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Gershon Cooper and Roland N. McKean

There is scarcely room for doubt that a potential enemy, armed with the A-bomb or H-bomb and possessed of a means of delivering it, could destroy much of our wealth and many of our people. What should we do about this vulnerability?

For three years, our government has urged us to disperse. An Industrial Dispersion Policy, promulgated in August, 1951, by President Truman, is still in force. That directive instructed the Director of the Office of Defense Mobilization to "establish general standards with respect to dispersal, which shall be followed in the granting of certificates of necessity, in the allocation of critical materials for construction purposes, and in the making of emergency loans growing out of defense production." As recently as last June the director of ODM, Arthur Flemming, proposed the extension of accelerated amortization privileges to manufacurers of important defense items, who wish to move existing plants out of target areas.

For almost ten years all sorts of experts, struck by the fact that capital and people are highly concentrated in our cities, have recommended dispersal. Can there really be any doubt about what we should do? There can be. There is. In a problem so complex and difficult, the specialist clearly has something to offer. But the dispersal problem transcends any one field of specialization: there are no "dispersal experts," no experts on the problem as a whole.

Even the advocates of dispersal have been far from unanimous in their recommendations. The official policy is to induce firms in war industries

to locate some of their new plants ten to twenty miles -- sometimes less -- from certain so-called "target areas." Some dispersal recommendations, however, have implied quite different programs: the placing of all "key" installations, whether old or new, outside existing target areas; the breaking up of cities into smaller units; the dissolution of large cities in peripheral, but not in interior, regions. About all that such programs have in common is the proposition that our people and productive capacity ought to be geographically distributed in a fashion different from that which would exist if no special governmental action were taken. The issue of what kind of dispersal program to adopt is far from settled: a resolution introduced into the House of Representatives in May, 1954, proposed a Congressional study of the problem.

For these reasons, it is impossible to appraise dispersal in general, yet undesirable to confine the discussion to one particular form. It is not the authors' intention, however, to reject or support dispersal; it is their intention to ask the right questions -- questions which have significance for most forms of dispersal, and which are in danger of being neglected.

Dispersal -- for what?

Many arguments have been made for dispersal. Sometimes it is urged that it would be in the interests of the individual to disperse, in view of the risk of being bombed; and this may be true. We shall turn directly to a broader, though a related, question: is dispersal in the national interest?

The principal argument for a national policy of dispersal is, undoubtedly, that it would help win a war if one should occur. But the matter does not end there. Dispersal, some writers have claimed, would also help to achieve

other social objectives: a higher standard of living whether war comes or not; an improvement in general social conditions -- better health, less crime, less traffic congestion, and so on; a reduction in the probability that war will occur. Each of these will be discussed in turn. In addition, we shall consider an objective which has received scant attention from the proponents of dispersal: the maintenance of individual freedom. Finally, we shall have to examine critically the familiar claim that there are no alternatives to dispersal.

The mere listing of objectives is not, however, sufficient to permit final evaluation; somehow we must determine how important the objectives are relative to each other. How important is the preservation of life relative to the preservation of freedom? How important is an increase in the standard of living compared to an increase in the probability that we shall win a war if one should occur? On such questions every man must be his own expert: the decisions are properly the function of the Legislature and not of the technician.

Dispersal for Victory

Would dispersal, of the sort currently proposed, put us in a better position to win, if war broke out, than would the situations that might otherwise exist? Of course, one cannot talk in terms of just <u>any</u> other situation, but must postulate certain specific alternatives. Let's think of it this way. Dispersal costs money; i.e., requires resources, whether for relocation of existing capital or construction of new capital. Those resources could be used for building new capital in "conventional" locations -- locations selected without regard for the possibility of attack. This is one alternative situation, which we shall label "non-dispersal."

Precisely what one means by "winning" a war, particularly in the age of H-bombs, is hard to pin down. In general, however, the greater the supply of those goods and services which are essential after an enemy attack, the greater will be our chance of survival and victory. Dispersal and non-dispersal would have different implications for our postattack supplies, since these policies would differ with respect to: (1) the quantity of capital that we would have by the time of attack, and (2) the "damage" that would be inflicted on a given population and capital stock.

