Overcrowding in American Prisons: Policy Implications of Double-Bunking Single Cells

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Besides the loss of freedom, besides the forced labor, there is another torture in prison life, almost more terrible than any other -- that is compulsory life in common.

I could never have imagined, for instance, how terrible and agonizing it would be never once for a single minute to be alone for the ten years of my imprisonment. At work to be always with a guard, at home with two hundred fellow prisoners; not once, not once alone!

Fyodor Dostoevsky
The House of the Dead

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EXECUTIVE SUMMARY

Introduction

During the 1970's, American correctional systems experienced dramatic increases in the number of inmates they house and, concomitantly, in the number of lawsuits brought against them for overcrowding and related "conditions of confinement." There is considerable fear that these problems may be exacerbated in the 1980's by an influx of prisoners serving longer sentences, as judges and legislatures adopt a "get tough" approach to crime.

This report focuses on the consequences of crowded conditions of confinement. Special attention is given to double-bunking, i.e., housing more than one inmate in a cell originally designed for single occupancy, a method commonly used by prisons and jails to accommodate overcrowding.

It is interesting to note that double-bunking has increased in a decision-making environment which includes two contradictory "cues". The first cue, contained in two landmark decisions by the Supreme Court, is that double-bunking is permissible under the Constitution so long as it does not result in a substantial deterioration of the conditions of confinement. The second cue, contained in Correctional Standards adopted by professional associations and government agencies, uniformly suggests that the most appropriate form of housing is a single cell or room with at least 60 square feet of living space.

The Extent and Nature of the Problem

There are two general indicators that overcrowding has become relatively widespread. The first indicator is the volume of litigation in which overcrowding is an issue or a likely causal factor of an issue. By the end of 1981, 37 states, the District of Columbia, Puerto Rico, and the Virgin Islands were involved in litigation concerning conditions of confinement in their prisons. In only four of these states was overcrowding not related to the case.

The second indicator is empirical evidence. The most comprehensive work on overcrowding is a study by Mullen and Smith using 1978 data and based on the criterion that sixty square feet represent the minimal living space that inmates should be provided. Their data indicated that 39 percent of the cells in federal facilities, 55 percent of the cells in state facilities, and 61 percent of the cells in local facilities do not provide inmates at least 60 square feet of living space. Moreover, 35 percent of all inmates share their cells with at least one other inmate and 44 percent of state inmates and 16 percent of federal inmates were confined to their cells for more than ten hours per day. Finally, the data indicate that half of our country's inmates are confined in the least desireable type of housing arrangement -- multiple occupancy units with less than 60 square feet of space per inmate.

Although Mullen and Smith rightly conclude t[illegible] it is "inappropriate to speak of a national prison crowding problem" since there is considerable variation in crowding across regions and across states, the inescapable conclusion to be drawn from their study is that prison overcrowding and double-bunking are substantial and pervasive problems in American corrections.

The Law on Overcrowded Conditions of Confinement

Prior to the Supreme Court decisions in Bell v. Wolfish (1979) and Rhodes v. Chapman (1981), lower courts had disagreed as to whether double-bunking was unconstitutional and whether the Constitution requires a minimal amount of living space per inmate. The courts usually did not focus on these issues alone, however, but tended to examine the total conditions of confinement in reaching a decision. If the inmates that brought the suit were pre-trial detainees, the decision was based on whether the total conditions amounted to punishment, while for convicted offenders, the decision was based on whether the conditions amounted to cruel and unusual punishment.

In Bell v. Wolfish the Supreme Court presented its first decision in a case concerning the general conditions of confinement, as opposed to practices of the institution. The Court declared that double-bunking pre-trial detainees was not unconstitutional, noting that the detention center of interest was relatively new and not a "traditional jail," and that, in general, the conditions of confinement were adequate.

Although the Wolfish opinion suggested that lower courts should be more cautious about intervening in prison and jail cases, most post-Wolfish courts still found conditions of confinement unconstitutional. In post-Wolfish decision, some courts explicitly relied on Wolfish, others seemed to ignore or give rather short shrift to it, while still others attempted to distinguish between Wolfish and the case at hand. Five factors seemed particularly important to courts that found conditions of confinement were unconstitutional: 1) the inability of inmates to escape the pressures of overcrowded cells, 2) smaller cells or less living space per inmate, 3) longer periods of incarceration, 4) an institutional facility of poor quality, and 5) greater security problems and inadequate classification methods.

In Rhodes v. Chapman in 1981, the Supreme Court decided another double-bunking case, this time with respect to convicted offenders, and ruled that double-bunking convicted offenders was not unconstitutional per se. The prison was a modern facility with cells of 63 square feet and adequate dayrooms. In general, the other conditions of confinement were again viewed by the court as adequate and not sorely overtaxed by the overcrowding.

As in Wolfish the Court stressed that federal courts had become too enmeshed in the administration of America's jails and prisons. Nevertheless, the response of lower courts to Chapman has been mixed. Some courts have responded to the Court's concern and have found constitutional prison or jail

conditions that would probably have been found unconstitutional before Wolfish and Chapman. Other courts have found conditions unconstitutional, utilizing reasoning which seems inconsistent with Wolfish and Chapman, ruling almost as if Wolfish and Chapman did not exist.

As should be apparent from this analysis, it is difficult to predict how a court will decide a particular overcrowding case. It is clear, however, that courts are examining the totality of conditions in a facility in applying the constitutional standards of punishment and of cruel and unusual punishment. As a facility becomes more overcrowded, the quality of other conditions of confinement is likely to deteriorate, due to the added stress on both the physical facilities and the staff. Therefore, it would seem that as overcrowding and double-bunking become more prevalent in an institution, the likelihood of a lawsuit based on overcrowded conditions will increase with the age of the institution and the degree to which the institution is unable to expand its resources.

Social and Psychological Consequences of Overcrowding and Double-Celling

The presumption that underlies court opinions dealing with adverse conditions of confinement is that as conditions worsen due to overcrowding there is a deleterious effect on inmates. Therefore, empirical research relevant to this issue was examined to assess the validity of this presumption.

One possible consequence of overcrowding is an increase in disciplinary infractions by inmates. Several studies have examined the relationship between the density of inmate population and such measures of rule infractions as assaults and total number of rule infractions. These studies suggest that overcrowding does elevate the rate, as well as the number of disciplinary infractions. This is especially so for assaultive incidents, for institutions

that house younger offenders, and when the institution as a whole is operating above capacity.

A second consequence of overcrowding concerns the health and well-being of inmates. Studies examining this issue have varied in design but all have found a positive relationship between overcrowding and illness. Large, overcrowded prisons are associated with a variety of communicable diseases, including tuberculosis, with elevated rates of illness complaints and with higher rates of psychiatric commitments. Two studies have examined mortality rates and found that increases in inmate populations without concomitant increases in housing facilities are associated with elevated death rates, suicide rates, and rates of death by violence.

A related consequence of overcrowding is the amount of stress experienced by inmates. Studies have used blood pressure, palmar sweat, and death rates from cardiovascular diseases to measure stress. The one study using cardiovascular death rate did not find a relationship between crowding and stress, but the study is limited since it is based on a relatively small number of cases. Other studies, however, have found a positive association between social density and stress. The blood pressure studies suggest that stress is highest at the outset of confinement, drops shortly thereafter, and then begins a general and consistent increase. This trend is least evident for residents of single cells, where the trend is relatively flat; it is most evident for residents of dormitories and for those inmates who move from cells to dormitories.

An indirect measure of the effects of overcrowding is inmates' perceptions as to whether their living arrangements are crowded. The major study in this area suggests that social density is again an important factor: inmates living in dormitories were more sensitive to feelings of being crowded than inmates

who resided in a single cell and these feelings increased with the length of confinement in a crowded environment.

Only one study, conducted at six federal correctional institutions, examined the consequences of double-bunking directly. Its results suggest that double-bunking has negative effects similar to those observed for general overcrowding. Specifically, inmates in double-bunked cells had higher illness complaint rates, perceived more crowding in their housing environment, were less tolerant of crowding, exhibited more negative attitudes and had higher rates of nonaggressive disciplinary infractions (at least in the one institution where rule infraction data were available), than did inmates housed in single cells.

While these negative consequences were associated with the double-bunking of single cells, the study did not find any association between double-bunking and elevation in blood pressure, nor were there any effects on attendance at religious, club, and educational activities. Thus, double-bunking does not seem to have as broad an effect as does overcrowding, but there is virtually no evidence to suggest that double-bunking has any positive effects.

While the evidence just presented suggests that there is little justification for double-bunking inmates in cells designed for a single occupant, a common response is that the negative consequences of double-bunking are offset by the financial savings that accrue from housing inmates in double cells or dormitories. In terms of capital costs this conclusion is probably justified. In terms of operating costs, however, the same conclusion is not self-evident. The only major study to date on operating costs, based on six federal correctional facilities, concluded that the "...cheapest prison to operate... would be relatively large...and would provide an individual cell for each inmate."

Conclusion and Recommendations

Despite the fact that double-bunking may be constitutional in many circumstances, it is our conclusion that double-bunking is not sound correctional policy. It violates accepted correctional standards, is associated with a variety of negative social and psychological consequences, increases the likelihood of litigation, and may not result in any substantial reduction in operating costs. If double-bunking cannot be avoided it should be employed only under certain circumstances, and it should be accompanied by an expansion of staff and of medical and mental health facilities. While there should be a particular bias against double-bunking facilities that house young adults, the basic conclusion remains that double-bunking inmates should be avoided if at all possible.

INTRODUCTION

American prisons and jails are facing a period of profound crisis. Converging political and judicial forces have produced extraordinarily high prison populations, straining the ability of correctional systems to provide for the legal, safe, and humane custody of confined persons. At the same time prison populations have been increasing, the courts, especially federal courts, have become increasingly involved in correctional matters. Indeed, during the 1970's, the single most important issue in the administration of justice has centered on the constitutionality of confinement. Prisons and jails have gone from "out of sight and mind", to the center of legal and policy considerations. Illustrative of these changes are the following items:

- During 1981, 31 states were under court order to reduce overcrowding;
- Thirty-seven states were involved in litigation about overall prison conditions;
- Nationally, the prison population grew by 12.1 percent, or almost 40,000, during 1981;
- Prison population increases of at least 20 percent were reported by nine states, and Michigan, under its emergency "rollback" law, was the only one to report a decline;
- Over 8,000 state prisoners were "backlogged" in local jails by the end of 1981 (Bureau of Justice Statistics, 1982:1-4).

As a result of these countervailing trends correctional authorities are faced with a dilemma of considerable proportion. They are forced to accept new inmates, with longer average sentences than in the recent past, at the same time they receive court orders to reduce overcrowding, or at least the deleterious

effects of overcrowding.

Clearly the resolution of a dilemma such as this is not self-evident. One area in which it can be examined with some clarity however, is in the particular form of overcrowding known as double-bunking. Double-bunking is the situation in which more than one inmate is housed in a cell originally designed for single occupancy. Since double-bunking has been the subject of both empirical inquiry and judicial intervention it offers an opportunity to examine the more general issue of prison overcrowding within a specific context. The present report, therefore, will focus on an examination of the extent of double-bunking, its constitutional status and the social and psychological consequences of housing inmates in such a setting.

THE SUPREME COURT AND CORRECTIONAL STANDARDS

At the outset of our investigation we should note that there is a basic discrepancy with respect to the appropriateness of double-bunking. In its landmark decision, Rhodes v. Chapman, the Supreme Court ruled that double-bunking, in and of itself, is not unconstitutional. Double-bunking would become unconstitutional only if it exacerbated other conditions of confinement to such a point that the "totality of conditions" would be constitutionally questionable. Moreover, in its decision in Chapman, and in Bell v. Wolfish, the Court held that there was no constitutionally required minimum size for a prison cell. Although cells could become so small or so overcrowded as to constitute unconstitutional confinement, the Court refused to specify a constitutionally required minimum size.

Thus, from a legal perspective, double-bunking is acceptable so long as it does not contribute to a substantial deterioration of the conditions of confinement.[1] Such a position would suggest that double-bunking single cells is an appropriate response to the severe problems of overcrowding facing correctional administrators today.

On the other hand, the correctional standards adopted by professional associations and governmental agencies in recent years argue strongly against such a solution. Based on the experience of correctional administrators and penologists, these standards can be viewed as establishing a baseline for enlightened correctional policy.

These correctional standards suggest that the most appropriate form of housing, especially for maximum security units, is a single cell or room. Consistent with this overall recommendation, they are unanimous in their condemnation of double-bunking. Quite simply, these standards insist that one ought not double-bunk single cells. For example, the "Federal Standards for

Corrections" of the U.S. Department of Justice states that: "All cells and detention rooms rated for single occupancy house only one inmate"; the American Correctional Association's Standards for Correctional Institutions states that: "There is one inmate per room or cell...". In general, the right of the inmate to a certain degree of privacy and protection were most often cited as reasons for this recommendation.

Moreover, unlike the decisions of the Court, the standards recommend minimum amounts of living space. Table 1 reproduces these recommendations. All recommend at least 60 square feet per cell and one, the National Advisory Commission on Criminal Justice Standards and Goals, recommends as many as 80 square feet per cell. Although there is some variation in recommended cell size, there appears to be a growing concensus in the correctional field that 60 square feet per cell represents a bare minimum of adequate living space for an inmate.

Thus, from a legal perspective double-bunking is constitutionally permissible, but from the perspective of correctional standards it is soundly condemned. To use a medical analogy, double-bunking appears to be akin to smoking -- it is legal but never advised. In the following pages we will delve into the legal, social and psychological consequences of double-bunking so as to be able to suggest to correctional administrators an appropriate course to steer between the Scylla of the Court and the Charybdis of correctional standards. First, however, we will examine the extent to which double-bunking is actually employed in our correctional systems.

Table 1

Correctional Standards for Minimum Cell Size

STANDARD	Minimum Square Feet for Single Cell
American Bar Association	Adequate Size
American Correctional Association	60
American Public Health Association	60
Federal Bureau of Prisons	75
National Advisory Commission on Criminal Justice Standards and Goals, Corrections	80
National Clearinghouse for Criminal Justice Planning & Architecture	70
National Sheriff's Association	70
United Nations Minimum Standards	65
U.S. Department of Justice	60

THE EXTENT AND NATURE OF THE PROBLEM

If the practice of double-bunking were an uncommon and short-term response to conditions of overcrowding, then the issues raised in this monograph would be relatively uninteresting, relating to a fine point in the law and correctional policy. As we shall see, however, this is not the case. Substantial portions of the housing units and of the prisoners in our country are double-bunked. Before examining the statistical data that leads to this conclusion though, we shall present a more descriptive view of the issue.

Life in a Cell

Among the disadvantages of relying solely on aggregate data to describe a phenomenon is that we become desensitized to the human dimensions of the issue. To counterbalance this, we have elected to describe what life in a cell may be like. In so doing we cannot hope to portray all situations, or even the "typical" situation; institutions located in the same jurisdiction may vary considerably -- one representing the state of the art with respect to architecture, facilities and programs, the other an old "bastille," overcrowded, understaffed and possessing a level of hostility and tension immediately sensed upon entry. Because of this diversity a brief review, like the present one, has to be imbalanced. Indeed, this review tends towards a description of more crowded institutions so as to convey to the reader the degrading conditions under which many inmates are forced to live.

In 1923, Joseph F. Fishman, jail inspector for the federal government described a jail as:

> An unbelievably filthy institution in which are confined men and women serving sentences for misdemeanors and crime, and men and women not under sentence who are simply awaiting trial. With few exceptions, having no segregation of the unconvicted from the convicted, the well from the diseased, the youngest and most impressionable from the most degraded and hardened. Usually swarming with bed-bugs, roaches, lice, and other vermin; has an odor of

> disinfectant and filth which is appalling; supports in complete idleness thousands of able-bodied men and women, and generally affords ample time and opportunity to assure inmates a complete course in every kind of viciousness and crime. A melting pot in which the worst elements of the raw material in the criminal world are brought forth blended and turned out in absolute perfection (Culbertson, 1977:28).

Although this description is somewhat fanciful, and somewhat less accurate a half-century later, there are still - despite attempts to renovate old facilities and construct new ones, and despite sophisticated personnel training - jails which cannot provide for the legal, safe, and humane custody of inmates. To illustrate, one jail we recently visited was built at about the turn of the century and consisted of five individual cells, a 20-bed dormitory, and a recently added block of multiple occupancy cells. The dormitory held a mixture of inmates, including a convicted murderer and another who had previously been convicted of sodomy and who was under indictment for sodomy. Into this dormitory was placed a pre-trial inmate, who was reportedly sodomized nine times before he could overcome his shame and fearfulness and lodge a complaint with the custodial staff.

Although jails have the reputation of providing the least satisfactory housing arrangements for inmates, life in larger, long-term prisons can also be a mean and brutal affair. Rutherford, et al., describe the structure of a prison cellblock as follows:

> The typical [state] prison of this type will have two long rows of steel cells stacked back to back, three, four or five tiers high, sharing a narrow common alleyway between them for maintenance access.
>
> ...Group movements (for meals, counts, work, recreation, etc.) are made along narrow platforms on each floor, usually in the same direction, with as many as five tiers emptying into one stairwell descending to the ground level...
>
> There are predictable periods in which the cells in a block are fully occupied. These periods are lights-out until breakfast call, and lockups following violence, the threat of it, or for purposes of a general shakedown (cell-by-cell search for contraband). Lockups have been known to continue from a few days to close to a year, with

> prisoners eating in their cells. This adds a new sanitation and health menace quite apart from the problem of managing the human problem of hundreds, perhaps thousands, of people in lockup status for any protracted period of time.(1977:100).

Even during periods when the normal prison routine is followed, life on a cellblock is often devoid of the basic amenities of social life. In its report on the prison riot at Attica, the New York State Commission described the conditions at that institution prior to the uprising. The cells were "...6 feet wide, 9 feet long, and 7 feet high", providing 54 square feet per cell and inmates "...were alone in their cells 14 to 16 hours a day" (Attica, 1972:33-34). Once in their cells their ability to communicate with others, to break the tedium of isolation, was severely limited:

> Communication on the galleries was difficult. Cells were side by side and back to back, and inmates could only look down the gallery through mirrors they held outside the bars. Messages and books were delivered hand to hand from cell to cell. In the many idle hours adjoining inmates played chess, checkers, or cards on boards placed on the floor between the cells or they called out moves on numbered boards (Attica, 1972:35).

Although the inability to communicate to others is an oft-voiced complaint, it pales to insignificance when compared to the problems raised by the invasion of privacy that is part and parcel of prison life.

> Even in your cell you had to live without privacy... The constant hubbub made letter-writing difficult: prisoners in the tier shouting, laughing, screaming from cell to cell -- like the monkey house in the zoo -- and that in competition with the blare coming over the PA system, which was used more often for piping in commercial radio programs than for announcements.
>
> The wierdest sounds in the world come out of the prison at night...the snores, the nightmares, the groaning and the sighs, the talkers in their sleep who would be arguing their case in court, fighting with their wives, selling door to door. So turning off the PA system and snapping off the lights at taps is an empty gesture; the hubbub continues pretty much as before (Van Den Haag, quoted in Schwartz, 1972:232).

The same sense of invasion, of constant bombardment by noise and the complete

inability to escape it, is presented in Rutherford et al.:

> Some prisons, depending on wardens' policies, or as resources permit, allow radios, televisions or record players in cells (at prisoners' own expense). Some prisons supply earphone plug-in devices so that each convict can individually enjoy his program without having the sound compete with others. Others without such equipment simply permit each prisoner to play what he wishes, producing cacophonous reverberations in the cellblock. The cell door is typically a gate of bars, and, therefore, does not shield sound. The rest of the cellhouse construction, steel and concrete or brick, bounces rather than absorbs sound. The normal sounds of conversation, talking and yelling among cells, or between balconies adds to the din. Occasionally, this array of sounds is punctuated by orders barked by a guard..., a loudspeaker, a bell indicating feeding time, the popping of a cell door, or the clanking opening or shutting of the large cellblock entrance gates.
>
> During preparation for bedtime many noises are masked by each other. Still, with hundreds of men trying to fall asleep after lights-out, slight sounds take on a new importance. Loud whispers or soft chatter will bring on a loud warning from the on-duty guard...A cough can reverberate through the cellhouse. A toilet flushing at 2 AM can be disquieting (1977:100-101).

To this point our description has only concerned the invasion of privacy that comes from without the cell. When the cell is double-bunked, however, the "hubbub" is compounded: the exterior sources of noise and visibility remain, and new sources are added by the presence of others in the small space of the cell itself.

> Three men brought together in a cell by chance. Whatever their differences, they must tolerate each other; relentless intimacy twenty-four hours a day. Rare is the day when at least one of them is not depressed. Irritable or gloomy, at odds with himself, he exudes a sort of invisible poison. You pity him. You suffer with him. You hate him. You catch his disease...The presence of a slob fills the cell with snoring, spitting, belching -- nauseating smells and filthy gestures.
>
> Each does his business in front of the other two. But perhaps the worst intimacy is not that of bodies. It is not being able to be alone with yourself. Not being able to remove your face from the prying glance of others. Bet[illegible]ing, with every tic, at every moment, the secret of an obtusely disturbed inner life (Serge, quoted in Schwartz, 1972:232).

To some reading the preceding descriptions, life in a cell will only seem appropriately unpleasant for people who are getting "just what they deserve." Indeed, one might argue that in some respects it is not unlike life in military barracks or on a troop ship. What the preceding descriptions lack, however, is the communication of the more odious aspects of life in a prison: the inmate's involuntary confinement; his complete inability to alter his setting; the fear and brutality generated by prison societies; overcrowding to the extent that large numbers of people are sleeping on floors; the triple bunking of inmates in cells designed to hold only one; and facilities so inadequately staffed that violence, sexual attacks, medical emergencies, and the use of contraband are unmonitored or inappropriately monitored.

It should be sufficient punishment to be deprived of freedom; to further subject inmates to conditions of confinement which are patently odious shocks the civilized conscience, contributes to the defeat of legitimate penological objectives, and may well contribute to our woefully high rates of recidivism.

Thus, as the data which follow are read it should be kept in mind that the data are abstractions; the reality is what life may be like in any of these facilities. For some pre-trial detainees and inmates it is under legal, safe, and humane conditions; for others it is life under abjectly abysmal conditions.

Prisons and Jails in the United States

Inmate populations in this country are housed primarily in either correctional facilities or detention facilities, more commonly known as prisons and jails, respectively. The present section will present rudimentary data on the number of these facilities and the size of their populations so as to place the discussion of the level of overcrowding presented in the following section in the proper context.

Correctional Facilities: Prisons are designed to incarcerate persons who

have been adjudicated and sentenced to a term of imprisonment, ordinarily, for one or more years. As depicted in Table 2, there are 559 such facilities and the bulk of these - 93 percent - are operated by the respective states.

The data in Table 2 reflect that among federal facilities 26 percent have populations of less than 500; 48 percent from 500 to 999; and 26 percent have 1,000 or more; the comparable percentages for state institutions are 70 percent; 16 percent; and 14 percent. Clearly the dominant model in the federal system is the mid-sized institution, while among the states it is the facility with a population of less than 500.

Table 2 also indicates that state systems have considerably older physical plants than does the federal system; only 8 percent of all federal prisons were constructed prior to 1925 while 19 percent of the states' were built during that period. Conversely, federal and state systems are about equally likely to have institutions built subsequent to 1950 - 50 and 57 percent, respectively.

