upland cotton and thus opened the interior of the lower South to production of that crop (Aiken, 1971).

The plantation operational system did not "migrate" into the interior primarily because of soil erosion and depletion (as some authors have charged, or inferred) in the sense that plantations were abandoned in the South Atlantic states and were then transferred into new locales west of the Appalachians. The number of landholdings of plantation size in the South Atlantic seaboard states never decreased appreciably and today they are present in the traditional plantation areas of the seaboard in larger numbers than ever before. Soil erosion clearly was coincident to the expansion of the plantation complex into the southern interior, as it was with the inland expansion of frontier and small-farm holdings from essentially all parts of the eastern seaboard, but it did not play a primary causal role. The principal causal force of plantation developments in the interior was population growth that filled up the lands of the older seaboard districts, and concomitant population migration into the interior (Prunty, 1957).

The popular American liturgy regarding plantations has portrayed the usual antebellum operation as a multi-thousand acre unit with a multi-hundred slave population. In part, this misimpression stems from the nature of available plantation records. It was the larger

plantation units which had the management available for extensive record-keeping and these records have been the principal ones available to 20th century students of plantation operations. Actually, the sizes of the antebellum units were smaller than has been popularly supposed, and this is true of most of their "descendants" of today. The inland plantations, whether devoted to tobacco or cotton as cash crops, customarily contained about 1000 acres or somewhat less and, characteristically, one-fourth to one-third of each unit was in woodland (Owsley, 1949). Hesseltine observed that antebellum plantation operators considered 900 to 1000 acres "the most profitable-sized agricultural unit," amd that from 60 to 100 Negro slaves could best work such an area (Hesseltine, 1936). Immediately prior to World War II, a field-based study which examined 646 plantations distributed from North Carolina to Texas found that not more than 10 per cent of the plantation proprietorships exceeded 1000 acres (Woofter, 1936).

THE SHARECROP AND SHARE-TENANT ERA

The plantation complex survived the Civil War in virtually all instances and in all parts of the South, a condition that frequently has been misunderstood. Some leading historians, including U. B. Phillips, believed that the plantation disappeared when, with emancipation, the mode of their labor employment was altered (Phillips, 1909). But the critical fact is that the large landholdings, the essential bases of plantation occupance, did not break up. During the decade after the war, the plantations evolved sharecrop and/or cash-wage labor employment systems. Cash-wage labor systems developed particularly in the rice districts of the Georgia-Carolina coast and in the sugar districts of lower Louisiana. In these areas sharecropping was not feasible because the irrigation and drainage required by their physical settings dictated that each plantation be operated as a single unit. But in the tobacco and cotton producing areas sharecrop labor employment became dominant. After 1880, share-tenancy, distinct from sharecropping, also appeared as a system of labor employment (Prunty, 1955). These changes in the manner of labor employment and compensation did not spell the end of the plantation complex. The notion that the plantations disintegrated following the Civil War

also has been, to a considerable degree, caused by a change by the Bureau of Census in its mode of defining and reporting "farms" in the South, beginning with the Census of 1880. Thereafter, the Census enumerated each tenant sub-unit on a plantation landholding as a separate farm, even though these sub-units could not function independently. Those who have depended upon the Census observed a massive increase, therefore, in the number of farms enumerated after the Civil War and also a related massive decline in the average size of farms and–from these changes–have been led to think that the plantations disintegrated (Prunty, 1956).

However, the large landholdings not only survived the Civil War but became more numerous over the succeeding decades. For example, the alluvial Mississippi valley in northeastern Louisiana, northwestern Mississippi, eastern Arkansas, and southeastern Missouri, from Natchez northward to Cairo, Illinois, today contains the greatest number of and highest proportion of operations of plantation scale to be found anywhere in the South. At the close of the Civil War only intermittent narrow strips of its natural levee lands, fronting on the principal rivers, were cleared and occupied. The land clearing, drainage, and levee construction activities that have made possible the development of this largest-of-all southern plantation concentrations were virtually entirely post-Civil War enterprises; they continue around the margins and in the "backwoods" of the alluvial valley even today (Harrison, 1961). The strong central management which always has characterized plantation operations was weakened somewhat under share-tenant and standing-rent tenant modes of operation during post-Civil War decades. However, the central role of management never disappeared and from the 1930s onward its role in plantation operations has been at least as vigorous as in antebellum times.