First, as to assets available at the time of attack. There is some reason to believe that "conventional" sites would make for greater total "capacity" than would dispersed locations. The more concentrated locational pattern would require fewer water mains and rail extensions; reduce lags in replacing workers; provide better access to substitute suppliers and special services; permit economies of scale in the operation of utilities. Moreover, the process of changing over from a concentrated to some other locational pattern would entail the abandonment of capital, even if we set out to "shift" old facilities to new locations only as they wore out. (Unlike the parts of the one-hoss shay, all components of our installations would not fall to pieces simultaneously.) Of course, capital concentration could be so great that costs due to congestion would outweigh the savings just mentioned, in which case some lesser concentration would yield a greater pre-attack capacity. However, it seems to the authors that most dispersal policies would reduce the quantity of pre-attack capital. If this view is correct, in order to appraise a dispersal policy, one needs to estimate not only the <u>magnitude</u> of the reduction in capital but also the <u>magnitude</u> of the reduction in damage.

How shall damage be appraised? If mere tons of rubble is the measure, then we can surely reduce potential damage from a given weight of attack by some sort of dispersal. If, on the other hand, the impact on our ability to survive and win is the measure, it is not clear how a particular dispersal program would affect damage. How much would the protection of aircraft factories reduce damage if petroleum refineries would still be smashed? How much would the protection of capital reduce damage if casualties would still be huge — e.g., via radiological effects of modern bombs? To assess damage, we should look at the joint effectiveness of the resources that remain after attack. But the effect of a dispersal program on the saving of lives is doubly important, for the preservation of human life is also an end in itself.

Let us assume for the moment that damage increases with the concentration of people and capital. What should be counted in measuring an area's concentration? Our National Dispersion Program, in discouraging concentration in the future, provides for the dispersal of certain "war industries" only. Yet, in attacks on the scale that will no doubt become possible, human survivors and capital for producing certain consumers' goods may well be as important for our military posture as capital in "war industries." Hence, while the program would decrease the amount of rubble, it might improve but little our chances of winning.

Suppose you were the enemy...

But suppose we felt sure that the destruction of industrial concentrations, defined in a particular way, would constitute the most damaging attack. If we dispersed those concentrations, what would then be the most

damage the enemy could do? No doubt he would adjust his choice of targets so as to take account of the altered location of our productive capacity. He might shift to an attack on population, or to an attack on particular forms of capital, and do almost as much damage (with the same attacking force) as he could have done before our dispersal. Indeed, the damage done by some attacks might be greater after dispersal. Transportation and communications would become more serious bottlenecks and juicier targets. In World War II after Germany dispersed numerous interdependent plants, the allies attacked transportation, and German leaders apparently found these attacks so costly that, before the war ended, they planned to bring the plants back together, using other measures to protect them.

Adjustment of target choice is only one of many possible responses by the attacker to a dispersal program. He might adjust his strategy in other respects, altering his weapons system, his allocation of bombs between strategic and tactical uses, the number of bombers sent to various targets, the size of his force. In short, any forecast of damage reduction attributable to dispersal should take into account the enemy's shift to the strategy that is "best" <u>after</u> dispersal.

Nor should one overlook the individual "strategy adjustments" that may be made by our own people. The present National Dispersion Program attempts to induce the location of new "war-industry" plants ten to twenty miles outside "target concentrations," but it does not compel. Its inducements may be insufficient to prevent subsequent location of other war-industry plants near the dispersed plants; and of course, there is no inducement for "non-war" facilities to stay away. What is now a dispersed location may become a new target area.

The effect of dispersal on damage depends also upon the level, as distinct from the allocation, of enemy strength. Consider a program which, say, converts 100 targets into many smaller targets. As we consider levels of enemy strength capable of destroying more and more targets -- up to 100 -- the damage reduction due to the dispersal program increases. But, as enemy capabilities beyond the 100-target level are considered, the damage reduction attributable to the program falls.

Even if the enemy's capabilities are small at present, it is not unlikely that they will increase faster than we can disperse, so that the reduction in vulnerability which is achieved by dispersal might well disappear after a very few years. It is noteworthy that in 1950 there were some 200 U. S. cities with populations of 50,000 or more and that if all of these were dispersed so that none exceeded 50,000, there would still be only about 1,000 such cities.