As indicated by the data in Table 3, these 559 facilities housed a total of 304,844 inmates as of 1981. This population represents a substantial increase over the 1977 population of 261,405. Indeed, the population has increased by 12.6 percent in that four year time period. This increase is totally accounted for by the state prison systems since the population in the federal prison system declined 21 percent during this period. In the state prisons, however, the percent increase was an astonishing 16.6 percent. To place this growth rate in context we note that if the 16.6 percent increase was spread evenly over the four year period, i.e., 4.15 percent per year, the total prison population would double in only seventeen years.

Both individual inmates and facilities are assigned security classifications. Individual inmates are usually classified in terms of minimum, medium or close custody, while a fourth classification, maximum, is used for known escape risks

TABLE 2

Selected Descriptors of Correctional Facilities

Level of Government	Number of Facilities	Facility Security Classification			Inmate Population			Age of Facility				
		Max.	Med.	Min.	-500	500-999	1000+	Before 1875	1875-1924	1925-1949	1950-1969	1970-1978
Federal	38	13	17	8	10	18	10	0	3	16	8	11
State	521	140	207	174	366	80	75	25	76	125	156	139
Totals	559	153	224	182	376	98	85	25	79	141	164	150

Source: Joan Mullen and Bradford Smith, American Prisons and Jails: Volume III: Conditions and Costs of Confinement (Washington, D.C.: Government Printing Office, 1980), extracted from Table 2.2, p. 23.

TABLE 3

Inmate Population in Correctional Facilities

	Population		Number of Sentenced Prisons per 100,000 U.S. Population	
	1977	1981	1977	1981
U.S. Total	292,325	329,207	129	154
Federal Institutions	30,920	24,363	13	10
State Institutions	261,405	304,844	116	144

or inmates whose pattern of offending leads to their being considered incorrigibles (Rutherford, et al., 1977:91). With respect to facilities, the classification refers to the type of perimeter security which is employed, usually either minimum, medium or maximum security. For our purposes it is important to note the types of housing arrangements typically found in each of these facilities.

Minimum Security: "The housing facilities may be composed to a large extent of dormitories. Individual cells or rooms are always preferable to dormitories, but since they are more expensive to design and construct, it has been found desirable and reasonably satisfactory to operate a minimum security facility in which about 70 percent of the housing is of the dormitory type."

Medium Security: "The housing of this institution would be largely made up of outside cells. One unit not to exceed 150 cells may be an interior cell block type of building for special cases difficult to handle in housing with outside windows. Other types of housing may include honor rooms, cubicles, squad rooms, and dormitories. Dormitory housing is always to be regarded as a compromise between construction costs and the ideal conditions of individual rooms or cells."

Maximum Security: "A large percentage of the housing will be composed of interior cell blocks, and, ideally, each cell will be occupied by one prisoner and will be equipped with plumbing and other sanitary facilities" (Rutherford et al., 1977:89-90).

As indicated by the data in Table 2, 79 percent of the federal institutions have either a maximum or medium security classification (34 percent and 45 percent respectively) while at the state level 67 percent of the facilities are so designated (28 percent and 39 percent respectively). Approximately 21 percent of the federal facilities are classified as minimum security with the comparable

state figure being 33 percent. In general, both federal and state prisons are predominately maximum or medium security facilities.

The predominance of maximum and medium security facilities, where single cells are the most common housing arrangement, is somewhat at odds with a number of correctional policies concerning the security needs of individual inmates. For example, the American Correctional Association suggested, in 1966, the following standards:

> Maximum: "It is doubtful that real maximum security facilities are needed for more than 15 percent of an unselected prison population."
>
> Medium: "About one-half of an unselected state prison population can be handled satisfactorily in medium security facilities."
>
> Minimum: "If a prison system maintains an adequate program of classification, it is possible to maintain approximately one-third of the unselected adult prison population in open or minimum security institutions and facilities."
>
> (Quoted in Mullen and Smith, 1980:27)

Despite these standards, which have met with general agreement in the correctional literature (e.g., Rutherford, et al., 1977:89-90), prison facilities are seen to overrepresent maximum and underrepresent minimum security units. Moreover, Mullen and Smith have found that the proportion of inmates housed in the various types of facilities is also at variance with these standards. They report the following data:

> Maximum: 51 percent of all state and federal inmates were confined in maximum security institutions. Consistent with the larger size of the older facilities, these institutions constituted only 27 percent of all prisons.
>
> Medium: 38 percent of all prisoners were held in medium custody facilities which accounted for 40 percent of all prisons.
>
> Minimum: Excluding inmates housed in pre-release facilities (22,437) only 11 percent of prisoners were housed in minimum security facilities. Since most of these institutions were both newer and smaller, they represented one-third of all facilities.

In general, therefore, it appears that prison facilities tend to overestimate security requirements. There are more maximum security units, and proportionately more inmates housed in those units, than correctional standards suggest are required (see Clements, 1982). Moreover, these maximum security, and to a lesser extent medium security, facilities are also more likely to use single-cells as the dominant form of housing, and hence are more subject to the likelihood of double-bunking. We will return to an examination of this combination of factors in the concluding section.

Detention Facilities: Jails are institutions generally operated by local governments to hold adults in custody for a period of 48 hours or more. This definition excludes temporary holding facilities such as police station lock-ups and holding cells in courtrooms (Bureau of Justice Statistics, 1981:4). Basically there are two types of jails:

1. The pre-trial detention facility, used solely to confine those awaiting trial or sentencing.
2. The combination facility, which houses pre-trial detainees and convicted offenders. The latter are usually misdemeanants, although in some states felons serving brief

sentences may also be housed in jails. The combination facility is the most common type of jail.

All told, there are 3,493 jails in American today, with a daily population of 158,394 persons (Bureau of Justice Statistics, 1981:3-4), and approximately 6,000,000 commitments annually. As indicated by the data in Table 4, significant numbers of inmates are confined in older facilities. Twenty percent are housed in a structure built prior to 1925 and 41 percent in buildings erected before 1950.

Jails typically have relatively small populations. Among the nations's 3,493 jails, 65 percent or 2,277 have an average daily population of 0-20 inmates, 31 percent or 1,086 have 21-249 inmates, while only 4 percent or 130 jails have an average daily population of 250 or more (Bureau of Justice Statistics, 1981:2).

Moreoven, as can be seen in the data presented in Table 5, a relatively small proportion of the housing units in jails is in one-person units. Nationally, only 20.7 percent of all jail beds are in single cells or rooms and, with the exception of the Northeast where the rate is 65 percent, this pattern holds in all regions.[2]

Crowding in Correctional Facilities

Given this basic information on the number and types of correctional facilities and the size of inmate populations, we can turn to the central focus of this report: prison and jail overcrowding, especially as represented by double-bunking. Potentially, overcrowding correctional facilities is correlated with increased demands upon resources and, when prolonged, a deterioration in the conditions of confinement. Given that prolonged crowding may produce deleterious consequences, it is critical that we determine the extent to which overcrowding actually exists.

Legal Evidence: One indicator of the extent of overcrowding can be found in the volume of litigation concerning this issue. In general, this indicator

TABLE 4

Distribution of Inmates in Local Facilities by Age of Facility, Average Daily Inmate Population, and Percent, 1978

Age of Facility	Number of Inmates	Percent
Before 1875	4,300	3
1875 - 1924	22,136	14
1925 - 1949	38,808	24
1950 - 1969	69,923	43
1970 - 1978	26,703	16
Totals	161,926	100

Source: Joan Mullen and Bradford Smith, American Prisons and Jails, Volume III: Conditions and Costs of Confinement (Washington, D.C.: Government Printing Office, 1980), extracted from Table B-17, p. 259.

TABLE 5

Number of beds in general purpose confinement units in all jails, by design capacity of unit, 1978*

Region	Total	1-inmate units	2-inmate units	3-4 inmate units	5-15 inmate units	16-inmate units or (+)
United States	233,893	48,452	35,290	43,433	51,256	55,462
North Central	47,730	10,637	11,160	8,593	10,151	7,189
Northeast	30,762	20,164	3,728	1,207	1,252	4,411
South	102,970	12,710	13,192	25,280	26,925	24,863
West	52,431	4,941	7,210	8,353	12,928	18,999

*Excludes beds in special-purpose confinement units e.g., infirmary, trustee cells, isolation cells, etc.

Source: Bureau of Justice Statistics, Census of Jails, 1978: Vol. II Data for Individual Jails in the North Central Region (Washington, D.C.: Government Printing Office, 1981), Table D, p. 3.

suggests that prison overcrowding, including the double-bunking of single cells, is a substantial problem for American corrections. Table 6 summarizes the results of the American Civil Liberties Union's (ACLU) report concerning existing court decrees and pending litigation in state prisons and prison systems. (Appendix A presents somewhat more detailed information on this issue).

Thirty-seven states, plus the District of Columbia, Puerto Rico and the Virgin Islands, are currently involved in litigation concerning conditions of confinement. Moreover, in only four states is overcrowding not an issue in these cases. An examination of the legal citations and the number of motions and appeals (see Appendix A) suggests that these cases are extremely expensive and time-consumming to all parties.

Complimentary data are presented by Mullen and Smith (1980:31-34). They report that there were 82 federal court orders or decrees concerning conditions of confinement in effect on March 31, 1978. Of these, 26 involved overcrowding, which was the modal category. Moreover, there were 8,186 pending cases as of March 31, 1978 and of these, 124 involved overcrowding.

Clearly from a legal perspective the issue of overcrowding is not a minor one. It reaches into virtually every state and plays a prominent role in conditions of confinement cases.

Empirical Evidence: A more direct way of analyzing the extent of prison overcrowding is to examine the number and proportion of inmates who are housed in overcrowded, especially double-bunked, housing units. According to the data presented in Table 7, the level of double-bunking as of 1977 was not extensive. When the number of single cells and the number of inmates in single cells are compared, it is clear that, on the average, most cells were not double-bunked. But this conclusion can be rather misleading. First, as we have seen above, there has been a substantial increase in prison populations since 1977, without

Table 6

Status of Litigation and Issues Affecting
State Institutions or Systems through December 31, 1981

STATE	Status of Litigation			Issues	
	Pending	Court Orders Issued	Consent Decree(s)	Overcrowding	Total or Some Conditions
Alabama		x		x	x
Arizona		x	x	x	x
Arkansas		x			x
California	x			x	x
Colorado		x		x	x
Connecticut		x		x	x
Delaware		x		x	x
Florida		x	x	x	
Georgia		x		x	x
Illinois	x	x		x	x
Indiana	x	x		x	x
Iowa		x		x	x
Kentucky	x	x	x	x	x
Louisiana		x		x	x
Maine	x			x	x
Maryland		x		x	
Massachusetts	x				x
Michigan	x	x		x	x
Mississippi		x		x	x
Missouri		x		x	x
Nevada	x	x		x	x
New Hampshire		x		x	x
New Mexico		x		x	x
North Carolina	x			x	x

Table 6 (cont'd)

STATE	Status of Litigation			Issues	
	Pending	Court Orders Issued	Consent Decree(s)	Overcrowding	Total or Some Conditions
Ohio	x	x		x	x
Oklahoma		x		x	x
Oregon	x			x	
Rhode Island		x		x	x
South Carolina	x			x	x
Tennessee	x				x
Texas		x		x	x
Utah			x	x	x
Virginia	x		x	x	x
Washington	x	x		x	x
West Virginia	x			x	x
Wisconsin	x			x	
Wyoming			x		
District of Columbia		x		x	x
Puerto Rico		x		x	x
Virgin Islands		x		x	x

TABLE 7

Number of Federal and State Correctional Cells Rated to Hold One Person and the Number of Inmates in These Cells by Region

Region	Number of Cells Rated to Hold One Person (1)	Number of Inmates in Cells Rated to Hold One Person (2)	Difference (1) - (2)	Percent of Total Population in Cells Rated to Hold One Person
Northeast	36,280	33,827	2453	84%
North Central	28,919	30,905	-1986	49
South	23,098	24,700	-1602	23
West	23,570	22,590	980	54
Federal	14,817	15,790	-973	47
Total	126,684	127,812	1128	45%

Source: Andrew Rutherford, et. al., Prison Population and Policy Choices, Vol. I: Preliminary Report to Congress (Washington, D.C.: Government Printing Office, 1977), Table 1.2, p. 21.

a concomitant increase in the number of cells. Second, the average figures presented in Table 7 do not reflect the fact that some prisons may be severely overcrowded while others are operating under capacity. Finally, for reasons to be discussed shortly, analyses based on rated capacity, as the one in Table 7, are often flawed.

For these reasons our examination of the extent of double-bunking will concentrate on the recently published work of Mullen and Smith (1980), since it is the most comprehensive treatment of overcrowding available. Although there is no clear agreement as to what set of circumstances constitute crowded living space, Mullen and Smith discuss four notions that are central to its understanding:

1. capacity: the reported and measured space of confinement units;
2. density: the number of square feet of living space provided;
3. occupancy: the number of inmates per confinement unit; and
4. freedom of movement: the number of hours confined to quarters[3](1980:39 and 41).

Although there can be considerable variation in the "rated capacity" of similar institutions, there is a general convergence in correctional standards around the figure of 60 square feet of living space per inmate as the appropriate base from which to calculate capacity (Mullen and Smith, 1980:42; see also the section on Standards in this report). Using this baseline figure, Mullen and Smith have defined institutional capacity as follows:

> ...The surveys conducted for this report asked for the physical dimensions, in square feet of floor space, of all confinement units where inmates spend the night. This information has, for the first time, permitted the development of a uniform physical measure of "bedspace" capacity in the United States.
>
> Recognizing that responding agencies' definitions of the various types of confinement units might also

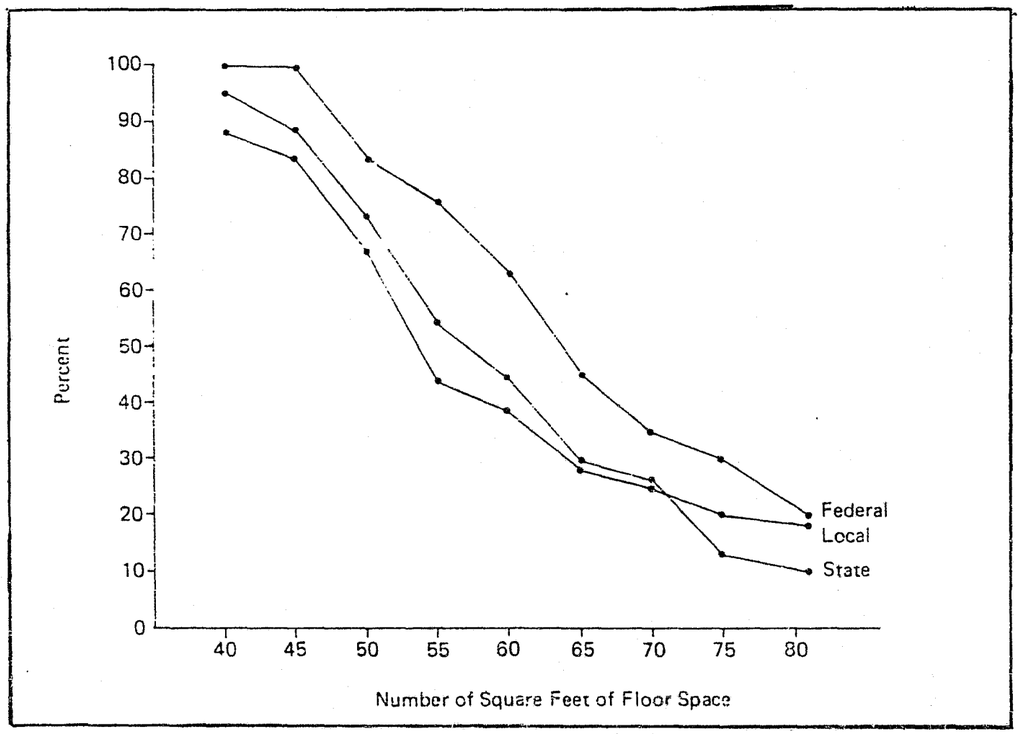
> vary significantly from one jurisdiction to another, we categorize all confinement units as measuring less than 120 square feet or measuring 120 square feet or more. For convenience, we use the terms "cell" and "dormitory," respectively, to refer to these two types of confinement units.
>
> All confinement units with less than 120 square feet of floor space (cells) are rated as having a capacity of one inmate...Confinement units with 120 or more square feet of floor space (dormitories) are assumed capable of holding more than one inmate. Their capacity is defined as the smaller of two values, the total square feet of floor space divided by 60 or the jurisdictionally defined capacity. This distinction is made because...the utilization of space within the larger confinement units makes it difficult to interpret square footage in terms of sleeping space. For example, activity areas (e.g., day rooms) were sometimes included in the square footage figure if they were located inside confinement units. Our measure of dormitory capacity provides a minimum of 60 square feet per inmate and precludes an administrative determination of capacity smaller than this minimum standard (Mullen and Smith, 1980:42).

The data generated by Mullen and Smith's survey indicate a substantial discrepancy between state-reported capacity and the study's uniform definition based on square footage. Indeed, if the survey method was employed rather than the state-reported capacities, there would be a reduction of one-fourth in the total spaces available. These data -- which only deal with total capacity and not the occupancy or actual distribution of inmates -- indicate that reported capacity exceeds measured capacity by 4 percent in federal institutions, 22 percent in state facilities, and 55 percent in local ones (Mullen and Smith, 1980:47).

While Mullen-Smith's definition of measured capacity provides at least 60 square feet per unit of capacity in dormitories, it provides one full unit of capacity for any room or cell. Since cells are defined as units less that 120 square feet, the measured capacity figures do not necessarily represent units of capacity that would consistently meet proposed minimum standards of 60 square feet per space (Mullen and Smith, 1980:49). Figure 1 plots the data collected on cell size for federal, state, and local facilities; it can be seen that 61 percent

Figure I

Percentage of Federal, State, and Local Cells[a] with Number of Square Feet of Floor Space Greater Than or Equal to Selected Values-1978



Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978; National Jail Census (CJ-3, CJ-4), 1978.

[a]Confinement units with less than 120 square feet of floor space.

Source: Joan Mullen and Bradford Smith, American Prisons and Jails, Volume III: Conditions and Costs of Confinement (Washington, D.C.: Government Printing Office, 1980), p. 50.

of the cells in federal facilities, 45 percent of the cells in state facilities, and 39 percent of the cells in local facilities met the 60 square foot standard. Reducing the standard to 50 square feet of floor space per cell would dramatically increase the number of cells that would comply: 83 percent of the federal cells, 73 percent of the state cells, and 67 percent of the local cells would meet this standard (Mullen and Smith, 1980:49). Although many cells meet these minimum criteria, it should be noted that substantial proportions do not. For example, 39 percent of the cells in federal prisons, 55 percent in state prisons and 61 percent in local facilities do not provide 60 square feet per inmate. Moreover, it should be noted that the inability to meet these standards was found "...without considering the number of inmates in those cells or the amount of confinement time" (Mullen and Smith, 1980:49).

Table 8 extends the analysis of reported versus measured capacity by relating the numbers of inmates to capacity to obtain measures of utilization. Significantly, while overall reported utilization is only 82 percent, the strict application of a 60 square feet of floor space per inmate yields a measured utilization of 161 percent. These data do not exist independent of certain institutional characteristics; in general, local jails with populations of less than 10 and federal and state prisons with less than 500 inmates tend to have more spacious cells, while older, larger, and high security level institutions were more likely to be associated with smaller cells (Mullen and Smith, 1980:51-55).

Overall, the data presented thus far suggest substantial levels of overcrowding, both in general and in cells. American prisons, as of 1978, were operating above capacities based on well-accepted correctional standards, and the proportions of prison cells that met the standard of 60 square feet was fewer than half of all cells.

Density is the number of square feet of floor space per inmate. It is

TABLE 8

Utilization of Federal, State, and Local Correctional Facilities Using Reported Capacity and Two Values of Measured Capacity by Region, 1978

	Total Number of Inmates	Reported Capacity[a]	Reported Utilization	Measured Capacity (Based on single occupancy cells & 60 sq. ft. /dorm space)[b]	Measured Utilization	Measured Capacity (Based on 60 square foot units)[c]	Measured Utilization
U.S. Total	411,800	502,200	82%	375,000	110%	256,500	161%
Federal	28,100	24,800	113	23,800	118	18,700	150
State	229,200	243,500	94	200,200	114	132,200	173
Northeast	30,400	34,800	87	33,700	90	17,800	171
North Central	56,700	66,000	86	52,900	107	37,200	152
South	107,200	103,400	104	77,500	138	56,900	188
West	34,900	39,300	89	36,100	97	20,300	172
Local	154,500	233,900	66	151,000	102	105,600	146
Northeast	23,900	30,800	78	27,800	86	13,200	181
North Central	27,400	47,700	57	33,000	83	22,600	121
South	65,100	103,000	63	58,100	112	44,100	148
West	38,100	52,400	73	32,100	119	25,700	148

Sources: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978
National Jail Census (CJ-3/CJ-4), 1978

[a]The capacity of individual confinement units as reported by the jurisdiction.

[b]Measured capacity defined as one inmate per room of any size or, for dormitories, the smaller of: (1) Number of square feet of floor space/60 or (2) The jurisdictionally reported capacity.

[c]Measured capacity defined as a minimum of 60 square feet of floor space per inmate.

Source: Joan Mullen and Bradford Smith, American Prisons and Jails, Volume III: Conditions and Costs of Confinement (Washington, D.C.: Government Printing Office, 1980), p. 57.

derived by dividing the size of confinement units by the number of inmates confined. For purposes of exposition, high, medium and low density have been defined as follows:

> High Density: confinement units with less than 60 square feet of floor space per inmate.
>
> Medium Density: confinement units with 60-79 square feet of floor space per inmate.
>
> Low Density: confinement units with 80 or more square feet of floor space per inmate.
>
> (Mullen and Smith, 1980:59).

Table 9 reflects the density of our country's prisons. Nationally, a quarter of a million inmates were housed in cells in 1978 and of these, 73 percent, 169,662 inmates, were housed in high density conditions, as defined by Mullen and Smith. The proportion of inmates in high density cells was greatest in local facilities (81 percent), followed by state prisons (70 percent), and by federal facilities (52 percent). On a more general level, the data in Table 9 indicate that:

- Approximately two-thirds of all inmates in federal, state and local correctional facilities were confined in high density cells or dormitories.
- Almost half of the federal inmates were assigned to cells and slightly over half of these inmates were living in high density units.
- Both state and local inmates housed in cells were more likely to be living in high density units than those housed in dormitories.

Mullen and Smith also present data on single-occupancy versus multiple-occupancy cells. They found that 11 percent of the cells in federal facilities,

TABLE 9

Percentage and Number of Inmates in Federal State and Local Cells[a] and Dormitories[b] by Density[c], 1978

	Total		Jurisdiction					
			Federal		State		Local	
	Percent	Number	Percent	Number	Percent	Number	Percent	Number
Total	100%	411,923	100%	28,124	100%	229,196	100%	154,603
High	66%	272,000	61%	17,224	65%	149,255	68%	105,521
Medium	19	77,929	29	8,210	22	50,294	13	19,425
Low	15	61,994	10	2,690	13	29,647	19	29,657
Cells	100%	233,469	100%	13,570	100%	145,541	100%	74,358
High	73%	169,662	52%	7,116	70%	102,525	81%	60,021
Medium	20	47,769	34	4,609	24	34,844	11	8,316
Low	7	16,038	14	1,845	6	8,172	8	6,021
Dormitories	100%	178,454	100%	14,554	100%	83,655	100%	80,245
High	57%	102,338	69%	10,108	56%	46,730	57%	45,500
Medium	17	30,160	25	3,601	18	15,450	14	11,109
Low	26	45,956	6	845	26	21,475	29	23,636

Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978
National Jail Census (CJ-3/CJ-4), 1978

[a]Confinement units with less than 120 square feet of floor space.