CONTEMPORARY PLANTATION TYPES

From World War II until approximately the early 1960s the plantation complex in the South underwent another major transformation. The tenants and the mules characteristic of the decades following the Civil War were replaced by cash-wage laborers and machines. On Louisiana's sugar plantations, where share-tenancy never was dominant, the changeover amounted primarily to mechanization of cane

sugar production. Elsewhere the results of these changes have been re-emergence of the large field pattern characteristic of pre-Civil War days, the disappearance of sharecrop or share-tenant housing scattered across the landscape of the characteristic plantation, the re-emergence of nucleated patterns of settlements and structures, and a strengthened, over-riding, role for plantation management. I have identified this contemporary pattern of plantation occupance as the *neoplantation* because of its strong spatial and functional similarities to the plantation of pre-Civil War days (Prunty, 1955). The persistence of the plantation as a large landholding was essential to the rapid emergence of the neoplantation pattern from sharecrop and share-tenant operations that had preceded it on these same holdings.

On most plantation units the emergence of the neoplantation pattern did not occur "overnight", but instead proceeded by stages over a period of a couple of decades (Aiken, 1978; Prunty, 1962). Labor out-migrations from plantation areas during and after World War II, hence chronic labor shortages, the mechanization not merely of planting and cultivation operations but particularly mechanization of crop harvesting, and the rise of a new production technology employing herbicides–all these contributed to the rapid appearance of the neoplantation occupance type. Today the neoplantation dominates overwhelmingly and share-tenancy or sharecrop operational patterns have disappeared.

After about 1955 many plantations developed a multiple-unit characteristic. "Multiple-unit" in this instance refers to those operations in which two or more non-contiguous tracts are operated by one management, employing the same labor force and machines on all units. In many of the tobacco and cotton producing districts of the South multi-unit operations appeared when crop acreage allotments–controlled by Agricultural Adjustment Act regulations–became stringent. Plantation operators then needed more acreage than their own allotments provided in order to utilize their machinery inventories and labor forces effectively. At the same time many of their small-farm neighbors held crop acreage allotments that had become too small to support efficient production. Plantation operators began to lease or rent the allotments of their neighboring small-holders in order to increase the size and efficiency of the plantations. Through this process they became what the Census calls "part-owners"–and

also the tenants of their neighboring small holders! To my knowledge, the part-owner multiple-unit plantation was first discovered and observed in southwestern Georgia (Mealor, 1964). Subsequently it was examined on the central Georgia Piedmont (Fisher, 1967).

Still another type of multiple-unit operation has emerged since about 1960. It has been called the "fragmented neoplantation" (Aiken, 1971). In an operation of this type as many as a dozen non-contiguous tracts situated within ten or twelve miles of one another are combined through purchase, lease and/or rental arrangements. Customarily the substantial majority of the tracts in such operations are rented. The resultant operation contains a total acreage greater than the minimum size of plantations. Such operations are possible in part because of the pervasive rural blacktop roads which permit rapid movement of the appropriate agricultural machine to the appropriate tract of cropland at the appropriate time. While the machinery inventory nominally is housed at one central location, the size of the operation plus adroit scheduling of machine use means that much of the machinery is at various outlying locales during much of the crop season. Few types of agricultural enterprises employ their capital in machinery more effectively than do these. I now believe that the term "fragmented" to identify an operation of this type is unfortunate because it denotes disintegration of a large entity into smaller disparate components when, in actuality, the size and nature of the operation is the result of accretionary processes through which the management has gathered together a sufficient number of tracts to produce an operation of plantation scale. It would be more accurate to identify such operations as "multiple-unit neoplantations". Since 1969 I have observed this operational type in all parts of the South, in the Middle West and Great Plains, and I now believe that it and other types of multiple-unit operations comprise the "backbone" of the region's current agricultural economy. Striking examples of it recently were examined in Louisiana's sugar country (Babin, 1974).