Since it takes time for the enemy to produce the weapons on which the attack depends, the date of the attack may be of vital importance. And since we do not know when, if at all, the attack will occur, it is appropriate to consider a wide range of capabilities. The timing of the attack is crucial, also, in virtually every other aspect of the dispersal question; for example, in considering the size of bomb which may be delivered against us. Any practical dispersal program must lay down definite rules about the minimum distance between potential targets. Though we are still being told officially that a distance of ten to twenty miles is adequate -- sometimes less, depending on topography -- press reports indicate that the H-bomb may have a radius of destruction of ten miles. Had we started a costly dispersal program within local market areas in 1946, it might have gained almost nothing against today's threat.

The damage reduction to be expected from dispersal depends also upon what the program does to the effectiveness of our active defenses. A large number of targets may make things difficult for the enemy, but it may also make things more difficult for our anti-aircraft and interceptors. The greater the concentration of our targets and of our defenses against air attack, the greater the number of our fighters and Nike missiles which an attacking force might encounter. Furthermore, the levels of both our active defense and offense are relevant. As indicated earlier, the weight of the attack which the enemy can hurl against us may be of great importance in determining the extent to which dispersal would reduce damage. But the enemy's ability to deliver bombs depends, in turn, on our active defense and offense: a reduction in the level of our preparedness is equivalent to an increase in the enemy's capabilities.

New Weapons Change the Problem.

It is easily understood that future developments — e.g., intercontinental missiles — may impair the effectiveness of active defenses (that is, increase enemy capabilities) and hence alter the damage reduction attributable to dispersal. Not so obvious is the fact that such developments — unforeseen and frequently unforeseeable — may also affect the usefulness of dispersal directly. To illustrate: Since an intercontinental missile would probably not be capable of pin-point accuracy, a high percentage of such "bombs" might be expected to fall several miles from the intended target, and this would reduce the gains from certain kinds of dispersal (e.g., the present "local" program). There is also the possibility that "fall-out" from future bombs may shower radioactive particles over

places hundreds of miles from the bomb burst. According to press reports, the Japanese fishermen who were exposed to fall-out during recent tests were seventy to ninety miles from ground zero, and natives who suffered radiation sickness were even further away. What of the weapons of the day after tomorrow? We ought not to assume unquestioningly that the safer locations of capital and people today, even if known, will also be the safer locations tomorrow.

(A word of warning is in order concerning the selection of a defense strategy. For the purpose of comparing dispersal with non-dispersal the authors have followed the assumption of many dispersal advocates that, to help win a war, one should choose the policy that minimizes the maximum damage the enemy could do. The authors are not convinced, however, that the choice ought to be made on that basis, even if one were confident about what constitute the most damaging attacks under the alternative policies. For suppose there are two strategies, A and B, open to the enemy; and that, if we disperse, strategy A would cause the destruction of 200 targets and strategy B would yield 180 targets; while if we adopt an alternative policy these strategies would result in the destruction of 210 and 140 targets, respectively. If it is certain that the enemy would choose strategy A, we ought to choose dispersal. But if the enemy is ignorant and fallible, even as we are — and might, therefore, choose strategy B -- the outcome could be better for us under the alternative policy. In these circumstances, the policy one should vote for depends on the answer to the question: Is the possible loss of 10 additional targets worth a possible saving of 40 targets? The comparison of maximum damage under the two policies may be quite inadequate to a sensible choice.)

Dispersal for the better life

Whether or not a dispersal policy would improve our chances of winning a war, perhaps we ought to adopt it because it would help achieve other social objectives. Let us take up these objectives in turn.

It has been claimed that dispersal would improve our standard of living, partly because urban congestion would be diminished. There is good reason to believe, however, that our standard of living in terms of food, automobiles, housing, medical and religious facilities, and so on, would be reduced by dispersal. Equally important is the fact that dispersal might materially alter the range of choice open to the individual.

It is easy to miss the point here. It is not merely that a theatre center like that in New York is inconceivable except in a large city, nor merely that a Metropolitan Opera Company requires a metropolis. Rather, it is that the city-dweller who doesn't like the meat supplied by the corner butcher — or even the butcher himself — is free to go to the next corner; and any small-town dweller will be able to think of many examples. The change in consumption level would be doubly significant if it were accompanied by the absolute disappearance of some items, and an increase in the petty tyrannies associated with local monopolies. Finally, the freedom to choose to dwell in a large city is itself one aspect of our living standards.