[b]Confinement units with 120 or more square feet of floor space

[c]Number of square feet of floor space per inmate.

Source: Joan Mullen and Bradford Smith, American Prisons and Jails, Volume III: Conditions and Costs of Confinement (Washington, D.C.: Government Printing Office, 1980), p. 61.

19 percent in state facilities and 15 percent in local facilities were occupied by two or more inmates. Moreover, they discovered substantial regional variation in these figures. Examining only state prisons, for example, they found that the rate of multiple-occupancy cells varied from a high of 44 percent in the South, to 17 percent in the North Central, to 7 percent in the West and a low of 4 percent in the Northeast (Mullen and Smith, 1980:62-65). Clearly the practice of double-bunking cells is not rare, especially in the South, the region with the highest rate of incarceration.

When the analysis is based on inmates who reside in cells, Mullen and Smith found that 35 percent of these inmates "...share their cells with at least one other inmate" (1980:66). Moreover, from data presented in Appendix C of their report it is clear that substantial levels of overcrowding occur in cells. Using their definition of cells, confinement units with less than 120 square feet of floor space, we see that 21 percent of the inmates residing in cells in federal facilities, 36 percent of the inmates in state prisons and 42 percent of the inmates in local facilities are double-bunked. If we restrict the analysis to inmates who share their cells with two or more other inmates, only 1 percent of the federal inmates residing in cells are in this category, but 6.5 percent of the state inmates and 22 percent of the inmates in local facilities are housed in cells with at least two other persons. (See Mullen and Smith, 1980:275 to 277 for these data).

Clearly, whether one considers the proportion of cells that are double-bunked, or the proportion of inmates who reside in double-bunked cells, the data reported by Mullen and Smith indicate that double-bunking is not an unusual phenomenon in our nation's prisons. Substantial proportions of prisoners are housed in cells that do not conform to the basic correctional standard of 60 square feet of space per inmate.

To this point we have not considered the amount of time that inmates spend in their cells per day, which is an important factor in investigations of overcrowding, both from legal and psychological perspectives. Mullen and Smith report that 44 percent of the state inmates and 16 percent of the federal inmates are confined to their cells for more than ten hours per day. Moreover, Mullen and Smith also indicate that the length of time in confinement per day tends to be inversely related to the size of the cell. That is, the smaller the cell the higher the percentage of inmates who are confined for ten or more hours. For example, in state prisons, 50 percent of the inmates in cells with less than 60 square feet are confined for ten or more hours, compared to 41 percent housed in cells between 60 and 79 square feet, and 25 percent housed in cells with 80 or more square feet. (Mullen and Smith, 1980:66-67).

The final set of data from the Mullen and Smith study that we will discuss concerns the interplay between density and occupancy. Mullen and Smith offer the following definition of crowding:

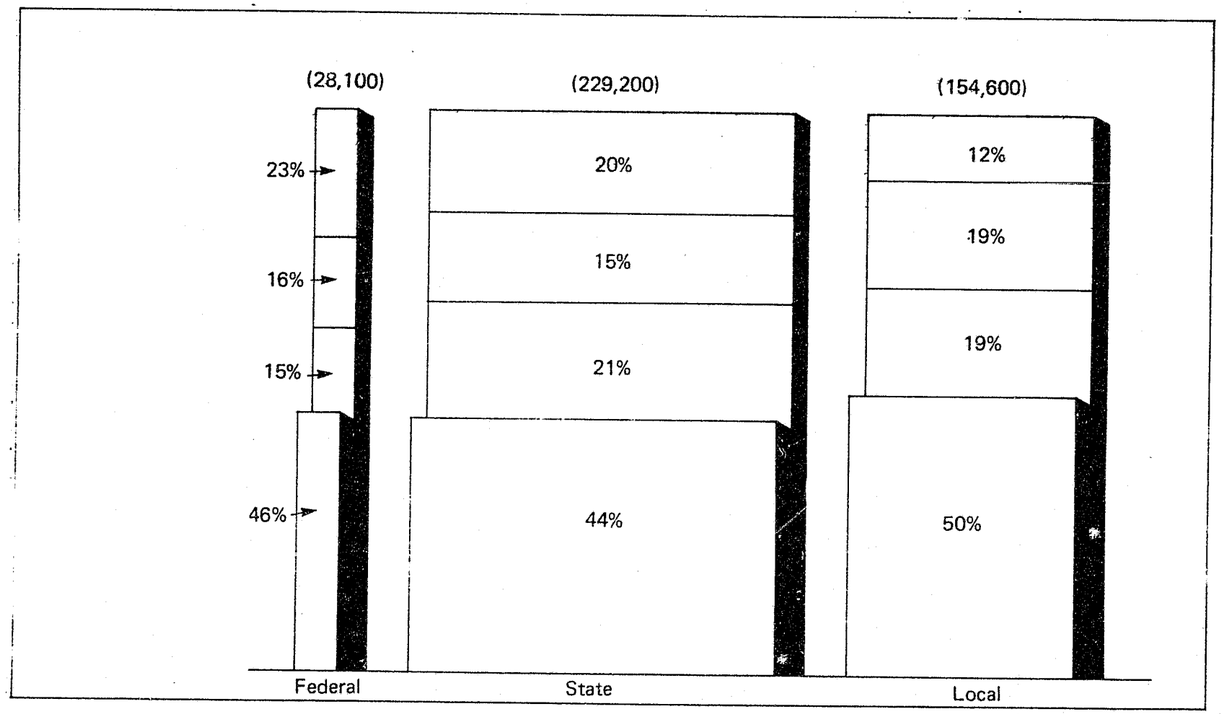
> ...a crowded inmate is one who lives in a high density multiple occupancy confinement unit -- i.e., a cell or dormitory shared with one or more inmates with less than 60 square feet of floor space per inmate (1980:70).

Although the data are not reported separately for cells and dormitories, they are still quite informative for our purposes. Figure 2 reproduces the most basic data in this respect. As can be seen, only a minority of inmates reside in the most desirable housing units - single units with low density. On the other hand, almost half of the inmates are confined in the least desirable units. Forty-six percent of the federal inmates, 44 percent of the state inmates and 50 percent of the inmates in local facilities reside in high density, multiple-occupancy units.

Summary: At the time of the Mullen-Smith study, which was released in 1980 and based on 1978 data, many federal, state, and local facilities were operating near or above their limits. Although Mullen and Smith concluded at that time

Figure 2

Percentages of Inmates in Federal, State, and Local Facilities by Density[a] and Occupancy[b]-1978[c]



Source: Survey of State and Federal Adult Correctional Facilities (PC-2), 1978; National Jail Census (CJ-3, CJ-4), 1978. See note provided with Table 3.2.

[a]Number of square feet of floor space per inmate.

[b]Number of inmates per confinement unit.

[c]The width of each bar has been drawn as a proportion of the total number of inmates.

[d]Confinement units with 60 or more square feet of floor space per inmate.

[e]Confinement units with less than 60 square feet of floor space per inmate.

[f]Confinement units occupied by one inmate.

that it was "inappropriate to speak of a national prison crowding problem" (Mullen and Smith, 1980:76), their data clearly reflected many individual systems which were heavily taxed, and patterns of living arrangements which subjected substantial numbers of inmates to conditions departing from the 60 square foot standard. Although new facilities have opened in the interim, at least some portion of capacity gains have been offset by the closing of other facilities, and the unprecedented increase in inmate populations. Although obtaining current data was beyond the resources of this project, it does not seem incautiously speculative to state that we now have a national crowding problem, particularly with reference to the generally accepted 60 square foot standard. Extrapolating from the Mullen and Smith research and inferring from current indicators leads to the conclusion that while some facilities are not in fact overcrowded, a significant number - if not a preponderance - of inmates are housed under conditions which not only depart from the 60 square foot standard, but also make their legal, safe, and humane custody suspect. Moreover, the general pattern of overcrowding is also reflected in the specific pattern of double-bunking; substantial portions of the cells in our correctional facilities, and substantial portions of the inmates who reside in cells, are housed in cells with two or more inmates.

THE LAW ON OVERCROWDED CONDITIONS OF CONFINEMENT

As we have seen, the past decade has been marked by unprecedented increases in prison populations, and concomitant increases in the level of overcrowding in our nation's correctional institutions. Moreover, during the same decade the courts have become far more active in accepting and deciding cases concerning conditions of confinement, including the issues of overcrowding and double-bunking.

Traditionally, courts had assumed a "hands off" approach in cases involving prison administration (Gobert and Cohen, 1981). By the late 1960's, however, this approach began to change as courts were called upon to decide cases involving rather appalling conditions of confinement. In 1974, the Supreme Court provided some support for this interventionist movement when it declared that:

> though his rights may be diminished by the needs and exigencies of the institutional environment, a prisoner is not wholly stripped of constitutional protections when he is imprisoned for crime. There is no iron curtain drawn between the Constitution and the prisons of this country (Wolff v. McDonnell, pp. 555-56).

Indeed, the 1970's witnessed a virtual explosion of court cases dealing with the constitutionality of conditions of confinement.[4] In most of these cases, a particular physical condition or the "totality of conditions" were declared unconstitutional. In many cases, the courts issued remedial orders which required governmental bodies to take extensive, and usually expensive, steps to rectify the constitutional violations.

A rather abrupt change in this interventionist approach occured in 1979 when the Supreme Court issued its opinion in Bell v. Wolfish. The tone of the Court's opinion in this case, and in Rhodes v. Chapman decided two years later, was obviously antagonistic to the activist approach taken by the lower courts. In

both cases, the federal district court had found overcrowded conditions unconstitutional and the circuit court of appeals had upheld the district court, yet the Supreme Court overturned these decisions, declaring that the conditions of confinement were not unconstitutional.

Wolfish and Chapman are clearly landmark decisions. They represent the Supreme Court's first (and to date, only) pronouncements on the question of when physical conditions of confinement in penal institutions (as opposed to institutional practices) violate the Constitution. The fact that the Supreme Court found the conditions of confinement constitutional in these cases is significant not only because of the hostility shown to the activist posture of lower courts, but also because of their effect on the precedential value of previous lower court decisions concerning conditions of confinement. Because the Court overturned the lower courts' findings of unconstitutionality in Wolfish and Chapman, and because the conditions of confinement in those cases were not substantially better than the conditions found unconstitutional in some prior cases, it is difficult to assess the present validity of cases decided prior to Wolfish. Indeed, it would appear that we are entering a new era of case law with respect to conditions of confinement.

Because of this change in judicial reaction our discussion will concentrate on court cases decided since Wolfish. We will, however, provide a brief treatment of case law on conditions of confinement prior to Wolfish to place the subsequent discussion in proper historical and legal perspective. Following that, the opinion in Wolfish and lower court treatment of Wolfish are analyzed in detail. Then the opinion in Chapman and lower court reaction to that case are analyzed. The discussion concludes with an assessment of the effect of this case law on the issue of double-bunking cells designed for single occupancy and on the construction of facilities with cells designed for double occupancy.[5]

Case Law Prior to Wolfish

Most conditions of confinement cases prior to Wolfish dealt with two common issues: 1) the constitutionality of double-bunking cells designed for single occupancy (or the closely related issue of operating a jail or prison in excess of its "rated" capacity) and 2) whether the Constitution requires some minimum amount of living space per inmate, usually expressed in terms of square footage.

Pre-Wolfish cases were fairly evenly split as to whether double-bunking cells designed for single occupancy was constitutional (See cases listed in double-bunking section of Table of Cases), but most pre-Wolfish cases did not consider whether double-bunking alone was unconstitutional. Similarly, some pre-Wolfish cases held that allowing the inmate population to exceed the facility's design capacity was unconstitutional per se, but most cases did not frame the constitutional issues in these terms or found overcrowding unconstitutional because in combination with other substandard conditions it resulted in unconstitutional conditions.

Pre-Wolfish cases addressing the question of amount of living space per inmate also divided into two basic camps. A minority of the decisions insisted that the Constitution demanded a minimal amount of living space per inmate, and these decisions established a specific square footage requirement based on correctional standards, such as the ones discussed above. However, most of the pre-Wolfish cases, while demonstrating concern for the amount of living space per inmate, declined to focus exclusively on this issue.

Increasingly the pre-Wolfish cases did not look to a single condition or factor related to overcrowding in reaching judgment on the constitutionality of the conditions of confinement. Instead, the courts examined a variety of conditions to determine if a combination of inadequate conditions rose to the level of unconstitutionality. Robbins and Buser (1977) suggest that these cases

focused on eleven factors:

1. Health and safety hazards created by the physical facilities
2. Overcrowding
3. Absence of a classification system
4. Conditions in isolation and segregation cells
5. Medical facilities and treatment
6. Food service
7. Personal hygiene and sanitation
8. Incidence of violence and homosexual attacks
9. The quantity and training of prison personnel
10. Lack of rehabilitation programs
11. The presence of other constitutional violations.

In addition to focusing on the combination or totality of conditions, pre-Wolfish cases developed a distinction, for purposes of constitutional analysis, between convicted offenders and pre-trial detainees. Pre-Wolfish cases dealing with convicted offenders agreed that the conditions in which these inmates were confined could not be so harsh as to constitute cruel and unusual punishment, which is prohibited by the Eighth Amendment. The cases disagreed, however, as to the test to be employed in making that determination. Fair (1979) has identified four tests that the pre-Wolfish cases used: 1) the "shock the conscience" test under which the court asked if the proved conditions shocked its conscience; 2) the "totality of circumstances" test under which the courts asked if the cumulative effect of conditions amounted to cruel and unusual punishment; 3) the "evolving standards of decency" test under which the courts asked if the conditions exceeded "the evolving standards of decency that mark the progress of a maturing society" (quoting from Trop v. Dulles); and 4) the "balancing" test under which the courts compared the severity of the conditions with the need for those conditions in order to achieve legitimate penal goals.

The pre-Wolfish cases involving pre-trial detainees generally agreed that the constitutional prohibition against cruel and unusual punishment did not apply. Rather, the due process clauses of the Fifth and Fourteenth Amendments, which prohibit any punishment of pre-trial detainees because they have not been

convicted, were viewed as the appropriate standard. These cases generally required either that correctional authorities employ the least restrictive means necessary to insure the security of the facility and to assure the detainee's presence at trial or that any condition of confinement imposed upon a pre-trial detainee be demanded by some compelling penal necessity (U.S. ex rel. Wolfish v. U.S.; Fair, 1979).

The Supreme Court and Pre-trial Detainees

Prior to Wolfish, the U.S. Supreme Court seldom had occasion to address constitutional issues relating to the conditions of confinement in American jails and prisons. The issues which the Court had addressed dealt more with correctional practices, such as mail censorship or extent of medical care, rather than general conditions of confinement, such as double-bunking or overcrowding. In Bell v. Wolfish, however, the Court examined these issues directly.

Inmates at the federal Metropolitan Correctional Center (MCC), a short-term facility primarily housing pre-trial detainees, challenged the constitutionality of a number of practices and conditions including the double-bunking of a number of cells to accommodate a population 16 percent greater than MCC's design capacity. The lower courts in Wolfish had determined that since pre-trial detainees are presumed innocent and are detained only to insure their presence at trial, it was unconstitutional to subject them to conditions which were not necessary to confinement alone, unless those conditions were justified by some compelling governmental necessity.

The Supreme Court rejected this relatively stringent test and held that the due process clause of the Constitution only prohibited the government from subjecting pre-trial detainees to punishment. Under this approach, inmates can demonstrate that they are being punished by proving an intent to punish on the part of corrections officials, by showing that the challenged condition is not

rationally related to some purpose other than punishment, or by showing it is excessive in relation to that alternative purpose. In particular, the Court indicated that there is no "'one man, one cell' principle lurking in the Due Process Clause of the Fifth Amendment" and that the overcrowding at MCC did not amount to punishment of the pre-trial detainees housed there.

In arriving at this conclusion, the Court seemed to stress several facts concerning the situation at MCC. First, the Court pointed out that detainees were required to spend only 7 or 8 hours in their cells, during which time they were presumably sleeping, and the 75 square foot cells provided "more than adequate space for sleeping," even when double-bunked. Second, the detainees were exposed to these conditions for relatively short periods of time - 85 percent of the detainees were released from MCC within 60 days. And third, the Court noted that unlike other lower court cases in which courts had established minimum space requirements, Wolfish did not involve a traditional jail in which inmates were locked in their cells most of the day. It is unclear whether by this implied reference to MCC as a non-traditional jail the Court meant to suggest that the modern design of MCC and its cells with doors rather than bars, carpet rather than bare floors, and windows rather than solid walls also militated in favor of its decision.

Lower Court Treatment of Wolfish

A number of groups concerned with prison reform feared that Wolfish sounded the death knell for their movement in the courts. However, the reaction of the lower courts to Wolfish suggests that the reformers' fears were largely unfounded. Most lower court decisions in overcrowding cases after Wolfish (and before Chapman) have still found the conditions of confinement unconstitutional (See Tables 10 and 11). In light of the response of the lower courts, it would appear that they did not find Wolfish persuasive. A surprising number of lower courts

TABLE 10

Post-WOLFISH, Pre-CHAPMAN Cases

(Finding or leaning toward finding of constitutional conditions)

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Wright v. Rushen 642 F.2d 1129 (9th Cir. 1981)	Convicted offenders	Double-bunked administrative segregation cells of unspecified size in 4 California state prisons.	Overturned district court's order prohibiting involuntary double celling, because district court used totality of circumstances test rather than examining constitutionality of each physical condition. Court here made no decision as to constitutionality of conditions but noted that Wolfish advises courts "to avoid minutiae of prison operations..."
Jordan v. Wolke 615 F.2d 749 (7th Cir. 1980)	Pre-trial detainees	Only 5% of Milwaukee County Jail detainees stay there more than 30 days. Each cellblock complex has 5 cells of 90 sq.ft. with 4 inmates assigned to each cell. From 6 a.m. to 10 p.m. each inmate can access a clean dayroom of 335 sq.ft. with TV.	Overturned district court's ruling that this overcrowding amounted to punishment. Court found conditions here very similar to those in Wolfish.
Bono v. Saxbe 620 F.2d 609 (7th Cir. 1980)	Convicted offenders	One inmate per 52.5 sq.ft. adminstrative segregation cell. Adequate food and medical care, sanitary conditions, and adequate heating, bedding, and exercise. Confined to cell 23 1/2 hours a day.	Conditions do not constitute cruel and unusual punishment. No mention of Wolfish.

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Batton v. State Government of N.C., 501 F. Supp. 1173 (E.D.N.C. 1980)	Convicted offenders	No specific description of conditions.	Court granted state's motion for summary judgment. Even viewing facts most favorably to inmates, court concluded that there was no cruel and unusual punishment because there was no demonstration by inmates of unsafe working conditions, overcrowding, physical danger, or unsanitary conditions. No mention of Wolfish.
Epps v. Levine 480 F.Supp. (D.Md. 1979)	Pre-trial detainees	Detainees were double-bunked in cells 50.7 sq.ft. and allowed out of cells for visits, 2 showers a week, one hour exercise a week, and trips to court, hospital, or classification center. Detainees were housed with convicted offenders.	Court found that neither the double celling nor the time in cell was intended as punishment. Detainees were given another 60 days to present evidence as to whether the time in cell exceeded any valid governmental purpose. Court's decision and reasoning was based specifically on Wolfish.
Atiyeh v. Capps 101 S.Ct. 829 (1981)	Convicted offenders	See conditions described in Capps v. Atiyeh in Table 11.	Justice Rehnquist, as circuit justice, granted state's request to stay the injunction of the district court, which had ordered Oregon to reduce the inmate population at three state penal institutions by 750 over a 7-month period. J. Rehnquist found the court's efforts to distinguish Wolfish "particularly unpersuasive" and concluded that the district court ought to reconsider its decision after and with the benefit of the Supreme Court's decision in Chapman (then pending) before the district court "takes over the management of the Oregon prison system."

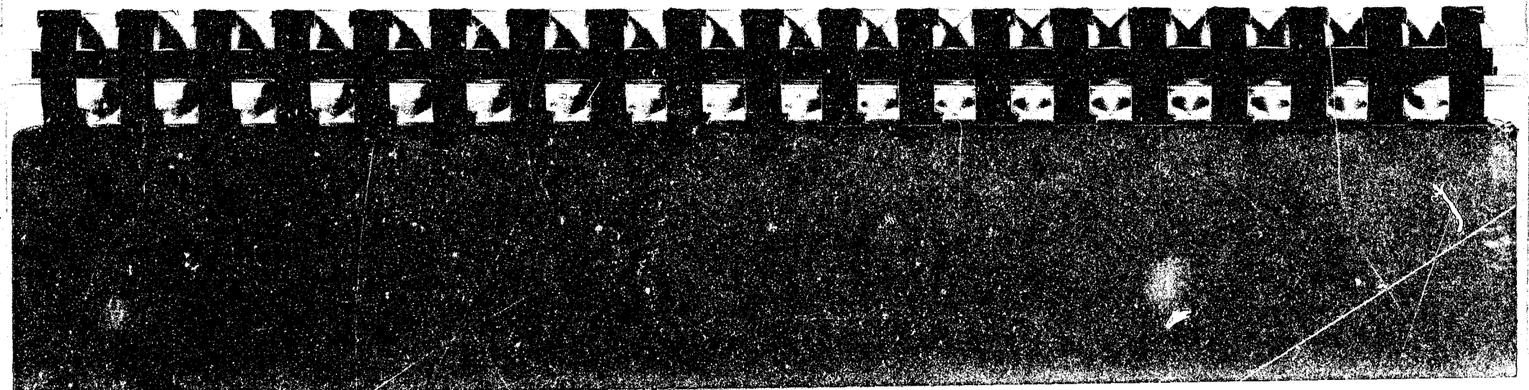


Table 11

Post-WOLFISH, Pre-CHAPMAN Cases

(Finding or leaning toward finding of unconstitutional conditions)

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Lareau v. Manson 651 F.2d 96 (2d Cir. 1981)	Pre-trial detainees and convicted offenders	Modern correctional center originally designed for 360 inmates was housing 500-550 inmates. Double-bunked cells were 60-65 sq.ft. At points in the day inmates could access 225 sq.ft. dayroom. No increase in staff; limited recreational opportunities (3-7 hours a week). 67.6% of inmates at any given time have been there more than 60 days. 15-24 inmates per dayroom.	Court found that it was unconstitutional to place detainees in double-bunked cells under these circumstances for more than 15 days or to place convicted offenders there for more than 30 days. Wolfish was distinguished because here the cells were smaller, inmates had less opportunity to escape the pressures of overcrowding, the periods of incarceration were longer, and security problems had increased.
Chavis v. Rowe 643 F.2d 1281 (7th Cir. 1981)	Convicted offenders	Inmate was confined for 6 months in 35 sq.ft. isolation cell with 4 other inmates.	Court found that such conditions shocked the conscience and constituted cruel and unusual punishment. Court noted that Wolfish criticizes judicial establishment of a minimum number of square feet per prisoner but did not try to distinguish Wolfish.
Lock v. Jenkins 641 F.2d 488 (7th Cir. 1981)	Pre-trial detainees	Detainees were housed one to a 37 sq.ft. cell to which they were confined 22 hours a day. Average length of confinement of detainees was 60 days.	Court found these conditions unconstitutional and distinguished Wolfish because here inmates were confined to their cells more, periods of incarceration were longer, and no effort was made to determine which detainees required greater security (i.e., were an escape risk).