While the mechanization of agricultural operations has been more pronounced and rapid in the South since World War II than in other principal regions of the nation (in part because the South had undergone little mechanization before the war), the pervasive mechanization of all American agriculture has been associated with major

increases in the sizes of farming operations virtually everywhere. American agriculturalists have been victims of a persistent cost-price "squeeze" since 1948. Their principal responses to the squeeze have been to increase the sizes of their operations through purchase or lease or rental of additional land–frequently not contiguous to their home base, hence placing them in the multiple-unit category–and to buy more, new and larger machinery with which to cultivate their expanded acreages. Their purpose has been to enhance the prospects for profits by attempting to optimize their scale of operations. The growth in the sizes of farming operations has produced, again and again, spatial and operational patterns that are those of the plantation whether in California, Colorado, Arizona, Nebraska, Illinois, New York, or other areas.

The growing numbers of these large operations in non-southern areas have been recognized by a number of observers (Gregor, 1965; Smith, 1975; Sublett, 1975). Owners and operators outside the South only infrequently are aware that they are managing "plantations", or are extremely reluctant to refer to these operations as "plantations" because in their minds that term historically is associated with both slavery and the South and is, therefore, demeaning. Even so, the hard and inescapable fact is that the spatial, functional and management patterns of these large operations–wherever they are situated–are the same as the patterns on neoplantations and multiple-unit plantations in the South; within the conventional and current typologies of agricultural enterprises there is no label other than "plantation" that fits them. Cash grain operations on 2,500-acre units in North Carolina, central Illinois, eastern Arkansas, or California's Sacramento valley are so much alike as to be virtually interchangeable. Cotton-growing operations in California's San Joaquin Valley, or Arizona's Salt River Valley, are virtually identical to those found in northwestern Mississippi, if all the properties involved exceed about 1000 or 1200 acres. An operation that produces 6,000 hogs annually from its grain crops is essentially the same in morphology, function, and management whether situated in southwestern Georgia or northwestern Missouri; the same is true of the 500-cow dairy unit whether located on the northeast shore of Florida's Lake Okeechobee or in western New York or southern Michigan.

The complexities of Census definitions make it impossible to gauge

accurately the proportion of American farm output that comes from operations of plantation size, but it is clear enough that such operations today form a fundamental segment of the American agricultural economy. As of 1970, 97 percent of U.S. farm output came from less than 60 percent of those units the Census called "farms," and at least 80 percent of that output came from only one-third of the so-called farms; obviously these were the larger units. Approximately 80 percent of the area of the middlewestern states is in active farms, which amounts to about a 20 percent greater proportion in farmland than the national average. It is impossible to be certain of it from Census statistics alone, but these proportions suggest that operations of plantation scale may be more numerous today in the Middle West than in the South. Whether they like the term or not, it is clear enough that non-southerners now are in the plantation business in large numbers in many parts of the nation. Efforts to avoid the words "plantation" or "neoplantation" by using such terms as "large commercial farm," or "industrial crop farm"–to apply to those units located outside the South–really do not change the truth of the matter (Prunty, 1955; Gregor, 1970).

Why are there many mid-latitude American plantations today? The answers are complex. They include a declining farm population, increasing size of farm operational unit, farm mechanization, fantastic market accessibility provided by rail, highway and truck, and today's highly commercialized agricultural economy. Fundamental to all of it is the profit motive, which has led to optimizing the size and scale of operation, of labor and machinery employment, of managerial inputs, and to the associated product specialization necessary for optimization of these resources. It has ever been thus with plantations; throughout their history these "factories-in-the-fields" have been and are classic forms of capitalism.

VIABILITY OF THE PLANTATION

Consider, now, the varied natural environments and economic and cultural changes which the plantation has experienced since its introduction to the North American scene. The plantation complex has operated successfully under such contrasting natural settings as the outer coastal plains of Virginia and the Carolinas, the alluvial Missis-