Some advocates have urged dispersal largely on social or sociological grounds. They remind us of the evils of metropolitan slums — as if there were nothing comparable in smaller towns or cities — and paint a glowing picture of the manifold benefits which would follow from their elimination: improved health, less crime, and so on. The fundamental thesis may be

intuitively appealing, yet it appears to rest largely on assertion. Is it true, for example, that the health of the small town or rural resident is better than that of the city dweller? Is there, in fact, a higher crime rate in our largest cities than in small ones?

Even if there were an inevitable association of certain social evils and large cities, and even if it were true that, ultimately, these evils would not exist with a different distribution of population, it would still be in order to inquire into the immediate consequences of a dispersal policy. Would not the social maladjustments attendant upon such a movement aggravate rather than improve the situation? What would be the sociological effects of setting up more brand-new communities, or of moving a worker's family to a new town each time he changed jobs? We don't have the answers. But the fundamental doubt remains: an injured man may be better off in hospital than at the scene of an accident, but we may kill him if we move him. All in all, there appears to be good reason to question both the diagnosis of our social ills and the efficacy of dispersal as a cure.

Dispersal for Peace

We are told, sometimes, that one reason for adopting a dispersal policy is that it will help avoid war. It has been argued, first, that anything which would improve our chances of winning a war would tend to prevent war from occurring. Even if dispersal should increase our military strength, however, it is not certain that this would promote peace. We need to distinguish between "being strong" and "growing stronger": the former may deter the enemy, but the latter may constitute an invitation to attack while we are yet relatively weak.

Secondly, it has been argued that while accretions to our active military strength might not decrease the probability of war, dispersal would do so, for the policy is purely defensive. The basic fallacy of this argument is the implicit assumption that the potential enemy necessarily regards himself as we regard him, that is, as the aggressor; and similarly, that he regards us as incapable of initiating hostilities.

For suppose that the enemy disperses. What would our reaction be to the news of such dispersal? Most of us, probably, would argue that he had undertaken the dispersal because he anticipated retaliatory raids after he had attacked us! Would it be unreasonable for the enemy to argue in this fashion if we disperse? Clearly there is no such thing as a purely defensive act if the actor is assumed to have aggressive intent. We had better recognize that an improvement in our military posture could be accompanied by either an increase or a decrease in the probability of war, and that we do not know enough to appraise the differential impact of dispersal and non-dispersal on the preservation of peace.

The Dispersed Man

Let us turn, finally, to the preservation of individual freedoms. Our concern with the question of winning a war was, of course, motivated in part by precisely that factor. It is, however, a commonplace that in guarding ourselves against external attack we may lose, from within, much that we cherish.

Let us consider, first, an extreme dispersal policy by which the government undertakes to relocate all of our existing vulnerable capital in some relatively short period (ten years, say). Here it seems obvious that

virtually complete direction of our economic lives would be inevitable. For who would decide what is to be moved, or its new location? Who would be compensated, and by how much? Which employees would move, and how would a decision be enforced? How would markets be allocated? Would there, in fact, be any aspect of economic life for which governmental influence would not be overwhelming? Even if we were willing to put up with such controls until dispersal had been achieved, how could they be brought to an end?

From less ambitious dispersal programs, such as that already adopted by the government, a somewhat different picture emerges. A host of "inducements" are held out to the businessman to select a location for his new plant which meets with government approval: tax amortization privileges, contracts, and so on. The conditions under which these favors will be granted, however, can be ignored at the discretion of the appropriate authorities. While some schemes for achieving "voluntary" dispersal make use of the pricing mechanism and minimize the role of authority, all schemes invite the extra-legal dispensation of favors and imposition of penalties. Moreover, any dispersal program, voluntary or other, extreme or modest, implies that some central authority has evaluated the relative risks, costs and benefits of alternative locations. Even with the best of will, the decisions of less-than-omniscient adminstrators are bound to be arbitrary and sometimes inequitable. One can visualize, as a consequence, a mad scramble by Congressmen to have their own districts and states approved as locations for new industry. On the local scene the rise of the city planner or manager, with some dispersal schemes, to a position of unrivalled authority, is a prospect which makes free enterprise look more attractive than ever before.