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Ramos v. Lamm 639 F.2d 559 (10th Cir. 1980)	Convicted offenders	Cells range in size from 31.5 to 62 sq.ft. On inmate per cell. Filthy conditions, inadequate ventilation, excessive heat, sewage problems, vermin infestation, stained and soiled bedding. Some inmates (86) confined to cells 23 hours a day. No information as to time spent in cell by other inmates.	Using totality of circumstances approach, court found conditions constituted cruel and unusual punishment. Court adheres to requirement that each inmate have minimum of 60 sq.ft. living space. Wolfish is noted but its relevance to this case is not analyzed.
Jones v. Diamond 636 F.2d 1364 (5th Cir. 1981)	Pre-trial detainees and convicted offenders	Jail was racially segregated, hot, overcrowded (space per inmate was typically less than 15 sq.ft.), atmosphere of violence, unsanitary conditions, no opportunity for exercise, and run primarily by trustees. Some inmates slept on mattresses on floor.	Jail conditions as a whole constituted cruel and unusual punishment. Wolfish is noted but no effort was made to distinguish it from this case. Court ordered district court to establish population ceiling.
Campbell v. Cauthron 623 F.2d 503 (8th Cir. 1980)	Pre-trial detainees and convicted offenders	Detainees housed 5 to cells of 130 or 143 sq.ft. and ordinarily locked in cells 24 hours a day except for 15-30 minute period 3 times a week, during which detainees could shower or exercise. Convicted inmates housed, at times, 6 to 8 to cells of 140 or 154 sq.ft. with same amount of time outside cells as detainees (except for some trustees or work release inmates).	These conditions constitute punishment for detainees and cruel and unusual punishment for convicted inmates. Wolfish was distinguished because inmates here were in their cells nearly all the time and these conditions constitute the kind of "genuine privations and hardship over an extended period of time" that Wolfish referred to as raising "serious questions under the Due Process Clause." Court's remedial order was keyed to amount of time inmates were to be confined to their cells: the longer the period of confinement, the fewer inmates per cell.

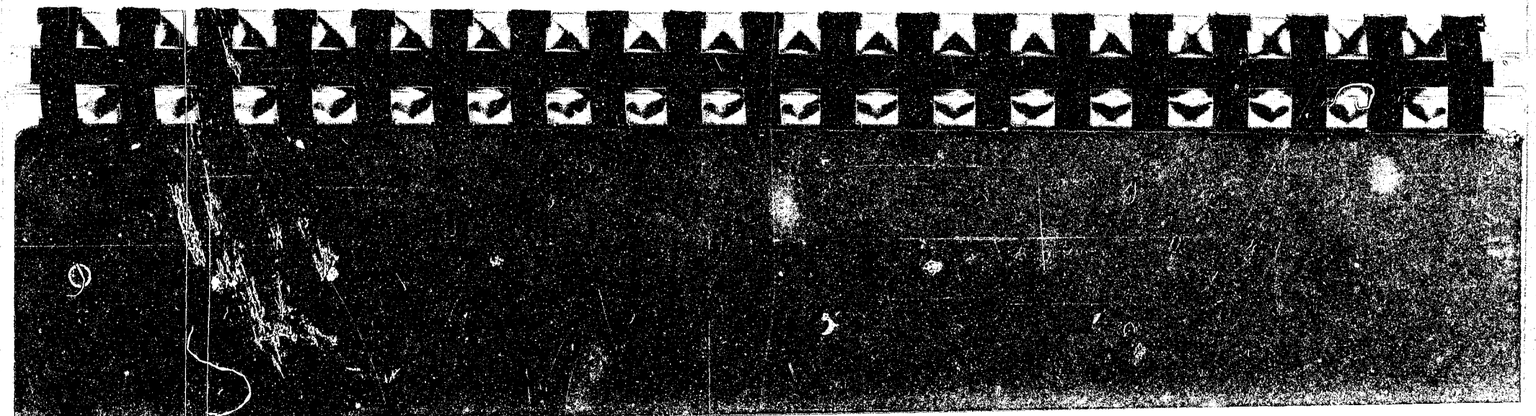
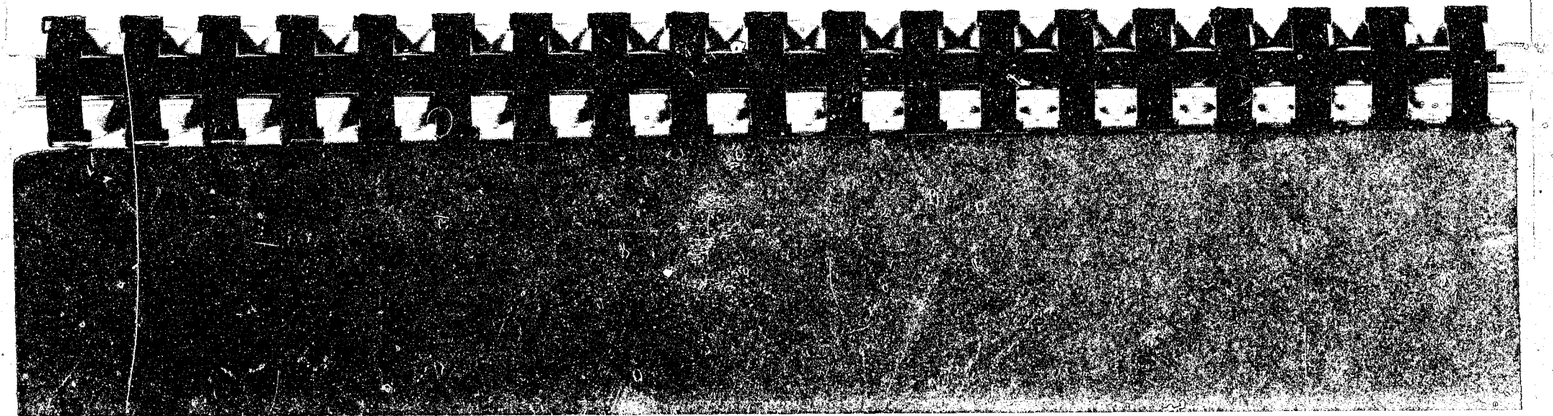


Table 11, Page 3

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Adams v. Mathis 614 F.2d 42 (5th Cir. 1980)	Pre-trial detainees and convicted offenders	Up to 120 inmates housed in jail designed for 82. Facility had been declared a public health nuisance, was grossly unsanitary, had no classification method, could not adequately protect inmates, and provided inadequate food and recreation.	Appellate court summarily affirmed district court's decision that these conditions were unconstitutional with two paragraph opinion that made no reference to Wolfish.
Burks v. Teasdale 603 F.2d 59 (8th Cir. 1979)	Convicted offenders	State Penitentiary contained cells of 47 to 65 sq.ft. Some of these cells had been double- and triple-bunked. Inmates also alleged unsanitary conditions and inadequate medical care, but the court did not decide those issues.	Court upheld district court order that 48 sq.ft. cells could not be double-bunked but 65 sq.ft. cells could be. Wolfish was disposed of by indicating that the institution and conditions at issue there were "quite different" from the institution and conditions in this case.
Dawson v. Kendrick 527 F.Supp. 1252 (S.D.W.Va. 1981)	Pre-trial detainees and convicted offenders	Inadequate plumbing, lighting, housekeeping, and staffing level. Several celling arrangements: (1) 96 sq.ft. cells housed 4-5 inmates for short periods of time (90% were there less than 60 days) with access to 500 sq.ft. dayrooms from 7 am to 11pm. (2) double-bunked "sweat cells" of 35 sq.ft. with no access to dayrooms or exercise opportunities. (4) triple-bunked "side cells" of 132 sq.ft. with no access to dayrooms or exercise opportunities.	Plumbing, lighting, housekeeping, and staffing level individually constitute cruel and unusual punishment. 96 sq.ft. cells are constitutional because length of stay is short and inmates have ample opportunity to "escape" their cells. Absence of exercise opportunities and lack of access to dayrooms make it cruel and unusual punishment to double-bunk sweat cells, to triple-bunk juvenile cells, or to house more than 3 inmates in side cells. Wolfish is referred to for the general constitutional standards it established, but the facts there are not compared with the facts here.

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Lareau v. Manson 507 F.Supp. 1177 (D.Conn. 1980)	Pre-trial detainees and convicted offenders	See description under circuit court of appeals opinion in this table.	Court found these conditions unconstitutional for both classes of inmates and distinguished Wolfish because here inmates were in their cells more time each day, generally served longer periods of confinement, were in smaller cells, and the overcrowding was found specifically to have caused damage to inmates' well-being. One of the most extensive discussions of Wolfish by any court.
Ruiz v. Estelle 503 F.Supp. 1265 (S.D.Tex. 1980)	Convicted offenders	See description of circuit court of appeals opinion in Table 12.	Court found these conditions to constitute cruel and unusual punishment and distinguished Wolfish because here the cells were smaller, inmates were less free to move about, and periods of confinement were much longer.
Hutchings v. Corum 501 F.Supp. 1276 (D.Mo. 1980)	Pre-trial detainees and convicted offenders	This county jail had a number of celling arangements: 2-bunk, 4-bunk, and 6-bunk cells of varying sizes. Living space per inmate ranged from 21 to 48 sq.ft. Inmates were confined to their cells virtually 24 hours a day but the majority of inmates are in the jail less than 10 days. Jail was clean but had inadequate ventilation, fire hazards, insufficient exercise, and sewage problems.	Using totality of circumstances approach, court found these conditions to be cruel and unusual punishment. Court established maximum number of inmates per cell so that each inmate had at least 50 sq.ft. living space. Wolfish is referred to for the general constitutional standards it established, but the facts there are not distinguished from the facts here.



Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
West v. Lamb 497 F.Supp. 989 (D.Nev. 1980)	Pre-trial detainees and convicted offenders	Severly overcrowded (sq.ft. of living space per inmate was never specified), unsanitary, inadequately staffed county jail. Also insufficient lighting and ventilation, atmosphere of violence, terrible odors, and inadequate food.	Conditions constitute cruel and unusual punishment. Jail population was ordered reduced from current 600+ to 178. Court made only a very brief reference to Wolfish and made no effort to distinguish Wolfish from this case.
Feliciano v. Barcelo 497 F.Supp. 14 (D.P.R. 1979)	Pre-trial detainees and convicted offenders	Entire penal system of Puerto Rico was subject of this suit. The list of inadequate penal problems ran the gamut of prison problems and included inadequate sanitation, lighting, and ventilation, lack of privacy, malfunctioning toilets, and contaminated drinking water. Every facility exceeded its rated capacity, some by more than 100%.	Using totality of circumstances approach, court found these conditions constituted cruel and unusual punishment. Court ordered that within 6 months, each inmate should be provided at least 35 sq.ft. of living space and plans should be submitted to provide for at least 55 sq.ft. Court cited Wolfish to establish general constitutional standards but made no effort to distinguish Wolfish factually.
Benjamin v. Malcolm 495 F.Supp. 1357 (S.D.N.Y. 1980)	Pre-trial detainees	Conditions are never really described because parties here had entered into a consent agreement earlier. However, it can be inferred that the county jail exceeded by 33% or more, the maximum population that anyone thought desirable and the jail had experienced a riot causing over $1 million in damages.	Court ordered a population ceiling of 1200 inmates. Court rejected New York City's argument that after Wolfish the conditions here could not be found unconstitutional because 1) city had stipulated that the jail was unconstitutionally overcrowded 8 months after Wolfish, 2) unlike the jails in Wolfish, this is a "traditional jail," 3) inmates here have experienced "genuine privation and hardship" and 4) the overcrowding here is not reasonably related to legitimate nonpunitive governmental objective.

only mentioned Wolfish briefly and made little effort to analyze the effect of Wolfish on the case at hand. In some instances the courts may simply have decided that the conditions at issue were intolerable and either ignored or thought it superfluous to distinguish Wolfish.

It is important to note that in most post-Wolfish cases, the plaintiffs consisted solely of, or included, convicted inmates and that the conditions were found unconstitutional as to the convicted inmates. In order to reach a finding of unconstitutionality, the courts had to determine that the conditions constituted cruel and unusual punishment, which is prohibited by the Eighth Amendment. Once the conditions were found to constitute cruel and unusual punishment as to convicted inmates, the conditions were obviously punishment as to the pre-trial detainees. Since the conditions satisfied the more stringent standard of cruel and unusual punishment, the courts may have seen no need to distinguish or discuss Wolfish. Nevertheless, Wolfish should have been discussed and distinguished because if double-celling and overcrowding did not constitute punishment in Wolfish, the courts should have explained why these conditions would meet the more stringent criterion of cruel and unusual punishment in the case at hand.

Thus, it is difficult to arrive at a clear and precise statement of the effect of Wolfish on subsequent, and even current, cases concerning overcrowding and double-bunking. Some courts explicitly relied on Wolfish in their opinions (See Table 10), others seemed to ignore or give rather short shrift to Wolfish, while still others attempted to distinguish between Wolfish and the instant case. It is to the latter cases that we now turn so as to examine the factors that may still lead to a finding of unconstitutionality even in light of the Supreme Court's ruling in Wolfish.

From the written opinions of courts which 1) found overcrowded conditions

unconstitutional and 2) explained the effect of Wolfish, five factors seem particularly important. The factor most often cited was the inability of inmates to escape the pressures of overcrowded cells. Typically, this conclusion was based upon the relatively brief periods of time that inmates spent outside their cells or dormitories. In a few cases inmates spent over 22 hours a day in their cells. But even when they normally spent as little as 7 to 12 hours per day in their cells, the practice was questioned because the overcrowding had so taxed prison activities that inmates were often forced to spend more than 7 to 12 hours in their cells (Capps v. Atiyeh, 1980). Another court was concerned because inmates' access to day rooms was limited to several points during the day (Lareau v. Manson). In two instances courts were even willing to permit the overcrowded conditions to continue so long as inmates were given significantly greater periods of time outside their cells (Lock v. Jenkins; Campbell v. Cauthron).

A second distinguishing factor was the smaller size of the cells or less square footage per inmate (which is usually the concern where a case involves overcrowding in general rather than double-celling per se). Only one court specifically mentioned this as a distinguishing factor and there the cells were 60-65 square feet (Lareau v. Manson, 1981). However, several of the courts which did not specifically distinguish Wolfish were dealing with cells or square footage significantly less than in Wolfish. In one case the space per inmate was reported to be only 7 square feet during some periods of the day (Jones v. Diamond).

A third distinguishing factor was the longer period of incarceration experienced by inmates. One court was considering a long-term confinement facility in which the mean sentence served was 24 months (Capps v. Atiyeh, 1980). But even in cases where only 17 percent of the inmates were confined for more than 60 days (Lareau v. Manson, 1981) or where the average length of confinement was 60 days (Lock v. Jenkins), courts found these differences from Wolfish significant.

A fourth distinguishing factor was the difference in quality of the institutional facilities. This can be implied from the courts' descriptions of dirty, unsanitary conditions, poor ventilation, and inadequate food, or their reference to a facility as "a traditional jail."

The fifth distinguishing factor was increased security problems and inadequacies in classification methods. (Lareau v. Manson, 1981; Lock v. Jenkins; West v. Lamb; Capps v. Atiyeh, 1980). The two are included as one factor because they are closely related. Courts have stated that overcrowding often results in a "climate of tension, anxiety, and fear among both inmates and staff," (Capps v. Atiyeh, 1980), and that assaultive behavior may increase as a result of overcrowding. The failure to establish a careful method of classifying inmates, so as, for example, to avoid placing passive inmates in cells with aggressive inmates, is also seen to exacerbate these security problems.

In Wolfish, the Supreme Court held that double-bunking of cells designed for single occupancy was not unconstitutional per se and seemed to be suggesting to lower courts that they should be more restrained in their willingness to find overcrowded conditions of confinement unconstitutional. Nevertheless, in most decisions of the lower courts subsequent to Wolfish, overcrowded conditions of confinement were still found unconstitutional and the decision in Wolfish was either distinguished on the basis of different facts or was largely ignored. The factors most often used to distinguish Wolfish were: length of confinement per day, cell size, length of incarceration, the quality of the institution and increased security risks.

The Supreme Court and Convicted Inmates

If Wolfish had been the Supreme Court's only pronouncement on the constitutionality of overcrowded jails or prisons, lower court decisions would apparently have continued on a rather uninterrupted course. But within two years

of Wolfish, the Court decided Rhodes v. Chapman. Whereas Wolfish had dealt with constitutional requirements concerning conditions of confinement for pre-trial detainees, Chapman dealt with convicted offenders. Wolfish established that the constitutional standard for pre-trial detainees is whether the conditions amount to punishment; Chapman confirmed that cruel and unusual punishment is the constitutional standard for convicted offenders. Moreover, for the first time the Supreme Court interpreted that standard in the context of crowded prison or jail conditions.

The Court summarized the law on cruel and unusual punishment that had developed in other contexts by indicating that "conditions must not involve the wanton and unnecessary infliction of pain, nor may they be grossly disproportionate to the severity of the crime warranting punishment." (101 S.Ct. 2399). Applying these standards to the double-bunked cells at the Southern Ohio Correctional Facility (SOCF), Ohio's only maximum security prison, the court found no constitutional violations.

Like the MCC in Wolfish, SOCF was a modern facility (built in the early 1970's) consisting primarily of cells designed for single occupancy, but which had been double-bunked to accommodate an unanticipated increase in convicted offenders. Cells were 63 square feet, well-heated and ventilated, and day rooms equipped with television, card tables, and chairs were accessible by most inmates between 6:30 a.m. and 9:30 p.m. Food was adequate, cells did not smell, noise was not excessive, inmates were allowed contact visits, medical and dental needs were being reasonably met, a number of recreational and educational opportunities were available to most inmates, and the rate of violent behavior had not increased since double-bunking had been instituted. Those who believed that double-bunking should be permitted as a means of housing the spiraling increase in incarcerated offenders could not have hoped for a better factual situation for the Supreme

Court to consider.

These rather felicitous conditions at SOCF could have made Chapman an easily distinguishable case for courts considering subsequent conditions of confinement cases, but the tone of the Court's opinion would appear to be difficult to sidestep by lower courts bent on finding prison or jail conditions unconstitutional. For example, in its determination that the conditions of confinement at SOCF were unconstitutional, the District Court had specifically relied on five considerations: "the long terms of imprisonment served by inmates at SOCF; the fact that SOCF housed 38 percent more inmates than its 'desig. capacity'; the recommendation of several studies that each inmate have at least 50-55 square feet of living quarters; the suggestion that double-celled inmates spend most of their time in their cells with their cellmates; and the fact that double-celling at SOCF was not a temporary condition" (101 S.Ct. 2399). However, the Supreme Court found that "these general considerations fall far short in themselves of proving cruel and unusual punishment, for there is no evidence that double-celling under these circumstances either inflicts unnecessary or wanton pain or is grossly disproportionate to the severity of the crimes warranting imprisonment" (101 S. Ct. 2399). As we have seen, three of these considerations were important factual distinctions which lower courts had used to distinguish Wolfish from the cases before them. The language in Chapman, however, will make it more difficult for courts anxious to find conditions of confinement unconstitutional to distinguish between Chapman and subsequent cases.

In addition, the Court was careful to stress that "the Constitution does not mandate comfortable prisons" and that prisons like SOCF "cannot be free of discomfort" (101 S. Ct. 2400). Furthermore, the Court reiterated a theme from Wolfish, that problems of prison administration are quite complex and require the special expertise of legislative and executive officials rather than judicial

intervention (101 S. Ct. 2401, FN 16). The clear message was one that the Court had tried to communicate in Wolfish and perhaps felt that it had failed to express with enough force: federal courts had become too enmeshed in the administration of America's jails and prisons.

The tone of the concurring opinion of three of the Justices implies that they may have been concerned that the majority's message to the lower courts of disengagement was expressed with too much force. The concurring Justices recounted the history of judicial involvement in conditions of confinement cases, reminding readers that much of this admittedly regrettable judicial intervention occurred in response to appalling circumstances in which a failure to respond would have resulted in great injustice. With this reminder as background, the concurring Justices stressed three points: 1) SOCF is an unusually fine penal institution - "one of the better, more humane large prisons in the Nation (101 S. Ct. 2409). 2) Judicial scrutiny of conditions of confinement under constitutional standards must be conducted on the basis of the "totality of circumstances" at the institution, a test which the concurring Justices believed the majority adopted in Chapman (101 S. Ct. 2407). 3) The touchstone of when conditions of confinement become cruel and unusual punishment is "the effect upon the imprisoned" (101 S. Ct. 2408). If the District Court had found that the overcrowded conditions at SOCF had seriously harmed the inmates confined there, the concurring Justices apparently would have found a violation of the Constitution.

Lower Court Treatment of Chapman

In spite of the Court's clear desire to decrease judicial intervention in the administration of jails and prisons, it is the more equivocal spirit of the concurring Justices that characterizes the lower court decisions since Chapman. The response of the lower courts has been somewhat similar to their response to Wolfish (See tables 12 and 13). In many instances, the treatment of Wolfish and

TABLE 12

Post-CHAPMAN Cases

(Finding or leaning toward finding of constitutional conditions)

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Nelson v. Collins 659 F.2d 420 (4th Cir. 1981)	Convicted offenders	1) Double-bunking of cells comparable in size to those in Chapman. Facility was new and other conditions were generally good. 2) Double-bunking in dormitories, 150 inmates in each dormitory with 55 sq. ft./inmate. No inmate double-bunked more than 120 days. Other conditions adequate.	Reversed district court's finding that double-bunking was unconstitutional. Specifically approved double-bunking under these circumstances. Found facts here similar to those in Chapman.
Ruiz v. Estelle 650 F.2d 555 (5th Cir. 1981)	Convicted offenders	Most of the double-bunked cells were 45 sq.ft. Some of the cells were triple-bunked. Cells ranged from 40-66 sq.ft. "Substantial proportion" of inmates largely confined to cells.	Granted state's motion to stay district court's order to single cell by a set date on basis that state had shown that in light of Chapman, it was likely to win its appeal.
Hoptowit v. Ray Slop opinion No. 80-3366 (9th Cir. 1982)	Convicted offenders	Average prison population was 1000-1100, although rated capacity was 872. Single cells were less than 50 sq.ft. Double cells ranged from 102.5 to 130 sq.ft.	Reversed district court's finding of unconstitutionality that had been based solely on population's exceeding rated capacity and too little square footage per inmate. Remanded with instructions to district court to reassess finding of unconstitutionality based on effects of crowding.