sippi valley, the Louisville and Nashville basins, the lower Piedmont country of Georgia and the Carolinas, the south and east shores of Florida's Lake Okeechobee, Alabama's Black Belt and Highland Rim sections of the middle Tennessee river valley, the lower Brazos and Rio Grande valleys of Texas, and throughout most portions of the inner coastal plains of the Gulf South. About the only area in which the 19th century plantation complex has diminished numerically is the old Georgia-Carolina tidewater rice district, in which rice production essentially stopped after 1900. But, even here, some of the plantations have survived to the present and have shifted to production of other commodities. Today's plantation activities in central and southern California, and in southern Arizona, remind one of the early successes of the plantation complex under sub-humid climatic conditions in the Mediterranean Sea area. The plantation complex has survived two major upheavals involving its modes of labor employment–the Civil War, and the 20th century disintegration of the sharecrop and share-tenancy employment systems. The complex has adapted to the rise of new markets, new transportation modes, and a host of regulatory schemes concocted by the Federal government to control production and marketing; the most notable of these have been the Agricultural Adjustment Acts. To some extent at least, the viability of the plantation concept is underscored by the wide range of products which these units market today, but probably the most compelling index of its viability is the recent emergence of the plantation pattern in most non-southern agricultural sections of the nation. I believe that, in our highly commercialized agricultural economy, the "factory-in-the-field" is a successful economic reality and that it will be important on the American scene for the foreseeable future.

PLANTATIONS AND NATIONAL AGRICULTURAL PROBLEMS

Since I view the modern plantation as a core element in this nation's agricultural enterprise, it should not be surprising that I believe large-unit operators should become much more aggressive on the public scene than they are presently. They are a minority of those engaged in agricultural pursuits, and all farm population added

together accounts for only some four percent of the nation's people. But the vast amounts of cropland and agricultural produce for which they are responsible places these people in a unique position: they are a national "resource" of the first order. Because of agricultural land losses occasioned by urban-suburban encroachments, ad valorum taxes based on "highest and best potential use" instead of "current agricultural use" land assessment valuations, proliferations of highways, airports, parks, recreational and resort areas, the numerical growth of "retirement" and mini-farms, and federal policies which have promoted reforestation of erstwhile cropland, the national inventory of cropland has been reduced to about 410 million acres as of 1978, a decline of almost 90 million acres since the close of World War II. The relative importance of large-unit operations in national agricultural production has increased as the cropland has declined. That importance can be expected to increase proportionally in the years ahead because there is no indication that the processes presently responsible for conversion of agricultural land to non-agricultural uses are being checked, or controlled, to any important degree. Instead of harassment for being "big" (and therefore "bad," in the eyes of many), large-unit operators need a level of public (including governmental) understanding they do not customarily obtain. It is they, in the main, who provide the food and fiber for this nation's people. It is they who supply our huge agricultural exports which partially counterbalance our enormous imports of petroleum.

How should large-unit operators become more aggressive? I favor formal organization of operators who are handling these large enterprises. The NFO, the Grange, the Farm Bureau and other farmer organizations represent broad spectrums of farming. In these organizations the concerns of the larger operators frequently are "lost in the shuffle" because there are many more small and family-sized farming operations than big ones. The voice of the big operator needs to be heard. His problems are diverse and, when totalled, are a package of substantial dimensions.

The managements of large units have few places to turn for solutions to their many operational problems. Characteristically the agricultural experiment stations in the several states have produced valuable results in developing locally adapted varieties of field crops and forages, in determining optimum fertilizer applications for spe-

cific crops on specific soil types, in discovering the most effective procedures in applying herbicides and pesticides, in assessing the relative efficiencies of various designs of farm machines and equipment, and other individual aspects of the farming business without regard to the size or scale of the enterprise. But research in optimal integration of the various components of farming enterprises which takes into consideration the size of unit has received much less attention. Thus large-farm operators receive relatively little assistance in connection with one of their principle problems: how to integrate their whole operation in an optimum manner. Operations research is badly needed.

Another major set of problems involves labor. Where and how to find competent labor is one side of the coin, and the other is how to retain competent people once they have been employed. What can't be done with machines rarely gets done on today's farms, therefore the worker who is skilled in handling and maintaining today's sophisticated farm equipment is a valuable person. Unfortunately the worker skilled in handling these machines is attractive to industry because he has transferrable skills that, with modest retraining, can be fitted into many manufactural processes. It is axiomatic that the agricultural entrepreneur rarely can pay wages which will compete with industrial wages. His ability to compete lies mainly in the quality of the amenities that he can supply, such as housing, access to a pick-up truck, space for the vegetable garden, free heating fuel, and similar. He has to find workers who have a preference for a rural and outdoor lifestyle and–once he finds such people–he must compete to retain them because not only industry but other large-scale operators also want the same people. Among the amenities, housing is the greatest attractant. On those properties which I have examined in recent years, upgrading the quality of housing probably has contributed more to stabilizing the labor force than anything else.