The thoughtful citizen is aware, of course, that no sharp line can be

drawn between the "free" and the "unfree" society; certain restrictions on the individual always are inevitable. At first glance, it may appear that only the manufacturer's freedom would be impaired by a dispersal policy, but the same is true of his employees. At best, it would mean for them a reduction in employment opportunities in a given area; at worst, it might mean virtually complete dependence upon a particular employer. Moreover, an extension of either controls or inducements would enlarge the area of "administrative" law — an area in which the law may restrict, primarily, those without access to the seats of political power. There is certainly reason for the suspicion that the city planner's "green belt" dream could easily turn out to be the citizen's nightmare of regimentation.

If Not Dispersal -- What?

So far, we have asked questions about dispersal, as compared with the alternative of "doing nothing." But other policies are open to us and should be evaluated before a choice is made. While we shall not here carry out a comparison of the alternatives — the number is large! — it may be helpful to indicate the general nature of a few of them.

One fundamental fact is likely to be forgotten in the morass of public policy debate. It is that there are definite limitations on a nation's resources, just as there are on the individual's. A man must balance his desire for a new car against his desire for additional insurance or any of a hundred other things; items which bear no apparent resemblance are genuinely alternative to one another. In the same way, the alternatives to dispersal are all of the other things which we, individually or collectively may purchase.

Some simple examples will illustrate this: perhaps our national security would be greater if we spent money on education -- producing engineers and doctors, say, for surely we shall require such skills in the event of attack. Perhaps we would be better off to give the money to our allies for their armed forces. Possibly we ought to produce more A-bombs, expand the Strategic Air Command, disperse and otherwise protect SAC bases, build up active defenses, or step up research pertaining to active defense. In the light of economic reality and the fact that our national objectives compete with one another, it is sheer nonsense to assert that there are no alternatives to dispersal.

Indeed, even if we confine our scrutiny to passive defense measures, there remain alternatives to any particular dispersal program which, on analysis, might well prove to be superior to it. First, it should be remembered that there are many types of dispersal. Next, it is certainly possible so to reinforce our existing structures and so to construct our new buildings -- even if this means putting them underground -- as to reduce the damage which would result from enemy attack. These methods of protection, it is true, may not help in case of a direct hit -- but neither will anything else. They may be very costly -- but cost must be viewed in relation to payoff. (We live in houses even though tents are cheaper.) Perhaps our best defense lies in the stockpiling of products, whether raw materials or semi-fabricated products or end-items. Stockpiling has at least two undeniable advantages over dispersal: (1) We would have the required material available as soon as war broke out, not two or three years later -- and this could make the difference between winning and losing a war. (2) It would be easier to protect stockpiles than plants because the

former need not be interdependent. Shelters and evacuation of cities, given warning of attack, also deserve serious consideration.

There are, then, many alternatives to dispersal, and until we have analyzed their consequences it is simply not possible to say whether we should disperse. The fact that these measures are called "alternatives" does not mean, of course, that we should put all of our national security eggs into one basket. In effect, mixtures of defense measures -- and our present programs represent one possible combination -- have to be compared. It goes without saying that, in such comparisons, many questions similar to those raised here about dispersal are relevant.

The thoughtful citizen may ask whether the official adoption of a dispersal program does not imply that thorough-going comparisons have, in fact, been carried out. Unfortunately, official pronouncements about dispersal strongly suggest that such systematic analyses have never been performed. And unofficial recommendations appear to rest largely on appeals to authority, inadequate recognition of the existence of alternatives, erroneous economic analysis, and, in some cases, purely personal conceptions of semi-rural Utopia.

The problems which arise in connection with our national defense policy are numerous and terribly complex. We have not solved any of them in this article, nor, we submit, has any of them been solved by repeated exhortations to disperse. All we have done is to raise relevant questions. These point up the urgent necessity for analysis of the consequences of alternative expenditures, in order to decide upon the best mix and level of defense measures. Though unequivocal answers may not be provided by analysis, recognition of the uncertainties which exist is itself essential to rational policy-making.

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