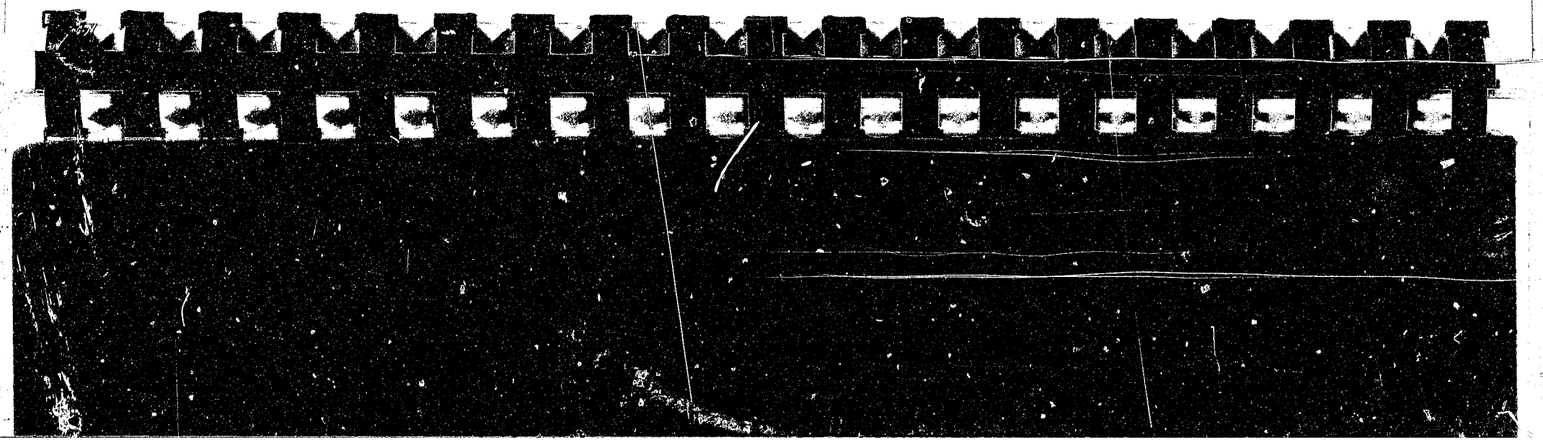


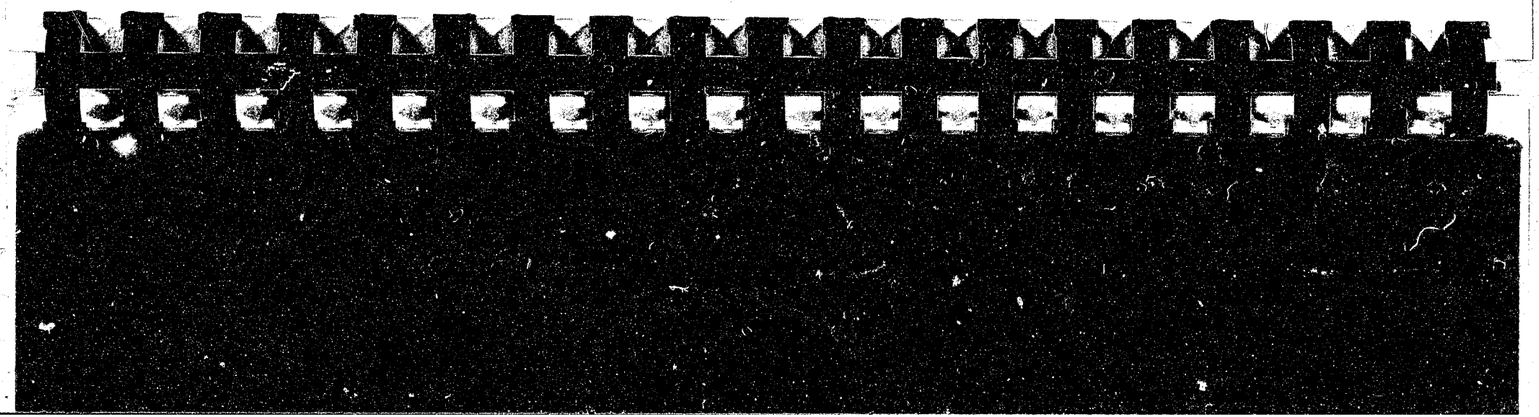
TABLE 13

Post-CHAPMAN Cases

(Finding or leaning toward finding of unconstitutional conditions)

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Ruiz v. Estelle 666 F.2d 854 (5th Cir. 1982)	Convicted offenders	See Table 12.	Denied state's motion to stay district court's injunction ordering that inmates housed in dormitories be provided at least 40 sq.ft. of living space and prohibiting double-bunking of 60 sq. foot administrative segregation cells. State did not establish that balance of equities at this point was "heavily tilted" in its favor. Considered Chapman as one factor in state's favor in balancing process.
Villanueva v. George 659 F.2d 851 (8th Cir. 1981, en banc)	Pre-trial detainee	One inmate in cell 6' by 6'. For a few months, detainee was confined to the cell almost constantly, was twice (or more) served food with cockroaches in it, was denied opportunity to exercise, was bitten by a mouse, and was limited to one phone call and one non-contact visit per week. (Same disagreement amongst judges as to length of time detainee was exposed to these conditions.)	Sufficient evidence to present jury question as to whether these conditions amount to punishment. Cell size, time spent in cell, lack of exercise, general sanitary conditions, and detainee's demonstration that he could be confined under less stringent circumstances without risk, distinguish this case from Chapman.
Madyun v. Thompson 657 F.2d 868 (7th Cir. 1981)	Convicted offenders	Conditions are not described in the opinion.	Proof of frequent attacks of inmates on inmates caused by overpopulation and understaffing would constitute cruel and unusual punishment. Mentions Chapman only to establish totality of circumstances test. Reversed lower court's decision that inmates' complaint did not raise cruel and unusual punishment issue.

Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Gross v. Tazewell County Jail, 533 F.Supp. 413 (W.D.Va. 1982)	Pre-trial detainees and convicted offenders	Jail built in 1952 to house 33 inmates. 80 inmates were in jail. Dayrooms had been converted to living spaces by placing mattresses on dayroom floors. No deliberate indifference to medical needs, no vermin infestation, no uncleanliness or lack of sanitation, adequate food.	Overcrowding found "inhumane, shocking to the conscience" and therefore, cruel and unusual punishment. No discussion of Wolfish and Chapman.
Vazquez v. Gray 523 F.Supp. 1359 (S.D.N.Y. 1981)	Pre-trial detainees	County jail with 15% greater population than design capacity. Inmates housed in dormitories had slightly less than 75 sq.ft. living space. Single cells of 45 to 68 sq.ft. had been doubled up by placing mattresses on floor. The jail had recently had a $1 million riot. Medical and food services, law library, and recreational facilities had been "strained" by overcrowding.	Use of floor mattresses is punishment and unconstitutional. Also punishment to house inmates in dayrooms more than 5 days at a stretch. No real effort to distinguish Wolfish and Chapman.
Smith v. Fairman 528 F.Supp. 186 (C.D. Ill. 1981)	Convicted offenders	Population in maximum security prison 33% over design capacity. Double-bunked cells range in size from 55.3 to 64.5 sq.ft. Inmates largely confined to cells (19-20 hours a day). A few hours of exercise per week. Insufficient security to prevent violence.	Overall conditions are unconstitutional. Wolfish and Chapman distinguished because here cells are smaller, time out of cell is less, length of confinement is longer, and other conditions (noise, odors, ventilation, heat, library and educational facilities) are worse. Climate of violence makes opportunity to "escape" cell illusory.



Case Name & Citation	Type of Inmates	Description of Conditions	Court's Action
Hendrix v. Faulkner 525 F.Supp. 435 (N.D. Ind. 1981)	Convicted offenders	1) In special housing area at issue: one inmate in cells 37.3 to 38.3 sq.ft; confined to cell 23 1/2 hours a day; exercise limited to corridor outside cell. 2) Maximum security facility itself 20% over design capacity. Other cells are 48 to 59.2 sq.ft. with one inmate in each cell. Adequate food and health care. Some unsanitary conditions, but resulting from inmates' own misconduct.	1) Conditions in this special housing area constitute cruel and unusual punishment. Wolfish and Chapman distinguished because cells here are smaller and inmates are locked in cells more. 2) Overall conditions in facility itself are not cruel and unusual punishment.
Heitman v. Gabriel 524 F.Supp. 622 (W.D.Mo. 1981)	Pre-trial detainees and convicted offenders	Old (1910) small (81 inmates) county jail. One inmate per 37.5 sq.ft. cell. All cells opened all the time because of inoperable toilets in most cells. Very little recreation, marginal health care, some unsanitary food services, some vermin infestation, some fire hazards, inadequate bedding supplies, too hot in winter, 2 showers a week.	Conditions constitute cruel and unusua punishment. No efforts to distinguish Wolfish and Chapman.

Chapman by lower courts has been perfunctory. For example, in a jail overcrowding case in the Western District of Virginia involving primarily pre-trial detainees, the court determined that the overcrowded conditions were unconstitutional without citing Chapman and citing Wolfish only to establish that the constitutional standard regarding pre-trial detainees is whether the conditions of confinement constitute punishment (Gross v. Tazewell County Jail).

The court's slighting of Chapman and Wolfish could be explained on the basis that the defendants in Gross did not seriously question that the jail was unconstitutionally overcrowded. But even in more strenuously contested cases, the courts' treatment of Chapman and Wolfish has sometimes been unexpectedly brief. The District Court for the Northern District of Indiana ruled that the Admissions and Orientation cells at the Indiana State Prison were so small that they violated the Eighth Amendment. These cells were only 38 square feet, but they housed one inmate who thus had more space than the two inmates who shared a 63 square foot cell in Chapman. The court disposed of Chapman and Wolfish by indicating that:

> The facilities at issue in Wolfish and Rhodes present quite a different perspective to the prisoners confined there than does the prospect faced daily by the inmates on A & O. The inmates on A & O at the I.S.P. are in much smaller cells and are not free to move about. The evidence shows that confinement in the A & O unit subjects the inmate to genuine privations and hardships. (Hendrix v. Faulkner, p. 524).

Thus, the court distinguished Chapman and Wolfish on the basis of cell size and the amount of time spent in cells per day. Yet these two factors are virtually the same as two of the factors that the District Court in Chapman had relied upon and which the Supreme Court indicated were "insufficient to support (the District Court's) constitutional conclusion." (101 S. Ct. 2399).

Two courts have declared overcrowded conditions of confinement unconstitutional since Chapman and carefully explained why their cases differed from Chapman and Wolfish. They focused on the effects of overcrowding as the

distinguishing factor (Fairman v. Smith; Villanueva v. George). Both courts pointed to smaller cells and brief periods of time afforded inmates outside their cells as important factors in their decisions, but they also emphasized other aggravating matters.

In Villanueva v. George, the Eighth Circuit Court of Appeals, sitting en banc, considered the constitutionality of the conditions to which a pre-trial detainee had been subjected while incarcerated at the St. Louis Adult Correctional Institution. The plaintiff had been housed for nineteen days in a six-foot by six-foot cell, furnished with a bed, combination toilet-sink, and a light bulb. Every second or third day, he was allowed out of the cell for about fifteen minutes to shower or walk in the hallway. The cell was infested with insects and the inmate was bitten once by a rodent. He found hair and roaches in his food at least twice and was permitted no more than one phone call and one non-contact visit each week. In ruling that the inmate had produced enough evidence to permit a jury to find that his conditions of confinement were excessive, the circuit court explained that:

> our decision is not based solely on the fact that [plaintiff] was confined in a cell measuring six feet by six feet [citing Chapman]. It is rather based upon the totality of the circumstances, including cell size, time spent in cell, lack of opportunity for exercise or recreation, general sanitary conditions, and the fact that plaintiff's past behavior demonstrated an ability to be confined under less restrictive conditions without incident (659 F.2d 854).

In Smith v. Fairman, the District Court for the Central District of Illinois declared unconstitutional the overcrowded conditions at Illinois' Pontiac Correctional Center, a maximum security prison constructed in 1871. The prison's population was 33 percent above design capacity with inmates double-celled in approximately 400 cells, which ranged in size from 55.3 to 64.5 square feet. The court distinguished this case from Wolfish because the cells at Pontiac were much smaller, inmates could "escape" their cells only 4-6 hours a day, and

the length of confinement for inmates was measured in years rather than days. Chapman was distinguished since the ameliorating conditions at SOCF, namely, the adequate ventilation, absence of offensive odors, well-controlled temperature, low noise level, adequate library resources and school rooms, and inmates' ability to leave their cells during nearly two-thirds of the day were absent at Pontiac. The court concluded that the conditions at Pontiac constituted cruel and unusual punishment because the prison:

> is overcrowded, antiquated, and has inadequate facilities to provide significant and constructive correctional programs to the inmates. The confinement for years on end of two adult males for periods of eighteen to twenty hours a day in a cramped, ill-ventilated, noisy space designed a century ago for one person is contrary to every recognized modern standard of penology and is in conflict with minimum standards established by the Illinois legislature. (528 F.Supp. 201).

The conditions cited by these courts as establishing cruel and unusual punishment in the aggregate do not include references to an atmosphere of violence. However, there is considerable case law to support the principle that the Eighth Amendment requires correctional institutions to provide inmates reasonable protection from harmful assaults by other inmates. (See cases cited in Madyun v. Thompson). These cases require a pattern of violence and not simply a few isolated instances of inmate assaults. Although this condition alone, even in an uncrowded jail or prison, would violate the Constitution, it seems probable that the likelihood of such an atmosphere is enhanced by overcrowded conditions. Some courts have found that this duty to protect inmates also gives rise to a duty to classify inmates so that a reasonable effort is made to prevent inmate assaults. (Gobert and Cohen, 1981).

Although post-Chapman cases discussed above are arguably at odds with the Supreme Court's apparent desire to reduce judicial involvement in jail and prison cases, two decisions of federal circuit courts of appeal have been more responsive

to that concern. In Ruiz v. Estelle, the Fifth Circuit Court of Appeals stayed a district court injunction ordering the Texas Department of Corrections (TDC) to single-cell its facilities. The majority of the TDC cells were 45 square feet and many double-celled inmates were not free to move about outside their cells. Nevertheless, the court of appeals noted that the factors which the district court relied on in Ruiz (the district court rendered its decision before Chapman) were very similar to those relied on by the district court in Chapman and were expressly repudiated by the Supreme Court. Although the cells in Ruiz were substantially smaller than those in Chapman, the court of appeals did "not believe that there is any constitutionally mandated square footage requirement per prisoner so long as the totality of conditions does not constitute cruel and unusual punishment." (650 F.2d 568). Consequently, the court of appeals granted Texas' request for a stay of the district court's injunction because it believed that "the State has made a substantial case on the merits respecting the serious legal question whether single-celling of inmates at TDC is constitutionally required under the district court's findings of fact." (650 F.2d 567).[6]

In Nelson v. Collins, the Fourth Circuit Court of Appeals decided three consolidated cases involving overcrowding in the Maryland prison system. Maryland had decided to solve temporarily its unanticipated increase in inmates by double-celling the new Jessup Annex and double-bunking some dormitories at another institution. The court of appeals saw no significant differences between Jessup Annex and SOCF.

> The facilities and conditions of confinement at the Jessup Annex are as good, if not better than those at SOCF. The cells are roughly the same size; there is no significant difference in the recreational opportunities; the provision for food, medical, dental, and psychiatric services are comparable; the facilities in the cells are practically the same; all in all, both facilities...are in line with the facilities in the most modern penal institutions. (659 F2d 428).

The double-bunking of the dorms was also held to be constitutional. In four dorms,

all beds in excess of 75 were removed and the 75 beds were double-bunked. As a result, each dorm housed nearly 40 additional inmates, but no inmate was assigned to a double-bunked dorm for more than 120 days. In an interesting approach to the space problem, however, the court reasoned that with fewer beds actually touching the floor the addition of new inmates still left "the actual space available to each inmate...substantially the same." (p. 659 F2d 429).

As stated previously, the response of the lower courts to Chapman has been similar to the response to Wolfish (See Table 13). We should note, however, that Chapman has proven to be more difficult for the lower courts to distinguish, even though they have still frequently made the distinction. Increasingly, the lower courts appear to be recognizing the need to find that some condition relating to the basic necessities of life and resulting from the overpopulation is inadequate. Such a finding has been appearing more frequently in the opinions since Chapman, although the courts have not always been careful to point to this finding as a fact which distinguishes Chapman.

The two cases just discussed that upheld, or leaned toward upholding, crowded prison conditions against constitutional challenges are particularly significant. First, they carry considerable weight since they are appellate court decisions while nearly all the post-Chapman decisions finding overcrowded conditions unconstitutional are trial court decisions. Second, the two cases are carefully considered, well-reasoned opinions which are likely to influence future appellate court decisions. Of course, Chapman is still only a year old and the "early returns" are too inconclusive to permit confident prediction as to the eventual judicial response to Chapman.

Double-Celling in the Post-Chapman Era

The preceding discussion of the law relating to overcrowded jails and prisons is intended to provide a basis for answering two important questions: 1) What

legal problems are likely to arise from construction of a jail or prison with cells designed for double occupancy? 2) What legal problems are likely to arise from double-bunking cells originally designed to house only one inmate?

The construction of a jail or prison with double occupancy cells poses few legal problems. It is clear that the size of such cells do not have to comply with published correctional standards, although state and local facilities may have to abide by a state law or regulation which establishes a minimum cell size. Constitutionally, there is surely some "critical size" which would be so small as to constitute cruel and unusual punishment. Prior to Wolfish and Chapman, a reasonably good estimate of this critical size would have been a size smaller than the smallest size espoused by any of the professional standards. It is impossible to hazard even a reasonable guess as to the critical size now. One can only say with confidence that based on Chapman, if all other conditions of confinement meet constitutional minima, a double occupancy cell of 65 square feet or more is constitutionally acceptable.

Of course, this hypothetical new jail or prison must be constructed and maintained so as to provide inmates the basic necessities of life: adequate food, habitable living conditions, adequate plumbing and sanitation, attention to serious medical needs, and a reasonably secure environment. It is this latter duty - to provide a reasonably secure environment - that is most likely to create potential legal problems for a new facility with double occupancy cells.

As indicated previously, several courts have held that the Eighth Amendment requires jails and prisons to take reasonable steps to protect inmates from attack by other inmates. In a facility consisting largely of double occupancy cells, this duty to protect places a significant burden on the facility to devise a reasonable method for making cell assignments so as to minimize the likelihood of placing a passive, "victim-prone" inmate in a cell with an aggressive one.

The duty to protect would also suggest that staffing levels and the structural design of the institution be such that the double occupancy cells can be adequately monitored. For example, one would certainly want to avoid the situation that existed at the Hartford Community Correctional Center where double-bunked cells had solid doors with a glass window that did not open and there was no way for inmates inside the cell to contact guards. As a result, "if an inmate is being victimized by his cellmate, his only recourse is to slip pieces of paper or other narrow objects through the crack between the door and the doorjamb until the guard happens to look in his direction and notice" (Lareau v. Manson, 1981, p. 100).

Double-bunking of single cells is more likely to result in legal problems than constructing a facility with double occupancy cells. It is clear from Wolfish and Chapman, however, that double-bunking is not in itself unconstitutional. It would also appear form Chapman that double-bunking is constitutionally permissible for convicted offenders even though the double-bunking is permanent, the duration of confinement is lengthy, and the inmates in the double-bunked cells spend most of their time in their cells. As mentioned earlier, however, the lower courts are not consistently viewing Chapman this way. In addition, it is not clear that these conditions would be constitutionally permissible if the affected inmates are pre-trial detainees.

Nearly all the courts that have cited Chapman and addressed the issue of double-bunking have concluded that Chapman requires courts to consider all the circumstances relating to the conditions of confinement in determining whether the Eighth Amendment has been violated.[7] The greatest legal danger created by double-bunking is that as the double-bunked facility becomes more overcrowded, the quality of other conditions of confinement is likely to deteriorate.[8] It becomes more difficult to keep the facility clean, to provide adequate and

properly prepared food, to keep the plumbing in good working order, to permit sufficient exercise, to provide adequate health care, and even to allow inmates adequate time out of their double-bunked cells. The duty to protect inmates from each other will also become more difficult, creating the potential legal problems discussed earlier with respect to double occupancy cells. This analysis suggests that as double-bunking becomes more prevalent in an institution, the likelihood of a lawsuit based on overcrowded conditions will increase with the age of the institution and the degree to which the institution is unable to expand its resources, particularly size of staff.

Conclusion

The law, its interpretation, and the prediction of its future interpretation and application are obviously an inexact science. Officials with responsibility for the administration of a jail or prison who are concerned about being sued for overcrowded conditions are faced with a dilemma. A careful reading of Wolfish and Chapman would suggest to such officials that they can constitutionally operate penal institutions with populations greater than the institutional design capacity so long as they continue to meet adequately the inmates' basic necessities of life. However, the lower court decisions since Wolfish and Chapman suggest that at least some courts are still appalled by the conditions of confinement brought to their attention and are disposed to distinguish or even ignore those decisions. As a result, when correctional facilities become crowded the likelihood of a lawsuit still must be considered substantial and the court's resolution of the dispute cannot be predicted with confidence.

SOCIAL AND PSYCHOLOGICAL CONSEQUENCES OF OVERCROWDING

Our examination of Wolfish, Chapman and the cases which followed them indicate that overcrowding and double-bunking are likely to be ruled unconstitutional only if they are demonstrated to effect adversely other conditions of confinement or to effect adversely the inmates themselves. Thus, the question before us now is an empirical one: is there evidence that overcrowding has an adverse effect on prison conditions or on the inmates exposed to those conditions?

To respond to this question we will review the social scientific literature concerning the consequences of prison overcrowding. We shall begin, in this section, with the general issue of overcrowding and in the next section we shall review studies concerned with the more specific issue of double-bunking. As we shall see, the results of the two types of studies tend to be quite similar and we feel justified in treating double-bunking as a specific form of prison overcrowding.

Overcrowding and Rule Infractions

One of the most difficult tasks confronting prison administrators concerns the maintenance of order. Even under the best of circumstances, a large proportion of a prison's population consists of society's most violent individuals, and the prevention of rule violations, assaults and riots is always problematic. For years it has been hypothesized that population overcrowding exacerbates this condition and results in substantial increases in disapproved behavior. In this section we will examine the empirical literature that studies the relationship between prison overcrowding and rule infractions.

Megargee (1966; 1977), has examined the relationship between population density and disruptive behavior at the Federal Correctional Institution at Tallahassee, Florida. During the thirty-six months from November, 1971 to October, 1974, the population of that facility varied from 523 inmates per month

to 627 inmates per month and, because of renovations that occurred during that period, the amount of living space also varied considerably, from 35,560 square feet to 40,640 square feet.

The independent variables of Megargee's study were the average monthly population, the total space available for the inmates and a density index which refers to the number of square feet of living space available per man per month. Megargee indicates that "...at times of peak density extensive double-bunking was required" (1977:293), but unfortunately he does not present separate information concerning the effect of single- and double-bunking.

Inmate behavior was measured in terms of incident reports. These reports charge an inmate with disciplinary infractions, "... which might range from a fairly minor infraction, such as refusing to report for work or insolence to an officer, to a serious offense, such as assault with a deadly weapon or attempted escape" (Megargee, 1977:293). The data are only reported in terms of the total number of incidents and it is not possible to distinguish between minor and serious infractions.

The results indicate that in months when the inmate population was high there was an increase in the number of rule infractions but not in the rate of infractions per hundred inmates. Thus, total population bears only a weak relation to rule infractions. When Megargee examined the total amount of living space available to the inmates, however, he found a consistent inverse relationship between space and rule infractions. As the amcunt of space decreased both the number and the rate of rule violations increased. Moreover, the association between living space and infractions remained strong when the total population was held constant. Finally, the strongest association observed in Megargee's study was between the density index and disciplinary violations. When the number of square feet of living space per inmate was reduced there was a significant

and substantial increase in both the number and the rate of disciplinary infractions.

In general, Megargee's study suggests that prison overcrowding has an adverse effect on inmate behavior. But this effect is not primarily due to increases in the total population of the prison. Rather, it is more directly a function of the reduction of the amount of living space that is available to each inmate, as indicated by the strong association between the density index and rule violations. It should be obvious, of course, that double-bunking a cell designed for a single occupant increases density and reduces the living space available per inmate, the very conditions found by Megargee to be most strongly related to rule infractions. As Megargee states: "In a prison community, where crowded conditions are chronic rather than temporary and where people prone to antisocial behavior are gathered together, there is a clear association between restrictions on personal living space and the occurrence of disciplinary violations" (1977:295).