The technical training schools which are dotted across every state are used repeatedly to train or retrain a labor force for nearly any industry that moves into the vicinity of one of them. These schools are state-supported. They are not oriented to training of a half-dozen employees in farm machinery operation, maintenance and repair; they expect to handle larger numbers of trainees over extended periods. The large-scale operator has had to train much of his labor

force himself; learning "on-the-job" is commonplace. Training new or "green" labor is an expensive, time-consuming process for the operator. In the aggregate, however, in nearly any community, these large-scale operators constitute an "industry." If they were to organize themselves and then request labor training services from the technical schools, they probably would obtain the services they need. They won't get much attention if they ask for assistance individually, or one at a time. The training and retraining of employees in the handling and field application of herbicides and pesticides is particularly important. Federal and State regulations controlling the applications of these chemicals have a habit of changing, and the chemicals appropriate for a given task have themselves changed over the years. The hazards involved in use of agri-chemicals therefore comprise a continuing set of managerial problems, one of whose most perplexing facets is the matter of getting employees to protect themselves properly when handling or applying these materials. The soil-and-water contamination problems associated with agri-chemicals applications are drawing progressively more and more governmental attention; new and more regulations controlling the uses of the agri-chemicals seem inevitable. If so, managements' problems therewith will grow correspondingly–and particularly in the realm of labor training.

Another chronic set of managerial problems involves transporting farming equipment from one outlying unit to another on today's large multi-unit operations. The right machine has to be put in a particular crop to perform a specific function at the appropriate time in the production cycle. Tracts producing the same crop frequently are miles apart. The skills and calculated judgments required in planning the planting successions on soils with differing seed germination and drainage traits, so as to schedule use of the available machinery inventory in an optimum manner through the crop season, would overwhelm many a USDA bureaucrat. Reduction of time-in-transit on the roads, which is not productive time but is expensive, is critical. Supervision of operations has become progressively more complicated when laborers have several different machines on tracts that are miles apart, as has also the servicing and maintenance of these machines. The farm machinery of two decades ago was, for the most part, not designed for over-the-road travel. The nationwide rise of multiple-unit operations has necessitated a new generation of

machines designed for highway transit. These machines, larger and with greater production capacity than ever before, are hazards to vehicular traffic on secondary and rural roads because of their sizes and relatively slow speeds. They are particularly hazardous under the low-light conditions of dawn and dusk; those are the times when they customarily are moving to and from outlying tracts. Secondary roads frequently lack the width of shoulders needed for machinery pull-offs, have many small hills and vales which restrict visibility, and frequently have little pony-truss bridges that cannot be traversed at all by modern farm machines (Sublett, 1975). Such conditions may force the operator to use primary highways to reach certain of his outlying tracts, in which case the hazards to vehicular traffic are compounded by the greater traffic densities and speeds involved. Those county commissioners who are not farm operators—and that includes most of them—should be given at least one extended trip aboard a four-row self-propelled combine so that they can gain an appreciation of the hazards presented by secondary roads characteristically built 30 or more years ago. The farmer is "on the road"; he has to be, and he has as much right to use of the road as anyone else. But today's farm machines and the secondary roads don't fit one another well.

Inheritance tax laws being what they are, it is not surprising that the number of large holdings converted from individual ownerships to family-held corporations has increased rapidly during the past two decades. The Congressional revision of the inheritance tax during 1977-78, whereby the minimum size of an estate subject to the Federal inheritance tax is increased by stages to roughly $250,000 by 1983, has *not* decreased the trend toward the family-held corporation. The $600,000 threshold for the inheritance tax proposed by President Reagan will have little bearing on this problem because it is a rare plantation-size property today whose value is not several times that figure. Many owners recognize that the current escalation of farm land values coupled with inflation will continue their properties in about the same position—in terms of real value and the inheritance tax threshold—that they were in during 1976-77, and earlier. They are responding by incorporating.