Although the results of Megargee's study are of interest they are limited in two basic respects. First, they do not distinguish between serious and minor rule infractions, and second they are based on a single institution.

In an effort to remove these limitations, Nacci et al. (1977), gathered data concerning density and rule infractions in thirty-seven federal correctional facilities, covering a four-year period from 1973 to 1976. The institutions were grouped into four categories: institutions which serve juvenile-youth; young adults; intermediate term adults; and long-term adults (Nacci et al., 1977:28). Moreover, Nacci et al. also distinguished among different types of rule infractions. Their first category referred to "serious offenses" and involved such infractions as "contraband, homosexuality, escapes, and assaults" (Nacci et al., 1977:28). The second category referred to "total assaults" and included assaults against inmates and against staff. The third measure of rule

infractions was limited to inmate against inmate assaults. Each of these measures was expressed as a rate of the number of occurrences per one-hundred inmate days in confinement.

Following the findings of Megargee (1974; 1977), overcrowding was measured in terms of density, "... calculated by dividing the average daily population for any institution by the year-end physical capacity" (Nacci et al., 1977:28). A density index greater than one indicates an overcrowded institution. The average density index for all 37 institutions for the four-year study period was 1.14, indicating that the findings of this study refer to a period in which the prisons were operating above capacity. We should bear in mind, however, that the level of overcrowding during the mid-1970's was not nearly as high as it is at the present time, especially in state prisons.

The results reported by Nacci et al. indicate that density is, in general, related to the rate of inmate rule violations. For all institutional types there was a moderate association between the density index and each of the three measures of rule infractions. The association was weakest for the omnibus measure of "serious offense" ($r = .11$), but was somewhat stronger for the other measures, ($r = .23$ for total assaults and .26 for inmate/inmate assaults).[9]

The association between density and rule infractions was particularly strong for the institutions that housed juveniles and young adults. In the latter institutions, for example, the correlation between density and serious offenses was .30, between density and total assaults it was .63, and between density and inmate/inmate assaults it was .64. On the other hand the correlations between density and infractions within the adult institutions tended to be low and to exhibit an inconsistent pattern.

In general, the findings of the survey conducted by Nacci et al. confirm and specify those uncovered by Megargee. Social density within prisons tends to

increase rates of rule violations, especially in relation to assaultive behavior and especially in institutions which house younger offenders.

In his massive study of overcrowding in the Georgia prison system, Carr (1980) found a very similar pattern of results. Using a variety of measures of crowding he found that for the general population there were only weak and inconsistent relationships between levels of crowding and rates of rule infractions. However, in the correctional institution that housed teenagers and young adults, Carr uncovered strong associations between crowding and rule infractions. After controlling for the effects of rural versus urban background, race, and type of crime -- violent versus property -- Carr reports that "... by far the strongest effects were exerted by the crowding variable" (1980:167). Thus, a rather clear pattern is beginning to emerge from these studies: overcrowding seems to have an adverse impact on rule infractions, especially in institutions that house younger offenders.

Jan (1980) examined the relationship between overcrowding and disciplinary infractions in four state prisons in Florida between 1972 and 1975. He found that overcrowding, as measured by the ratio of the population to capacity, was not related to the rate of escapes but that it was related to the rate of disciplinary confinement, especially in institutions that housed younger offenders. The overcrowding index was also found to be significantly related to the rate of inmate/inmate assaults in both the youthful offender and the adult offender institution studied (Jan, 1980:298). Although this study is not as methodologically sophisticated as the previous ones discussed, its results are consistent with theirs, especially in relation to association between overcrowding and assaultive behavior among younger inmates.

Disciplinary infractions were also studied in the Texas Department of Corrections by McCain et al. (1980). The study covered the period from 1969 to

1978, when the population increased by 91 percent but the housing facilities by only 30 percent. "During the same period the rate of disciplinary infractions nearly quadrupled (83 per 1,000 to 312 per 1,000)", (McCain et al., 1980:110). Statistically, this difference was highly significant.

The only discordant results in this area come from a Canadian study of the relationship between population and misconduct reports in the Ottawa-Carleton Detention Centre (Bonta and Nanckivell, 1980). "No relationship between the total male population and the daily number of institutional misconducts was found" (Bonta and Nanckivell, 1980:205). It should be noted, however, that there was relatively little variation in the daily population (the minimum was 126 and the maximum was 156) and, more importantly, that the detention center was not overcrowded during the time of the study. In fact, the maximum daily population only represented 74 percent of capacity which allowed for a density of 109 square feet of living space per inmate. Thus, the findings of this study suggest that increases in population will not have an adverse effect on inmate behavior when the institution is not actually overcrowded and when a substantial amount of living space is available per inmate.

Before leaving the topic of inmate infractions and assaults, three additional topics should be briefly presented. Ibrahim (1974), Wilson (1977), and the testimony presented in Withers v. Levine, indicate that overcrowding is related to the rate of homosexual assaults in prison, but we should note that the support for this conclusion is rather impressionistic. Nevertheless, it is consistent with the carefully conducted research summarized above.

Second, Kinzel (1970), Hildreath et al. (1971), and Curran et al. (1978), report that violent inmates have a significantly greater sensitivity to the approach of others than do nonviolent inmates. For example, Curran et al. studied the reactions of inmates who had "... histories of repeated incidents of violent

behavior during and prior to incarceration" (1978:57) with a matched sample of inmates who did not. Measured in terms of both verbal response (i.e., telling the approaching individual to stop), and in terms of galvanic skin response, the results confirmed the hypothesis that "... violent subjects have a significantly greater sensitivity to approach than nonviolent subjects" (Curran et al., 1978: 58). Although these studies do not include data on violent responses to infringements on the individual's buffer zone, it is worth noting the differential responses of the violent and nonviolent inmates since social density was found in other studies to be related to assaults and since double-bunking has to reduce the buffer zones that individuals can claim in their living space.

Third, although overcrowding is related to rule infractions, it does not appear to be related to post-prison behavior as measured by recidivism. Carr examined this relationship using data from the Georgia prisons between 1971 and 1974. Although the level of overcrowding was substantial during the middle of this period -- "... prisoners were sleeping in hallways, on floors, between bunks and single cells were doubled, and some were tripled" (Carr, 1980:59) -- Carr was still unable to uncover any consistent and strong relationships between overcrowding and recidivism. Although there was a basic correlation between these variables, ($r = .40$), once the variable of age was held constant, the correlation between overcrowding and recidivism was eliminated (partial $r = -.07$).

Summary: The studies that have examined the relationship between overcrowding and disruptive behavior during confinement suggest that overcrowding does indeed elevate the rate, as well as the number of disciplinary infractions. This is especially so for assaultive incidents and for institutions that house younger offenders. Moreover, the effect of overcrowding appears to be more a function of the social density of the institution than it is of the sheer number of people in confinement. As the amount of living space per inmate declines,

especially when the institution as a whole is operating above capacity, then the rate of rule infractions tends to increase. Moreover, these are the very conditions associated with double-bunking; cells tend to be double-bunked when the facility is operating above capacity and as we have seen in the earlier statistical section, the amount of living space in double-bunked cells approaches precariously low levels in some institutions. In general, the pattern of these associations suggests that double-bunking should be associated with increased rates of rule infractions.

Overcrowding and Illness

Potentially, one of the most serious consequences of prison overcrowding concerns inmate illness, especially in relation to communicable diseases. Indeed, there is convincing evidence that large, overcrowded prisons increase the rate and spread of such illnesses.

King and Geis (1977) examined the spread of tuberculosis in one tier of the Cook County Jail where an active case of tuberculosis was discovered. The entire institution housed approximately 4,000 inmates at the time of the study and on the tier in question 107 inmates were housed in an area of 184 square meters (King and Geis, 1977:791), which is clearly well below the amount of space advocated by all correctional standards. Of the inmates on the tier, 23 percent of those tested for tuberculosis showed a positive PPD reaction of 10mm or more, a reactivity rate considerably higher than that found in the general population. An additional screening was conducted three months later. Of the fifty-four inmates assigned to the tier since the index patient was removed, 13 percent showed a positive response to the tuberculin test. Moreover, for the fourteen patients previously exposed to the index patient but whose initial test was negative, the three-month follow-up indicated a tuberculin positivity rate of 71 percent. King and Geis conclude that : "Crowded jail conditions promote

close contact among large numbers of young men from urban areas, where the incidence of tuberculosis remains high" (1977:792).

The study by King and Geis suggests that overcrowded jail conditions promote considerably higher rates of tuberculosis than those found in the general population. Moreover, the conversion rate observed for the fourteen patients who remained on the tier between the first and second testing periods suggests that the tuberculin rate is associated with exposure to tuberculosis while in confinement and not the importation of tuberculosis into the jail by high risk individuals.

This interpretation is substantiated by Stead (1978) who examined the rate of tuberculosis in two Arkansas Prisons. The first housed about 500 young adults and the second housed approximately 1,500 older, more serious offenders. Following the discovery of two infectious cases of tuberculosis in the second prison in 1974, a large-scale tuberculin survey was conducted. Twenty-four percent of the inmates had a reaction of 15mm or more to five units of PPD, and an additional 11 percent had a reaction between 10 and 14mm. In 1967 the discovery of two additional cases led to another skin testing and roentgenographic survey. Twenty-six percent of the inmates showed a reaction of 15mm or greater and five additional clinical cases were discovered. By November of that year a total of "... ten cases of pulmonary tuberculosis were discovered in prison B during 1967 in a population of 1,500, giving a case rate of 670/100,000 for that year. (The rate for the United States in 1967 was 15.0 and for Arkansas, 21.1)" (Stead, 1978:2544). Thus, the tuberculosis rate in the prison was 44 times as large as the general population rate in the nation and 32 times as large as the rate in Arkansas.

Stead's research also demonstrated that the infection was spread intramurally and was not imported into the prison setting. In the first place there was no significant tuberculosis problem at the smaller prison which "... had a good

tuberculosis control program" (Stead, 1978:2547). The same conclusion is reached by an internal analysis of data from the larger prison. First, a history of previous incarcerations at that institution "increased by three-fold the incidence of a positive tuberculin reaction" (Stead, 1978:2545). Second, Stead was able to construct admission cohorts and found that regardless of the year in which the inmate was admitted, the longer he stayed at the prison the greater the chances that he would become infected with M tuberculosis. Moreover, "forty percent of the inmates who had negative tuberculin reactions in 1973 and remained to 1977 had acquired an infection, as shown by large tuberculin reaction" (Stead, 1978:2546).

Finally, at a more general level, Stead reports that a survey of other state systems confirms his analysis of the Arkansas situation. In forty states with prisons housing 500 or more inmates, Stead reports 139 cases of tuberculosis among a total of 176,400 inmates, which is a case rate of 79 per 100,000 as compared to a general case rate of 13 per 100,000 for the same states.

In general, both studies of tuberculosis suggest that large, crowded prisons and jails are associated with substantially elevated rates of tuberculosis. The disease appears to be spread intramurally and does not seem to be a product of the widespread importation of active cases into the correctional setting.

Instead of focusing on a particular disease other studies have examined the relationship between overcrowding and the rate of illness complaints for a variety of ailments. One study, reported in Paulus et al. (1977) and Cox et al. (1979), is based on data collected at the Texarkana Federal Correctional Institution and the Dallas County Jail. Both institutions exhibited substantial levels of overcrowding. Housing arrangements varied from one and two man cells to dormitories housing 46 men (Texarkana) and 70 men (Dallas). Moreover, the inmates at the county facility spent a considerably greater number of hours per day in

their cells than did those at the federal facility (Paulus et al., 1977:3). Although the facilities apparently contained single and double-bunked cells, the data are not presented in this fashion, so only the general association between overcrowding and illness complaints can be examined here.

The illness rates were found to be approximately twice as high in the more crowded conditions than in the less crowded conditions. Moreover, this finding was observed at both institutions. "The most frequent complaints in our sample were backache, nausea, rash, sinus, constipation, chest pain, and asthma" (Paulus et al., 1977:5).

McCain et al., (1976) examined the relationship between overcrowding and illness complaints among a sample of 64 inmates at a Texas prison who had lived a minimum of thirty days either in a dormitory, which they defined as the crowded condition, or in a one-or two-man cell, defined as the less crowded condition. The results indicate that the inmates in the cells had significantly lower illness complaint rates than did the inmates in the dormitories. Moreover, the observed difference remained when the length of time of residence was held constant. Indeed:

> The failure to observe a decline in illness rates between the initial 30 days and the last 14 to 30 days of dormitory housing suggests that the lower illness complaint rate found in single-man and two-man cells represents a sudden change in rate that is best accounted for in terms of a change in housing conditions. (McCain et al., 1976:287).

The results just discussed were corroborated by data collected from a county jail.[10] Over a five-week period inmates tended to have higher rates of illness complaints if they resided in units with high spatial and social density. During three of the five weeks studied the differences were significant. During the fourth the difference was in the expected direction and during the fifth the two rates were equal.

Moreover, McCain et al. note that it appears that social density is more

important than spatial density in accounting for these findings. They conclude by stating:

> ... if social density is indeed the important stress producing dimension of crowding in prisons, a reduction of crowding-induced stress and illness complaint rate could be accomplished by increasing the number of single-man cells without greatly increasing the total amount of space in prison. (McCain et al., 1976:288).

Walker and Gordon (1980), report similar findings. In their review of the literature on crowding and illness they found a positive relationship in such diverse settings as military barracks, prisons, and even a commercial airliner (Walker and Gordon, 1980:54-56). They also report on a study by the American Medical Association which found:

> ... an extremely high incidence of communicable diseases among inmates in United States correctional institutions. An examination of 641 prisoners showed that 48 percent had some type of infectious disease transmissible to other inmates. This prevalence rate is disturbing to the AMA because of the overcrowding so common in many jails and prisons. (Walker and Gordon, 1980:56).

Thus far our discussion has only focused on physical health, to the exclusion of mental health. McCain et al., (1980) examined the latter issue and found a strong relationship between the total capacity of the institution, a rather indirect measure of crowding, and psychiatric commitment rates. In the Texas prison system from 1974 to 1975, the commitment rate for large institutions (1,450 or more inmates) was .984 per 100 inmates while the rate for the smaller institutions (1,000 or fewer inmates) was .575 per 100 inmates. Thus, the rate in the large facilities was 1.71 times as high as the rate in the smaller facilities. (McCain et al., 1980:113-115).

Somewhat more direct information on this association is provided by Paulus et al., (1978), who compared population changes in two major state institutions in Texas with the rate of psychiatric commitments of the inmates in those institutions. The study period was from 1953 to 1969 and there was a strong

positive correlation between population and commitments ($r = .701$). As the population increased, so too did the rate of psychiatric commitments. (Paulus et al., 1978:112).

Summary: All of the studies that have examined the link between overcrowding and illness have uncovered a positive relationship. Large, overcrowded prisons are associated with a variety of communicable diseases, including tuberculosis, with elevated rates of illness complaints and with higher rates of psychiatric commitments.

Overcrowding and Mortality

The strong and consistent link between overcrowding and illness rates has led some investigators to examine the relationship between prison overcrowding and death rates. For example, McCain et al. (1980) have examined this association in the Texas and Oklahoma prison systems.

The Texas data covered the period from 1968 to 1978 when the population increased from 12,500 to 23,000, or by 84 percent, while the housing facilities increased by only 30 percent. The data from Oklahoma spanned the period from 1973 to 1976, during which the population decreased and then increased, allowing for a comparison of the effects of shifting population on inmate mortality.

Suicide rates in the Texas prison system seem to bear a very strong relationship to prison overcrowding. While the population increased by 84 percent during the study period, the suicide rate increased by over 1,000 percent. Although the very small frequencies of suicide at the beginning of the period dramatically magnify the percentage increase figure, there is still a substantial relationship between the increase in the population and the suicide rate.

Data relating to violent deaths also suggests that prison overcrowding has a strong adverse effect on inmate life. "The violent death rates in the higher population years (1973-1977, .160 per 1,000 inmates) were 40 percent higher

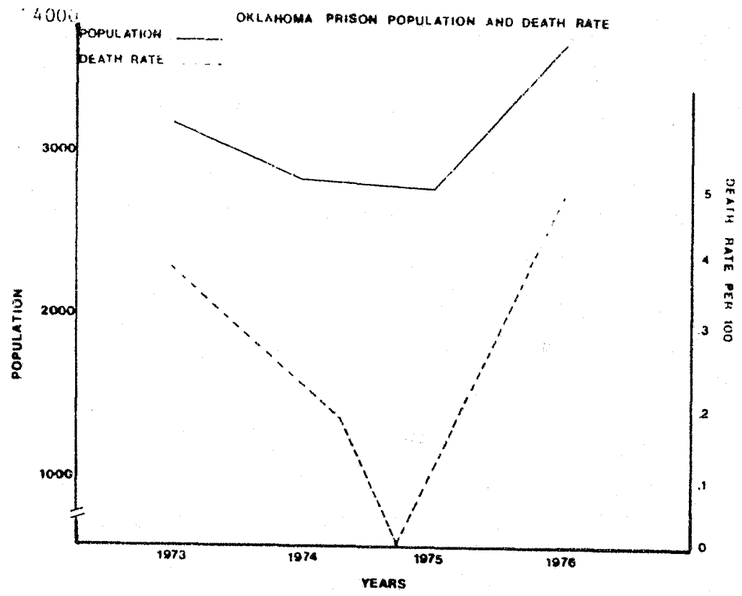
than in the low population years (1968-1976, .115 per 1,000 inmates)" (McCain et al., 1980:108). Although these differences are not statistically significant they are quite consistent with the trend of the other results reported in this section.

The relationship between population and death rates observed in Texas is substantiated in Oklahoma where McCain et al., (1980) examined deaths due to violent causes. This category included suicide, homicide and "other", and whether the "other" deaths were included or excluded in the analysis, the results remained unchanged (1980:104). "In each case the two highest population years had higher rates than the low population years, with rates in the high population years 2.5 and 2.8 times higher than in the low population years" (McCain et al., 1980:104). In order for the reader to better understand the strong temporal relationship between population levels and death rates in the Oklahoma prisons, Figure 3 reproduces the data from McCain et al. Clearly, as the population changed so too did the death rates. The same pattern was also uncovered in studies of the Illinois prison system (McCain et al., 1980:104 and 107).

Another, albiet less direct, way of examining the relationship between population and death rates is to compare the rates for relatively large and relatively small institutions. When this was done for the Texas system, McCain et al. (1980) found that the larger institutions had higher death rates (excluding suicides, homicides and accidents) than those at the smaller institutions. Moreover, this relationship persisted when age was held constant. This same pattern was also observed for the rate of suicide (McCain et al., 1980:113-114).

Paulus et al., (1978) report on a study of the link between overcrowding and death rates at a small psychiatric unit with a rated capacity of 600 men. The data are drawn from the period between 1953 and 1969, and the total average population per year ranged from a low of 369 to a high of 630. During that time

Figure 3



Source: McCain et al., 1980:106

period there was a substantial and significant relationship between the population and the death rate, as indicated by a correlation coefficient of .81. The same outcome was also seen when the death rates of the years with the lowest populations were compared with those with the highest populations: "The proportion of deaths was significantly higher in the higher population years." (Paulus et al., 1978:111).

In sum, the analysis of the archival data from the Texas and Oklahoma prisons suggests that increases in inmate populations, without concomitant increases in housing facilities, i.e., overcrowding, produce substantial negative effects. Overcrowding is seen to be associated with elevated levels of death rates, suicide rates and rates of death by violence.

Overcrowding, Hypertension and Stress

One of the most commonly hypothesized correlates of overcrowding is the induction of stressful responses on the part of individuals. In fact, overcrowding has been shown to be related to stress in such settings as naval vessels (Dean et al., 1975) and college dormitories (Jacobs et al., 1969). Because of this a number of studies have examined the association between overcrowding and stress in prison environments.

D'Atri (1975) and D'Atri and Ostfeld (1975) report on an examination of the relationship between prison overcrowding and hypertension as measured by systolic and diastolic blood pressure which "can be viewed as indexes in CNS (Central Nervous System) arousal" (D'Atri and Ostfeld, 1975:563). They hypothesized that the characteristics of the environment that would produce elevated blood pressures were: "(1) a crowded environment; (2) an enforced stay in that environment; and (3) a continuous subjection to that environment" (D'Atri, 1975:240).

To test this hypothesis data were collected from three correctional institutions. In the first, inmates were either single-celled, double-bunked

or shared a "somewhat larger cell" with three or more inmates. In the second and third institutions, inmates were either single-celled or housed in a large dormitory. Throughout both reports the data are presented so as to compare the blood pressures of inmates housed in the single-cells, the less crowded situation, with those housed in the dormitories. No information is presented concerning the issue of single- versus double-celling for the first institution.

In general, the results of this study offer strong support for the hypothesis. The inmates in the more crowded dormitories exhibited significantly higher systolic pressure in all three institutions and significantly higher diastolic pressure in institutions one and two. Moreover, when height, weight, age, duration of confinement and race were controlled through regression analysis, the associations between crowding and blood pressure were still observed. Thus, independent of the effect of these other variables, prison housing arrangements were found to be significantly related to levels of stress as measured by blood pressure.

D'Atri and Ostfeld also found a curvilinear relationship between blood pressure and duration of confinement. Blood pressure was elevated during the first two weeks of confinement, dropped during the next two weeks and then began a fairly steady increase over the remainder of the period in confinement. D'Atri and Ostfeld suggest that the increase in blood pressures following the first month in confinement is associated with the effects of living in a crowded environment.

Based on the results of the cross-sectional study just described, D'Atri later examined the relationship between crowding and blood pressure in a longitudinal study. A total of 571 inmates at a correctional facility were followed from admission to the institution until their release. Data were collected shortly after admission, at the end of the second week in confinement

and, following the second interview, data were collected at the end of successive thirty day periods. The last interview and clinical testing session took place a few days before the inmate's scheduled release.

D'Atri (1978) reports a preliminary analysis of these data limited to the "... 352 men who were in confinement four or less days at the time of the first interview and who subsequently completed the second and third interviews" (D'Atri, 1978:81). As was true with the cross-sectional data described above, blood pressure tends to be high during the earliest stage of confinement, drops after an initial period of adjustment and then rises again. However, this overall pattern varied substantially by type of housing arrangement.

The blood pressure of inmates in single cells dropped from "... 117mm/Hg to 115 mm/Hg from T1 [read Time one] to T2, followed by a return to 117mm/Hg at T3. The dorm residents remained at a constant 118mm/Hg from T1 to T2 and then rose to 121 mm/Hg at T3, the time at which they were placed in the dorms." (D'Atri, 1978:82, emphasis added). Although the dormitory residents exhibited a greater increase in systolic blood pressure than did the residents of single cells, the diastolic blood pressure of both groups remained relatively constant over time.

In addition to the cohort of 352 men just described, D'Atri examined a smaller group of 232 inmates who lived in the same residence at times three and four. For this group the systolic and diastolic pressures were relatively constant over the observation period, varying by only a point or two with no clear temporal pattern emerging in the data. The same was true of the residents of the single cells; their systolic blood pressure from time one to time four were: 116, 115, 117, 116 mm/Hg. For the residents of the dormitories, however, systolic blood pressure "... displayed a sharp drop from T1 to T2 (124 mm/Hg to 120 mm/Hg) and then experienced an increase of 6 points as they were placed in

the dorms" (D'Atri, 1978:82). A similar result was observed when D'Atri examined inmates who moved from cells to dorms from time three to time four. Their systolic blood pressures increased from 117 mm/Hg to 119 mm/Hg.[11]

In general, these data suggest that temporal changes in blood pressure are affected by type of prison housing environment. Overall, there tends to be a curvilinear trend in systolic blood pressure such that the ratings are highest at the outset of confinement, drop shortly thereafter and then begin an overall increasing trend. But this trend is least evident for residents of single cells, where the trend is relatively flat. It is, however, most evident for residents of dormitories and for those inmates who moved from cells to dormitories.

In the earlier section on illness complaints, we described a survey conducted at the Texarkana Federal Correctional Institution and at the Dallas County Jail (Paulus et al., 1977 and Cox et al., 1979). That study also collected information on the relationship between crowding and stress for 46 inmate volunteers at the federal facility. Stress was measured in terms of palmar sweat, which "... has been employed as an index of arousal ... and has been shown to vary with social stress generated by audiences and group competition in laboratory studies" (Paulus et al., 1977:5).

The results of this examination tend to confirm those of D'Atri and Ostfeld. The correlation between social density and palmar sweat was .33, while the correlation between spatial density and palmar sweat was only .06. Thus, there appears to be an association between crowding and stress and it appears to be due to the number of other individuals with whom one is forced to share one's living quarters, rather than the simple amount of space that is available.

The last study to be discussed in this section is Carr's examination of overcrowding in Georgia prisons. Given the results of the studies on stress, Carr hypothesized that overcrowding should be related to the death rate for

cardiovascular diseases. After controlling for the variable of age, Carr found a substantial, although not significant, correlation between aggregate density and death rates (r = .51). However, at the individual level, i.e., comparing inmates who died from a cardiovascular disease with a matched sample who did not, Carr did not find an association between crowding and death rate. It should be noted though that the individual analysis is limited since there were only 99 cardiovascular deaths and since the major hospital in the system is located at the largest prison.

Summary: The literature that relates prison overcrowding to stress suggests, in general, that these variables are positively associated. Only the study by Carr, where stress was measured in terms of cardiovascular death, was discordant with the overall conclusion that crowding increases stressful responses.

Perceptions of Crowding

The next area we will examine concerns perceptions of inmates about the extent to which they view their living arrangements as crowded. Although these perceptual data do not bear a direct relationship to the conditions of confinement that are typically reviewed by courts, their indirect link to those conditions are of importance. If housing arrangements that are actually overcrowded are not perceived as such by the inmates, then the potential adverse effects of overcrowding may be somewhat muted in their impact on the individual. On the other hand, if the inmates living in overcrowded conditions also perceive their living arrangements to be overcrowded, then the impact of the overcrowding may be exacerbated since it will have both a direct effect and an effect mediated by the inmate's perceptions.

The most extensive work on perceptions of overcrowding is found in the work of Paulus and his colleagues. In one study at the Texarkana Federal Correctional Institution, 142 male inmates were asked to place as many figurines in a scale

model of a room as they wished. The instructions for this test are as follows:

> Imagine this is a living area where people are sitting around and talking. Place as many people as you can here without overcrowding them. Assume beds wherever you wish to place people. Imagine you are one of the people relaxing and talking here, and put as many people as you can here without making it too crowded. (Paulus et al., 1975:88).

"The number of figures placed in the enclosure was employed as the subjective criterion of overcrowding" (Paulus et al., 1975:88).

The analysis of these data compared the scores of inmates residing in single cells with those residing in dormitories. It also examined the scores of inmates who were exposed to overcrowded conditions for longer and shorter times to see if inmates could adapt to crowded conditions.

The results were presented separately for three samples. In the first sample, for which limited housing information was available, there was no association between housing types -- single cell versus dormitories -- and perceptions of crowding. For the other two samples, however, the subjects residing in dormitories placed significantly fewer figures in the model room indicating that they were more sensitive to feelings of being crowded than inmates who resided in a single cell. Moreover, individuals who had been in confinement for longer periods of time had significantly lower test scores. "Apparently, the greater the length of confinement in a crowded environment, the more the inmates valued low levels of crowding" (Paulus et al., 1975:89).

The results of this study are of interest since they indicate that inmates who reside in more crowded living arrangements in fact perceive those arrangements to be crowded and also are more sensitive to crowding. Moreover, the association between length of confinement and crowding scores suggests that inmates do not easily adapt to crowding conditions with the passage of time. It would seem, therefore, that crowding is not an irritant that only affects inmates until they

become used to it. Rather, its effect appears greater the longer they are exposed to the condition. This is essentially the same finding observed by D'Atri and Ostfeld (1975) with respect to blood pressure.

Toch (1977) also examined inmate perceptions and attitudes toward crowded conditions. He found that inmates object to crowding for three basic reasons. The first was the absence of social amenities, the second concerned intrusions into one's privacy and the feeling of perennial observation, and the third concerned noise levels in that "one is unavoidably exposed to sensory input selected by others...one is not free to reduce sensory input to achieve quiescence, and...one cannot attend to stimulation that matches one's mood or emotional requirements..."

A Note on Overcrowding and Occupational Stress

To this point our discussion of prison overcrowding has been limited to a consideration of its effects on prison inmates. As has often been noted, however, prison staff, especially custodial staff, are also confined to the prison environment for extensive periods of time. The present section, therefore, will examine the literature that focuses on staff reactions.

While specific research into questions of occupational stress within the corrections environment has been limited, the outcomes of stress in other occupational environments is well documented. From the perspective of the individual, stress related outcomes have been identified in such physical disorders as reported headaches, high blood pressure, ulcers, and colitis (Rosefield, 1980:2). Behaviorally the outcomes of long term exposure to high stress situations are thought to include the development of domestic problems, tendencies toward obesity or alcoholism, and changes in personality characteristics. For an occupational system, these manifestations of stress result in high rates of employee turnover, costs associated with training and inexperienced personnel,

and changes in job performance (Benton and Rosen, 1980).

Cheek and Miller (1979:1980) found that correctional officers demonstrated more stress related physical illness than did police officers, but among corrections personnel these symptoms were not related to differences in sex, education, size of facility, number of staff in the facility, or inmate-staff ratios. Within the sampled population the major sources of occupational stress were identified as related to the administrative environment, i.e., the lack of autonomy in decision-making and the lack of administrative support in the role function. Benton and Rosen (1980:6) found that attrition rates among correctional officers were lower in institutions with single occupancy housing units such as cells or rooms and where personnel were allowed to participate in management decisions.

The research which has made the most comprehensive effort toward identifying the environmental parameters of correctional officer stress is that of Cheek and Miller (1981). Although there is an absence of direct empirical evidence testing the relationship between crowding and measures of occupational stress, the findings of these authors provide a sufficient description of the stressful environment to allow the development of logical inferences. For Cheek and Miller, "...it appears that stress in corrections is more closely linked to administrative aspects of the job than to inherent role obligations, such as the correction officer's daily interaction with inmates, his being incarcerated for prolonged periods of time or even actual dangers associated with the job" (1981:1-2). Essentially, their argument is that both the lack of autonomy in decision-making, and of administrative support,produce high levels of role ambiguity for correctional officers. While relations between inmates and personnel are governed by specific administrative rules, these rules do not provide the behavioral flexibility necessary to respond to specific encounters and therefore, the rules

must be altered in virtually every situation. Even though these alterations are viewed as necessary, the officer is aware that they will not necessarily be supported by the administrative structure.

By combining the empirical findings of Cheek and Miller with the results obtained for inmate populations the following conclusions might be drawn:

(1) There are conditions of the correctional environment which contribute to increased levels of stress both in inmates and personnel.

(2) For inmates the causes of stress are multiple, the most studied being conditions of social and spatial crowding which clearly result in both behavioral and physiological outcomes.

(3) For personnel the major causes of stress relate less to physical, environmental conditions than to the behavioral structure within which the role of correctional officer is to be carried out and evaluated.

The inferences for a relationship between conditions of crowding and occupational stress supported by these conclusions are relatively straightforward. As conditions of inmate overcrowding create high stress environments for the captive clientele, resulting in increased rates of rule infractions, the environment within which correctional officers and inmates interact becomes more stressful. This would seem to be a function of both an increase in the number of possible interactions and the seriousness of the interactions themselves. Thus, the increase in stress levels within the inmate environment is likely to contribute further to problems of role ambiguity for correctional personnel.

Conclusive evidence linking conditions of inmate overcrowding to the concept of occupational stress within the prison environment is not available. The

strongest conclusion which can be drawn from the evidence presented is that when conditions of inmate stress are both present and evident through observable behaviors, an increase in the level of occupational stress experienced by correctional officers can also be expected.

Summary

The present section has reviewed the literature on the effects of prison overcrowding. With few exceptions, the empirical studies suggest that overcrowding has a number of serious negative consequences. Overcrowding has been linked to rates of rule infractions -- especially in prisons that house younger inmates, to communicable diseases and illness complaints, to psychiatric commitments, death rates, hypertension and stress -- although not cardiovascular deaths -- perceptions of crowding, and, although the evidence is indirect, potentially to elevated levels of stress among prison staff as well. Throughout our review we have reported on studies whose results do not conform to this summary. But these studies are few in number and do not challenge the overwhelming conclusion that prison overcrowding has pronounced negative effects on the lives of individual inmates.

THE SOCIAL AND PSYCHOLOGICAL CONSEQUENCES OF DOUBLE-CELLING

The last issue we will examine in this monograph concerns the consequences of double-celling. Although there is a reasonably large literature which examines the effect of general overcrowding, there is relatively little work which focuses directly on the effects of double-bunking. In fact there is only one major empirical study in this area (McCain et al., 1980). Fortunately for our purposes, that study was conducted, at different times, at six federal correctional institutions--Atlanta, Danbury, El Reno, La Tuna, Fort Worth, and Texarkana--and as such can be viewed as containing five internal replications of the results. If the results are relatively consistent across these institutions, therefore, the validity of the findings concerning double-bunking will be enhanced.

The primary measures that were employed by McCain et al. are: perceptions of crowding, blood pressure, illness complaint rates, rates of rule infractions and a number of attitude scales to measure the inmate's rating of his housing environment (McCain et al., 1980:11). All of these measures are not available for every institution, for example, data on rule infractions are only presented for inmates at the El Reno facility, but they do form the core of the research to be described here.

El Reno: At the El Reno facility:

> Two double-story buildings contained enclosed rooms measuring 5'10" by 10'. Each floor contained two wings of 35 rooms arranged on both sides of a hallway. Eleven rooms in each section of the hallway contained two men...assignments of inmates in our sample to a particular type of housing is done on a completely random basis. Within a unit residents are initially assigned to a double and moved to a single on a seniority basis (McCain et al., 1980:17).

In addition to the enclosed rooms, inmates are housed in dormitories. The dormitories contain cubicles that are 5'6" high and which enclose a seven foot by seven foot area of living space. Each dormitory contains 48 cubicles and of these, 19 are double-bunked.

When inmates who reside in a single room or cubicle are compared to those who reside in a double room or cubicle,[12] the results quite clearly favor the occupants of single units. Those who reside in the double units rated their living conditions as more crowded than did those in the single units and viewed their living arrangements as more negative on a variety of rating scales. Although only data on nonaggressive infractions were collected, "...because aggressive infractions would be reduced in single occupant housing by the lack of additional housing partners," (McCain et al., 1980:12), the study still found that inmates who resided in double units had significantly higher rates of disciplinary infractions than those residing in single units. When the length of time in the institution, in the housing condition and custody level were held constant, the effects just described remain relatively unchanged. Moreover, "when one examines only those who have been in the housing for six weeks or longer, most of the above-mentioned findings are obtained even more strongly" (McCain et al., 1980:22).

McCain and his colleagues next examined the relationship between single versus double units and illness rates. Those in the double units had significantly higher illness complaints than those in the single units. For example, during the first six weeks of residence the illness complaints per week were .06 for the singles and .16 for the doubles, and following the first six weeks the rates were .07 for the singles and .14 for the doubles. Moreover, when the illness complaints were limited to only noncontagious diseases the differences remain large and in the expected direction.

Thus far, these findings are quite consistent with the ones summarized in the previous section concerning the effects of general overcrowding. The only discrepant result concerns the level of stress. At the El Reno facility the

inmates in the single units had a significantly higher diastolic blood pressure than those in the double units, a finding that is not consistent with D'Atri and Ostfeld's (1975).

In sum, the comparison of inmates who were housed in single as compared to double units at the El Reno facility clearly suggest that the former fare considerably better than the latter. They perceive their living conditions as less crowded, are more positive towards their environment, have lower rates of rule infractions and, in general, have lower rates of illness complaints, although they do not have lower blood pressures.

Atlanta: The next set of data were drawn from the federal institution at Atlanta, which was one of the older federal prisons still in use at the time of the study. The Atlanta study provides an unusual opportunity to study the effects of housing arrangements that varied from single cells to multiple occupancy cells. The single cells provide approximately 50 square feet of living space. The multiple occupancy cells are twenty-two feet by eight feet, provide a total of 176 square feet, and, at the time of the study these cells housed between three and six inmates. With the exception of data on rule infractions the same variables as used in the El Reno study are available.

The results of the Atlanta study clearly indicate that the single occupancy cells are more desirable than the multiple occupancy ones. Moreover, there was a strong gradient observed for each of the outcomes to be discussed such that the single cells had the most favorable scores followed by steadily increasing unfavorable scores as one moved from the three-man to the six-man cells.

Occupants of the single cells viewed their living arrangements as less crowded and rated their housing more favorably on four of the six attitude scales employed in the analysis. They also had significantly lower illness complaint rates and

reported considerably less difficulty in sleeping. Again, however, there was no substantial relationship between housing arrangements and blood pressure.

An additional point to be made with the data from the Atlanta study concerns the impact of social versus spatial density. The former refers to the number of individuals sharing the same living quarters, while the latter refers to the amount of space that is available per individual. Since these two measures are often highly correlated it is difficult to separate their effects. In the Atlanta institution, however, a relatively clear separation can be made. The single cells provided a total of fifty square feet per inmate while the three-man cells provided fifty-nine square feet per inmate, only a marginal difference. In terms of social density, however, the three-man units were three times as crowded. Since the statistical differences in perceived crowding, attitudes and illness complaints described above also obtained for the comparison between single and three-man cells, "...social density effects may be more important than spatial density effects at these levels..." of crowding (McCain et al., 1980:36). The implication of this finding is that somewhat smaller single cells are more beneficial, at least in terms of the outcome variables measured by McCain et al., than somewhat larger multiple occupancy cells.

Texarkana: Data were collected at the Federal Correctional Institution at Texarkana in both 1978 and 1979. Among the housing arrangements at that institution inmates are housed in regular single cells containing 54 square feet, in large single cells containing 66 square feet and in double-bunked cells containing 27 square feet per person.

The residents of the double cells had resided in the institution and in the double cells for shorter periods of time than had the residents of the single cells so these variables were held constant in the analysis. The results indicate

that the residents of double cells rated their cells as more crowded and as less attractive than did the residents of the single cells. Moreover, the double-celled inmates appeared to be less alert and less satisfied with their living arrangements and also had lower tolerance for crowding than did the inmates in the single cells. Although the double-celling had these adverse attitudinal effects, "...these reactions were not severe enough to lead to statistically significant differential illness complaint rates" (McCain et al., 1980:72). During the 1978 study housing arrangements were not significantly related to blood pressure, but in 1979 "...a significant diastolic blood pressure effect was found with regular single inmates having lower blood pressure than those in the other types of housing" (McCain et al., 1980:68).

The presence of both regular (54 square feet) and large (66 square feet) single cells at Texarkana allowed for an examination of effects of differential spatial density. Overall, there were few differences. The residents of the large cells had significantly higher diastolic blood pressures, rated their rooms as somewhat more attractive and had less tolerance for crowding. "The finding suggests that small increases in space for regular size cells did not have a beneficial impact..." (McCain et al., 1980:72).

Danbury: The McCain et al. study also collected data from the federal prison at Danbury, Connecticut. From our perspective the only important comparison from that study concerns the effect of single- and double-decked bunks within the same dormitory. Although not directly related to the issue of double-celling, this comparison addresses a similar aspect of housing and one worth examining briefly. The only outcome variable available for analysis concerns illness complaint rates.

The inmates in the double-decked bunks exhibited higher rates of illness complaints than did those in the single bunks. Although the differences were not

significant (possibly because of small n's, McCain et al., 1980:47-48), the trend in the differences is consistent with other findings. During the first six weeks of confinement the inmates in the double-decked bunks had an illness complaint rate of .351 per week while those in the single bunks had a rate of .197 per week. After six weeks in confinement the same trend is evident: the double-decked inmates had a complaint rate of .152 per week while the single-bunked inmates had a rate of .105 per week. Thus, during the early time period the rate for the double-bunked inmates was 78 percent higher than that of the single-bunked inmates and during the later period the rate for the double-bunked inmates was 45 percent higher.

Fort Worth: The last data set from the McCain et al. study to be discussed is drawn from the federal correctional facility in Fort Worth, Texas. Although the comparison here is between single rooms, with either 85 or 108 square feet, and single dormitory cubicles, with 48 square feet, the comparison is of interest since it contains information on the reactions of female as well as male inmates. Other studies examined to this point have collected data from exclusively male institutions.

For both male and female inmates, cubicles were viewed as more crowded than single rooms, were rated more negatively, and residents of the cubicles were less tolerant of crowding than were residents of single rooms. The lower tolerance levels, however, were due primarily to the ratings of the male inmates.

With respect to illness complaint rates, the residents of the single rooms had significantly lower rates than did the residents of the cubicles. The pattern of these differences differed somewhat by length of confinement and by sex. Nevertheless, we note that for the males:

> ...illness complaint rates for singles were slightly lower than the high-partitioned cubes (cubicles). For women, illness complaint rates in singles were about half as high

as low-partitioned cubes in the period less than six weeks. (McCain et al., 1980:100)

Although data on female inmates is not extensive, it appears that crowding has similar effects on these outcome measures for both males and females. As McCain et al. conclude: "The reactions of males and females to their housing environments were quite similar suggesting that females as well as males will show negative effects of living under crowded conditions" (1980:101).

Although not a direct examination of the differences between single and double cells, another study by Paulus et al. (1978) can be included in this section of our report. This study compared the differential effects of residence in two-man cells, with 29 square feet per inmate, three-man cells, with 19 square feet per inmate, and six-man cells, with 19 square feet per inmate.

The results suggest that increases in crowding have a number of negative consequences. The inmates in the two-man cells had significantly lower degrees of perceived crowding as compared to those in the more crowded cells, which in turn did not differ from one another. Holding constant the variable of age, Paulus et al. found that the inmates in the two-man cells had significantly lower systolic blood pressures than did those in the three-man and six-man cells (1978:113). The same analysis for diastolic blood pressure did not reveal any significant differences, however.

Summary

We have devoted a considerable amount of space to describing, on an institution by institution basis, the results of the study by McCain, Cox and Paulus (1980) since it represents the most direct examination of the effects of single- versus double-bunking available. Overall, their study suggests that double-bunking has a number of negative effects and, by and large, the direction and pattern of these effects are similar to those observed when general overcrowding is used as

the independent variable. Thus, the findings described in the previous section on prison overcrowding are probably transferable to the special situation of overcrowding that is presented by double-bunking cells or rooms that were originally designed for a single occupant.

Although, in general, double cells were found to be more attractive to inmates than open dormitories, "...double-bunking was not favorably perceived in any housing mode, possibly because double-bunking eliminates the vestiges of personal territory" (McCain et al., 1980:v). Moreover, when the effects of single versus double-bunking were examined directly, the comparisons, almost without exception, favored single celling. Inmates in single cells had lower illness complaint rates, perceived less crowding in their housing environment, were more tolerant of crowding, exhibited more positive attitudes than did the inmates housed in double-bunked cells and had lower rates of nonaggressive disciplinary infractions (at least in the one institution for which data on rule infractions were available).

While these negative consequences did follow the double-bunking of single cells, the study did not find any association between double-bunking and elevation in blood pressure, nor were there any effects of attendance at religious, club and educational activities. Thus, double-bunking does not seem to have quite the same general effect as does overcrowding, but we should note that there was virtually no evidence to suggest that double-bunking has any positive effects. Either there were no significant differences between single- and double-bunking, or the double-bunked inmates had scores that indicated significantly poorer adjustment.

We should also note that the prisons they studied in the federal system do not represent the worst cases that exist in American corrections today. These facilities are not as overcrowded as many of the large state prisons, which

house the bulk of the incarcerated felons in our country. In addition, the inmates studied by McCain et al. were only confined to their cells during sleeping hours. In many other correctional settings, however, inmates are confined in double-bunked cells for considerable portions of the day as well. Thus, the effects that were uncovered by McCain et al. may not represent the strongest effects of double-bunking at all: "...it is possible that space may be a more important factor in prisons where inmates are confined for large parts of the day to their housing units" (McCain et al., 1980:134).

A NOTE ON PRISON COSTS

Given the empirical evidence just summarized it would seem reasonable to conclude that there is little justification for double-bunking inmates in cells designed for a single occupant. One of the most common responses to this conclusion, however, is that the negative consequences of double-bunking are offset by the savings that accrue from housing inmates in double cells or in dormitories.

In terms of capital costs, that is the cost of constructing a new facility, this conclusion is probably justified. Although estimates vary considerably, for example, the National Moratorium on Prison Construction states that the average cost per bed varies from $39,204 to $53,047, (UUSC, 1981:12) while the National Council on Crime and Delinquency indicates a range from $25,000 to $50,000, (NCCD, 1977:7), it is reasonable to assume that prisons that are predominately composed of single cells and rooms are more expensive to construct than prisons that use dormitories as the predominant form of housing.

In terms of operating costs, however, the same conclusion is not as evident. Indeed, Trumbull and Witte (1981) have examined the factors that affect the operating costs of six correctional facilities in the federal prison system and concluded that single cells are associated with lower operating costs. Their research suggested that the "...cheapest prison to operate...would be relatively large (house an average of 1371 inmates), would provide a good bit of living space (70 square feet per inmate), and would provide an individual cell for each inmate" (Trumbull and Witte, 1981:133, emphasis added).

Trumbull and Witte do not present data concerning the sources of the savings that accrue from the use of single cells but they do suggest that: "...they may be due to improved inmate morale and lowered security costs" (1981:135). Although

this is a purely speculative explanation, it is consistent with the results of the studies summarized above.

The econometric model employed by Trumbull and Witte required a number of assumptions to be made and some of these have been challenged by Kritzer (1981). Thus, without replication of their study in other settings, especially state prison systems, it may be somewhat premature to accept their conclusions that single cells are actually less expensive to operate. It does seem reasonable, however, to interpret their results as suggesting that single cells are no more expensive to operate, and may, in the long run, be less expensive.

Whether their stronger or our more muted interpretation of their results is correct it is difficult to say. But it is clear that the results of their work raise important questions about one of the most common arguments in favor of double-bunking: its cost-effectiveness.

CONCLUSIONS AND RECOMMENDATIONS

The Supreme Court, in Wolfish and Chapman, held that double-bunking, in and of itself, is not unconstitutional. Despite the constitutional acceptability of double-bunking, our review of the literature that deals with this issue leads ineluctably to one conclusion: double-bunking is not sound correctional policy.