What is known as the "carryover basis rule," enacted in the Tax Reform Act of 1976, does not affect inheritance estate taxes as such. However, it affects income or capital gains tax due on any later sale of

property by the heir(s). The Revenue Act of 1978 delayed the effective date of the "carryover basis rule" until January 1, 1980. A strong effort was made during 1979-1980 to repeal the "carryover basis rule" in the form of Senate Bill 112 and this effort was successful. Under existing law, the tax basis on inherited property is the property's fair market value on the date of the deceased owner's death. If the heir sells the property immediately after inheriting it, there is no gain and therefore no tax. The "carryover basis" concept, in contrast, would set the tax basis of the inherited property at its cost to the decedent at the time when the property was acquired. Thus an heir who sells inherited property under this concept would be taxed on the entire increase in property value since it was purchased by the decedent. This concept has been called a "capital gains tax at death" deferred and imposed on the heir(s). The "carryover basis" concept would have–ultimately, not immediately–posed a major threat to continuation of many farm enterprises, particularly those which contain some timberland and those that have installed major production improvements that enhanced overall value beyond the rate of inflation. Although just repealed, the "carryover basis" concept has many Washington adherents within the Treasury Department hierarchy and within the staffs of certain key Congressional committees; it is virtually certain to appear again in legislative tax proposals.

There is a great deal of difference between, on the one hand, an 1800 acre incorporated grain-and-livestock operation in western Illinois owned and operated by two brothers and their two sons and, on the other, a multi-thousand acre California vegetable-producing unit with 30 full-time employees (plus others seasonally) that is owned by a food processing firm which markets nationwide. Yet both are called "corporate farms" and Congressional staffs exhibit a tendency to treat them as the same entities when agricultural legislation is being drafted. In the eyes of many–not merely Congressional staffs, but many in the news media also–the word "corporate" equates with "Big," and therefore "Bad." They are unable or unwilling to recognize that the efficiencies that come from the economies of scale-and-size on relatively large units are fundamental to the relatively low cost of food paid by the typical American family. In a sense, it is a "catch-22" situation when you expand to a multiple-unit operation of plantation size because the cost-price squeeze requires it, then in-

corporate to insure that the family investment in land and fixed assets won't be wiped out by inheritance taxes–only to find you are viewed through a discriminatory eye, which now classes you as "Big," by the government whose tax measures caused you to incorporate to begin with.

Most American farm units have supported at least four generations of owners; in the eastern seaboard states there have been six or seven such generations. Typically, with the passing of each generation one of the heirs has bought out the interests of the others and then has required the farmland not only to support his family but also to produce its own capital worth to pay off the other heirs. In other instances all the heirs have sold out their interests to a buyer who was not a relative, but the demands on the farmland have been essentially the same–the farm had to pay its current worth to absentee heirs. The heirs either went west and developed new farmland or, especially in the 20th century, went to towns and cities where their inheritances were invested in business, industry, and urban growth. In effect, then, the farmland of the nation has sent its capital value "to town" four or more times. This massive contribution to the growth of our urban-industrial structures has been of incalculable value. Until approximately the present generation, this rural-to-urban capital flow was not affected appreciably by inheritance tax laws.

Currently the inheritance tax threatens to divert much of the traditional flow from its customary urban destinations into the Federal coffers. Unless the process is broadly understood, and mitigated relatively soon, the contemporary plantations, "large commercial farms," "multiple-unit neoplantations," or whatever you wish to call them, are in danger. As we have seen, over the decades the plantations have flourished under a wide variety of physical settings and constraints, have survived and adapted to major changes in their labor supplies, have adjusted rapidly to the 20th century revolution in production technology occasioned by the rise of agri-chemicals and full-fledged farm mechanization, and have been highly successful in capitalizing on the massive commercial markets that typify the current agricultural economy. I believe that the most critical problems which large-unit operators face presently are government-derived. They include wage-and-hour regulations, allotted acreages, commodity price "floors," export restrictions and subsidies, regulations con-

trolling the use and application of agri-chemicals, growing regulatory controls on farm water supplies and their uses, and particularly the many problems associated with taxes: ad valorum, farm corporation, and inheritance taxes. Traditionally, and in the aggregate, the operators of plantations and other large American farms have exhibited great ingenuity and adaptability. We have to hope that the present generation of operators possesses these same qualities in abundance as it confronts the problems occasioned by "government."

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