Statistical studies indicate that prison populations in this country are growing at exceptionally high rates and that prison overcrowding is a substantial correctional problem. Large proportions of the inmate population are housed in multiple-occupancy, high-density cells and dormitories, and there are no indications of this problem abating in the near future. Double-bunking is not a rare phenomenon and substantial numbers of inmates are affected by this response to overcrowding.

Despite the prevalence of double-bunking, every set of correctional standards reviewed urges that double-bunking be avoided and recommends that single cells or rooms be the predominant form of housing, especially in maximum security units. Moreover, they also recommend that at least 60 square feet of living space be provided in these cells and, if inmates are confined to the cells for more than 10 hours per day, they recommend that larger cells be required.

Our review of the social and psychological consequences of overcrowding and of double-bunking lends considerable support to these standards. These conditions were found to be related to such outcomes as: increased rule infractions, elevated incidence of communicable diseases and general illness complaints, stress, elevated death rates, increased stress among staff, and reduced tolerance of crowding. Although the results of some studies do not conform to this trend, those studies tend to be exceptions and the overwhelming weight of the scientific evidence suggests that overcrowding and double-bunking

are associated with a number of adverse consequences. Indeed, the uniformity of the results of these empirical studies is both unusual and impressive.

Although the Supreme Court has ruled that double-bunking is not unconstitutional, lower courts have not necessarily followed suit in post-Wolfish and post-Chapman cases. In fact, the lower courts appear to be more sensitive to the consequences of double-bunking, such as the ones discussed in this report, and often have found in favor of the plaintiffs, ordering correctional officials to alter the housing arrangements for overcrowded inmates. Thus, despite the Supreme Court's rulings, correctional officials are still likely to be faced with constitutional challenges if they respond to the problems of overcrowding by double-bunking cells designed for single occupancy.

Based on this research the following recommendations can be offered with respect to the double-bunking of cells designed for a single occupant:

1. It is legal to do so provided that the double-bunking does not result in a significant deterioration of the other conditions of confinement.
2. Although double-bunking is legal, it is not desirable because:
   a. It violates correctional standards and hence sound management policy;
   b. It is associated with a variety of negative social and psychological consequences;
   c. It creates a significant chance that a costly and protracted period of litigation will result , the outcome of which is uncertain given the trend of lower court decisions; and,
   d. It may not result in any substantial reduction in operating costs, and may even increase those costs.

3. If double-bunking is unavoidable because of general overcrowding, then double-bunking should be employed only under the following conditions:
   a. Inmates should not be confined to double-bunked cells for more than ten hours per day;
   b. An inmate should be double-bunked for brief durations, probably no more than thirty days;
   c. Double-bunking should only be done in prisons in which the other conditions of confinement, e.g., ventilation, recreational facilities, medical services, etc., are above average;
   d. Increased security should be provided;
   e. Double-bunking should only be employed when meaningful classification procedures are available and actually implemented; and,
   f. Double-bunked cells should contain at least 60 square feet of living space.
4. If double-bunking is employed the consequences of that policy, to inmates, staff and other conditions of confinement, should be carefully monitored so as to gain a better understanding of the affects of this mode of housing.
5. Prison staff should receive adequate training so as to be able to deal with the increased stress attendant on double-bunking and staff should be increased, on a temporary basis, to provide for the safe operation of the facility. There should be no increase in the permanent staff, so as to avoid

the potential problem of a continuation of the overcrowding because of the larger staff.

6. Given the health-related consequences of double-bunking there should be appropriate increase in medical and mental health facilities.

7. Inmates should not be shifted in and out of double-bunked cells in order for the institution to comply with recommendation 3b. Such shifting compounds the problems following double-bunking by distorting the inmate's sense of personal space and living quarters.

8. If an entire correctional system is overcrowded and double-bunking is unavoidable, the double-bunking should begin in facilities that do not house young adults and/or in minimum security facilities. As we have shown, overcrowding is strongly related to rule infractions in prisons for young adults. Also, prison systems tend to overestimate their security needs and too few inmates are housed in the lower security units, thereby exacerbating the overcrowding and double-bunking in maximum security units.

Although there are settings in which the costs of double-bunking may be minimized, (see the third recommendation), the results of our research still suggest that double-bunking is not a desirable correctional option. Thus, the most basic conclusion flowing from the present monograph remains unchanged: double-bunking should be avoided if at all possible.

Footnotes

1. We will return to a detailed discussion of this issue and of Chapman and Wolfish in a later section of this monograph.

2. The discrepancy between the total jail population, 161,926 as reported in Table 4, and the number of beds available, 233,893 as reported in Table 5, does not mean that overcrowding is not a problem in jails. Indeed, some of the most extensive overcrowding occurs in large, urban jails, while jails in rural areas are often operating well below capacity.

3. The term density, as used by Mullen and Smith, is similar to the concept of spatial density found in the psychological literature on crowding. Also, their term occupancy is similar to the concept of social density. These concepts will be discussed in a later section and the reader should be aware of the similarities between the concepts employed by Mullen and Smith and the more common terms of spatial and social density.

4. See the cases listed in the pre-Wolfish sections of the Table of Cases.

5. Because the policy questions addressed by this monograph concern the most desirable celling arrangements in penal institutions, the legal research has focused on conditions of confinement cases in which overcrowding was an issue or was closely related to the issues resolved by the cases. In the strict sense of the term, conditions of confinement cases include cases involving the legality of institutional practices, such as search procedures, visitation practices, classification systems, and disciplinary procedures. However, legal issues concerning institutional practices are not ordinarily relevant to celling arrangements except where such practices are affected by overcrowding. For the most part, the overcrowding cases have focused on the overcrowding itself or the effects of overcrowding on other physical or environmental conditions, such as sanitation, ventilation, and quality of medical care. Consequently, use of the term "conditions of confinement" in this section will refer to physical and environmental conditions rather than institutional practices.

6. The Fifth Circuit Court of Appeals later refused another request by Texas to stay the district court's order that the number of inmates housed in TDC dormitory units not exceed an amount which would result in inmates having less than 40 square feet of living space. (See Table 11). On June 23, 1982, the Fifth Circuit upheld the district court's ruling that conditions of confinement in the Texas penal system constitute cruel and unusual punishment, but the appellate court held that the district court went too far in ordering the Texas Department of Corrections to eliminate all double-bunking by a specified date and to provide all inmates housed in dormitories a minimum of 60 square feet of living space. ("Texas Prisons Ruled Cruel," The Washington Post, June 24, 1982, p. A9). The 143-page opinion by the Fifth Circuit was issued too late to allow time to obtain a copy of it and include an analysis of the case in this monograph, but it seems likely that Wolfish and Chapman were influential in the court's decision.

7. The Ninth Circuit Court of Appeals is an exception. Note also that Chapman does not prevent a court from basing a finding of cruel and unusual punishment on a single condition, such as inadequate medical care (Estelle v. Gamble). Wolfish also seems to call for the application of a totality of the

circumstances test in determining whether the conditions of confinement of pre-trial detainees constitute punishment.

8. See Lightfoot v. Walker for an example of a case which was decided on the basis of the adequacy of the health care provided inmates. The court's decision was not based on the overcrowded conditions that existed, but it is clear that the overcrowding was a primary cause of the inadequate health care.

9. The statistic "r" refers to a product-moment correlation, which can vary from -1.0 to +1.0. If the two variables under study are unrelated the coefficient will be close to zero. As the relationship becomes stronger, however, the coefficient will move away from zero, to either -1.0 or +1.0. A negative sign indicates that as the value of one variable becomes larger the value of the other becomes smaller. For example, as overcrowding increases we might expect inmate feelings of privacy to decrease. A positive sign indicates that the values of the two variables move in the same direction, as is the case with the data presented in the text. Thus, as the density index increases the rate of assaults increases. Or to look at the same relationship a little differently we could also say that as the density index decreases the rate of assaults decreases.

10. In the series of studies on overcrowding by Paulus, McCain and Cox the institutions are not always identified by name. Thus, it is possible that the same data set is described twice in this report even though we have attempted to eliminate duplication.

11. D'Atri does not present data concerning the blood pressure of inmates who moved from dormitories to cells, however.

12. The data are not presented separately for single versus double rooms and single versus double cubicles.

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TABLE OF CASES

The Table of Cases is divided into three parts. The first contains cases decided before Bell v. Wolfish while the second contains cases decided after Wolfish. The third section is a combined alphabetical listing of all cases referred to in this work.

Cases Decided Before Bell v. Wolfish

I. Cases focusing on double-bunking

Anderson v. Redman, 429 F.Supp 1105 (D.Del. 1977)

Chapman v. Rhodes, 434 F.Supp. 1007 (S.D.Ohio 1977), aff'd, 624 F.2d 1099 (6th Cir. 1980), rev'd, 101 S.Ct. 2392 (1981)

Detainees of Brooklyn House of Detention for Men v. Malcolm, 520 F.2d 392 (2d Cir. 1975)

Hite v. Leeke, 564 F.2d 670 (4th Cir. 1977)

Inmates of Suffolk County Jail v. Eisenstadt, 360 F.Supp. 676 (D.Mass. 1973)

Johnson v. Levine, 588 F.2d 1378 (4th Cir. 1978)

M.C.I. Concord Advisory Board v. Hall, 447 F.Supp. 398 (D,Mass. 1978)

United States ex rel. Wolfish v. United States, 428 F.Supp. 333 (S.D.N.Y. 1977), aff'd, 573 F.2d 118 (2d Cir. 1978), rev'd, 441 U.S. 520 (1979)

II. Cases focusing on institution's design capacity or imposing a population ceiling

Costello v. Wainwright, 397 F.Supp. 20 (M.D.Fla. 1975)

Hamilton v. Love, 328 F.Supp. 1182 (E.D.Ark. 1971)

Miller v. Carson, 563 F.2d 741 (5th Cir. 1977)

Mitchell v. Untreiner, 421 F.Supp. 886 (N.D.Fla. 1976)

Newman v. Alabama, 559 F.2d 283 (5th Cir. 1977)

Williams v. Edwards, 547 F.2d 1206 (5th Cir. 1977)

III. Cases focusing on minimum square footage per inmate

Ambrose v. Malcolm, 414 F.Supp.485 (S.D.N.Y. 1976)

Battle v. Anderson, 564 F.2d 388 (10th Cir. 1977)

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Gates v. Collier, 423 F.Supp.732 (N.D.Miss. 1976)

Laaman v. Helgemoe, 437 F.Supp, 269 (D.N.H. 1977)

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Rutherford v. Pitchess, 457 F.Supp. 104 (C.D.Cal. 1978)

Sykes v. Krieger, 451 F.Supp. 421 (N.D.Ohio 1975)

Taylor v. Sterrett, 344 F.Supp. 411 (N.D.Tex. 1972)

IV. Other overcrowding cases

Alberti v. Sheriff of Harris County, 406 F.Supp. 649 (S.D.Tex. 1975)

Crowe v. Leeke, 540 F.2d 740 (4th Cir. 1976)

Finney v. Hutto, 410 F.Supp. 251 (E.D.Ark. 1976) (See earlier cases cited therein as well)

Hamilton v. Schiro, 338 F.Supp. 1016 (E.D.La. 1970)

Imprisoned Citizens Union v. Shapp, 451 F.Supp. 893 (E.D.Pa. 1978)

Inmates, District of Columbia Jail v. Jackson, 416 F.Supp. 119 (D.D.C. 1976)

Johnson v. Lark, 365 F.Supp. 289 (E.D.Mo. 1973)

Jones v. Wittenberg, 323 F.Supp. 93 (N.D.Ohio (1971)

Landman v. Royster, 333 F.Supp. 621 (E.D.Va. 1971)

Moore v. Janing, 427 F.Supp. 567 (D.Neb. 1976)

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Appendix A

Summary of Litigation

This summary of litigation is drawn from three sources: (1) "ACLU Cites Overcrowding as Most Serious Prison Problem," Corrections Digest, V. 13, N. 6, March 12, 1982, pp. 1, 5-7; (2) American Civil Liberties Union, Status Report: The Courts and Prisons, March 8, 1982, of which the previously noted Corrections Digest citation is a synopsis; and (3) project research. The most significant change we have made is to eliminate Vermont from the list as the Vermont legal division correctional officials indicated their state prison was closed, absent any pending litigation, court order, or consent decree and was closed for economic reasons.

1. Alabama: The entire state prison system is under court order dealing with total conditions and overcrowding. Pugh v. Locke, 406 F.Supp. 318 (M.D.Ala. 1976), aff'd in substance; Newman v. Alabama, 559 F.2d 283 (5th Cir. 1977), cert. denied, 98 S.Ct. 3057 (1978); Receiver appointed, 466 F.Supp. 628 (M.D.Ala. 1979). To relieve overcrowding and the back-up of state prisoners in county jails, 400 state prisoners (this number was later modified) were ordered released. Newman, supra, Slip Op. (M.D.Ala., July 15, 1981), application for stay denied, No. 81-7606 (5th Cir., July 23, 1981) stay denied, Graddick v. Newman, 50 U.S.L.W. 3021 (July 25, 1981), reapplication denied, 102 S.Ct.4 (1981). A second prisoner release order was issued, Newman, supra, Slip Op. (M.D.Ala., December 14, 1981), application for stay granted pending expedited appeal, Graddick v. Newman, No. 81-8003 (11th Cir., Dec. 21, 1981). The expedited appeal was argued on February 8, 1982.
2. Arizona: The state penitentiary is being operated under a series of court orders and consent decrees dealing with overcrowding, classification and other conditions. Orders, August 1977-1979, Harris v. Cardwell, C.A. No. 75-185 PHX-CAM (D.Ariz.).
3. Arkansas: The entire state prison system is under court order dealing with total conditions. Finney v. Arkansas Board of Corrections, 505 F.2d 194 (8th Cir. 1974). Special Master appointed, Finney v. Mabry, 458 F.Supp. 720 (E.D.Ark. 1978).
4. California: The state penitentiary at San Quentin is being challenged on overcrowding and conditions. Huff v. Commissioner (C80 3931 (N.D.Cal.); Wilson v. Brown, Superior Court, Marion County.

5. Colorado: The state maximum security penitentiary is under court order on total conditions and overcrowding. The prison was declared unconstitutional and ordered to be ultimately closed. Ramos v. Lamm, 485 F. Supp. 122 (D.Col. 1979); aff'd in part and remanded, 639 F.2d 559 (10th Cir. 9/25/80) cert. den. 101 S.Ct. 1259 (1981), on remand, 520 F.Supp. 1059 (D.Col. 1981).
6. Connecticut: The Hartford Correctional Center operated by the state is under court order dealing with overcrowding and some conditions. Lareau v. Manson, 507 F.Supp 1177 (D.Conn. 1980) aff'd 651 F.2d 96 (2nd Cir. 1981).
7. Delaware: The state penitentiary is under court order dealing primarily with overcrowding and some conditions. Anderson v. Redmon, 429 F. Supp. 1105 (D.Del. 1977).
8. Florida: The entire state prison system is under court order dealing with overcrowding. Costello v. Wainwright, 397 F.Supp.20 (M.D.Fla. 1975), aff'd 525 F.2d 1239 and 553 F.2d 506 (5th Cir. 1977). See also 489 F.Supp 1100 (M.D.Fla. 1980), settlement on overcrowding approved.
9. Georgia: The state penitentiary at Reidsville is under court order on total conditions and overcrowding. A special master was appointed in June 1979. Guthrie v. Evans, C.A.No. 3068 (S.D.Ga.).
10. Illinois: The state penitentiary at Menard is under court order on total conditions and overcrowding. Lightfoot v. Walker, 586 F.Supp. 504 (S.D.Ill. 2/19/80). The state penitentiary at Pontiac is under a court order enjoining double celling and dealing with overcrowding. Smith v. Fairman, 80-3076 (C.D.Ill. 11/3/81). Litigation is pending at other institutions.
11. Indiana: The state prison at Pendleton is being challenged on total conditions and overcrowding. French v. Owens. The state penitentiary at Michigan City is under a court order on overcrowding and other conditions. Hendrix v. Faulkner, 30 Cr.L 2159 (W.D.Ind. 10/21/81).

12. Iowa: The state penitentiary is under court order on overcrowding and a variety of conditions. Watson v. Ray, C.A. No. 78-106-1, 90 F.R.D. 143 (S.D.Ia. 1981).
13. Kentucky: The state penitentiary and reformatory are under court order by virtue of a consent decree on overcrowding and some conditions, Kendrick v. Carroll, C76-0079 (W.D.Ky.) and Thompson v. Bland (April 1980). The women's state prison is being challenged on the totality of conditions. Canterino v. Wilson, No. 80-0545-L (j) (W.D.Ky.).
14. Louisiana: The state penitentiary is under court order dealing with overcrowding and variety of conditions. Williams v. Edwards, 547 F.2d 1206 (5th Cir. 1977).
15. Maine: The state penitentiary is being challenged on overcrowding and a variety of conditions. The trial was concluded in the fall of 1981. Lovell v. Brennan, C.A. No. 79-76SD (D.Me.).
16. Maryland: The two state penitentiaries were declared unconstitutional on overcrowding. Johnson v. Levine, 450 F.Supp. 648 (D.Md. 1978) Nelson v. Collins, 455 F.Supp. 727 (D.Md. 1978), aff'd 588 F.2d 1378 (4th Cir. 1978), on remand F.Supp. ___ (D.Md. 1/5/81), rev. and remanded, 30 Cr.L 2053 (4th Cir. 9/14/81) (en banc).
17. Massachusetts: The maximum security unit at the state prison in Walpole is being challenged on total conditions. Blake v. Hall, C.A. 78-3051-T (D.Mass.). A decision for the prison officials was affirmed in part and reversed in part and remanded.
18. Michigan: The women's prison is under court order, Glover v. Johsnon, 478 F.Supp. 1075 (E.D.Mich. 1979). The entire men's prison system is under court order on overcrowding, and the state prison at Jackson is being challenged on other conditions. Everett v. Milliken, C.A. 80-73581 (E.D.Mich.).

19. Mississippi: The entire state prison system is under court order dealing with overcrowding and total conditions. Gates v. Collier, 501 F.2d 1291 (5th Cir. 1974).

20. Missouri: The state penitentiary is under court order on overcrowding and some conditions. Burks v. Teasdale, 603 F.2d 59 (8th Cir. 1979), on remand, 27 Cr.L. 2335 (W.D.Mo. 5/23/80).

21. Nevada: The state penitentiary is under court order on overcrowding and total conditions. Craig v. Hocker, C.A. No. R-2662 BRT (D.Nev.) (consent decree entered 7/18/80). New addition to state penitentiary is being challenged on total conditions. Maginnis v. Wolff, CVR-77-221-ECR (D.C.Nev.).

22. New Hampshire: The state penitentiary is under court order dealing with total conditions and overcrowding. Ladman v. Helgemoe, 437 F.Supp. 269 (D.N.H.-1977).

23. New Mexico: The state penitentiary is under a court order on overcrowding and total conditions. Duran v. Apodaca, C.A. No. 77-721-C (D.N. Mex.) (consent decree entered 8/1/80).

24. North Carolina: A lawsuit was filed in 1978 at Central Prison in Raleigh on overcrowding and conditions and a similar lawsuit is pending involving the women's prison. Batton v. No. Carolina, 80-0143-CRT (E.D.N.C.), see also 501 F.Supp. 1173 (E.D.N.C. 1980) (denying motion for summary judgment).

25. Ohio: The state prison at Lucasville was under court order on overcrowding. Chapman v. Rhodes, 434 F.Supp. 1007 (S.D.Oh. 1977), aff'd 6/6/80 (6th Cir.), rev'd, 101 S.Ct. 2392 (1981). The state prison at Columbus is under court order resulting from a consent decree on total conditions and overcrowding and is required to be closed in 1983. Stewart v. Rhodes, C.A.No. C-2-78-220 (S.D. Ohio) (12/79). The state prison at Mansfield is being challenged on total conditions. Boyd v. Denton, C.A. 78-1054A (N.D.Oh.).

26. Oklahoma: The state penitentiary is under court order on total conditions and the entire state prison system is under court order on overcrowding. Battle v. Anderson, 564 F.2d 388 (10th Cir. 1977).

27. Oregon: The state penitentiary is under a court order on overcrowding, Capps v. Atiyeh, 495 F.Supp. 802 (D.Or. 1980), appeal pending (9th Cir.), stay granted, 101 S.Ct. 829 (1981), stay vacated by decision in Rhodes v. Chapman (see Ohio above).

28. Rhode Island: The entire state system is under court order on overcrowding and total conditions. Palmigiano v. Garrahy, 443 F.Supp. 956 (D.R.I. 1977). a special master was appointed in September 1977.

29. South Carolina: The state penitentiary is being challenged on overcrowding and conditions. Mattison v. So. Car. Bd. of Corr., C.A. No. 76-318.

30. Tennessee: The entire state prison system declared unconstitutional on total conditions. Decision in August 1978 with preliminary order closing one unit by state court Judge. Trigg v. Blanton, C.A. No. A6047-Chancery Court, Nashville, vacated in part and remanded, Tenn. Ct. of Appeals decision to abstain in favor of federal court by Tenn. Supreme Court which dismissed state court suit, Feb. 1982. Trial held Fall 1981 in Federal Court, Grubbs v. Bradley, 80-3404 (M.D. Tenn.).

31. Texas: The entire state prison system has been declared unconstitutional on overcrowding and conditions. Ruiz v. Estelle, 503 F.Supp 1265 (S.D.Tex. 12/10/80), stay granted and denied, 650F.2d555 (5th Cir. 1981), stay granted and denied (5th Cir. 1/14/82), a special master has been appointed.

32. Utah: The state penitentiary is being operated under a consent decree on overcrowding and some conditions. Nielson v. Matheson, C-76-253 (D.Ut. 1979).

33. Virginia: The state prison at Powhatan is under a consent decree dealing with overcrowding and conditions. The maximum security prison at Mecklenburg

is being challenged on the totality of conditions. Brown v. Hutto, 81-0853-R (E.D. Va.).

34. Washington: The state reformatory is being challenged on overcrowding and conditions. Collins v. Rhay, C.A. No. C-7813-V (W.D.Wash.). The state penitentiary at Walla Walla had been declared unconstitutional on overcrowding and conditions and a special master has been appointed. Hoptowit v. Ray, C-79-359 (E.D.Wash. 6/23/80), aff'd in part, rev'd in part, vacated in part and remanded,

35. West Virginia: The state penitentiary at Moundsville is being challenged on overcrowding and conditions.

36. Wisconsin: The state prison at Waupun is being challenged on overcrowding. Delgado v. Dady, 79-C-1018 (E.D.Wisc.). Trial concluded December 1981.

37. Wyoming: The state penitentiary is being operated under terms of a stipulation and consent decree. Bustos v. Herschler, C.A. No. C76-143-B (D.Wyo.).

38. District of Columbia: The District jails are under court order on overcrowding and conditions. Inmates, D.C.Jail V. Jackson, 416 F.Supp. 119 (D.D.C. 1976), Campbell v. McGruder, 416 F.Supp. 100 and 111 (D.D.C. 1976), aff'd and remanded, 580 F.2d 521 (D.C.Cir. 1978).

39. Puerto Rico: The Commonwealth Penitentiary is under court order on overcrowding and conditions. Martinez-Rodrigues v. Jiminez, 409 F.Supp. 582 (D.P.R. 1976). The entire commonwealth prison system is under court order dealing with overcrowding and conditions, Morales Feliciano v. Jiminez (D.P.R.).

40. Virgin Islands: Territorial prison is under court order dealing with conditions and overcrowding. Barnes v. Gov't. of the Virgin Islands, 415 F.Supp. 1218 (D.V.I. 1976).