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The Government of Dynamic Systems.

Up to this point, the purpose of this chapter has been to distinguish rigorously between the two types of social structure and to demonstrate the necessity of relying on dynamic order for the performance of some important social functions. But we can see implied here already the further suggestion that in certain respects freedom is an indispensable form of organisation. This is now to be elaborated by deriving and comparing the two kinds of government that naturally apply to the management of the two kinds of order.

If men and women are to act responsibly, be it as members of a corporate body or of a dynamic system, certain conditions must be fulfilled. Each person must (1) have definite powers, (2) know his task, (3) know the tests by which his fulfilment of the task will be assessed, (4) have a claim to a fair reward and (5) there must exist a definite procedure by which new members are added to the body or system. Our analysis will, accordingly, refer to the five titles: (1) Powers, (2) Directives, (3) Tests, (4) Incentives, (5) Accession.

We can draw a first outline of the principles of government of a corporate body by starting off from the closely interrelated triad: directives, Tests, Incentives. Subordinates in corporate bodies take over responsibility for one section in a plan directed by their superior. If the execution of his part is to remain organically related to that of the other parts of the scheme, the subordinate must accept from his superior detailed directions at frequent intervals. The superior, being responsible for his subordinate's activities, will require to be kept closely informed of his progress and will thus be in an excellent position to judge his subordinate's performance. No one else would know, as he does, what was expected of his subordinate and what he achieved, under what circumstances, His superior's judgment is therefore the natural test of the subordinate's performance, and on that test his rewards or

penalties must normally depend. His aim must be to carry out his superior's wishes and gain his satisfaction by doing so. We have here a complex of Directives, Tests and Incentives, all depending on the personal specific decisions and judgments of the superior, guided by the equally personal and specific reports of his subordinate.

It is clear that such a system will not function happily unless the superior can rely on the honesty of his subordinate and the latter can trust the fairness of his superior. We shall come back to this point later. Let us glance meanwhile at the remaining two titles, namely, Powers and Accession.

We shall find some difficulty in defining these without taking into account the particular type of corporate body we are referring to. Many of these, especially those of modern date, are subject to continuous reorganisation. They are always in the process of adapting themselves to changes in their surroundings, or simply to their own growth. This involves a never ending internal redistribution of powers. In a factory, for example, every superior, from the manager down to the foreman, never ceases to reorganise the work under his direction. On the other hand, no such constant readjustment of responsibilities is noticeable in corporate bodies, which date back to an age when society was built on a plan of rigid hierarchies. The Church of some, for example, shows this greater fixity of structure. A modern army is also more rigid than a modern business firm.

Similar, but even more marked, variations are found between the same organisations in the process by which they recruit new members. Business firms appoint new employees by contract; modern armies are conscripted; while the feudal hierarchies of old enrolled new members by assigning to each child at birth its status for life.

There seems to be some fairly obvious indication here that a feudal society based on hereditary status tends to produce rather rigid corporate organisations while a commercial society in which people accept appointments by contract, allows the formation of the more modern type of bodies in which the powers of each member are subject to constant re-shaping by his official superiors. And furthermore, we may suggest a simple explanation for this. When a corporation which appoints employees by contract assigns powers to them, it draws for this purpose on its own powers; it merely delegates some of its proprietary rights. The internal flexibility of a modern organisation exceeds that of a feudal estate to the same extent as the modern proprietary rights over land, buildings and other installations, are more far reaching than were the rights of the feudal lords over their estates.

It seems, therefore, that for a closer analysis of the way powers are distributed inside corporate bodies and now members are enrolled by them, we shall have to examine as a whole the society of which the corporate body forms part. With this in mind, we shall now return to the analysis of dynamic order, hoping that the examination of its functions may lead us to understand those wider structural elements of society - such as the proprietary rights of individual owners - which we must take into account in order to complete our unfinished enquiry into the government of corporate bodies.

We say that there is a system of dynamic order operating in society if the kind of mutual self adjustment is practised in it which leads to the advancement of some social interest. A line of football forwards can mutually adjust themselves to each other by watching the others and deciding how at any particular moment they should act in order to help scoring a goal. The five conditions which we have said underlie all responsible human action are found to apply here as follows.

(1) Powers. Each football player has definite powers to kick the ball, subject to the rules of the game.

(2) Directives. Watching continuously the position of the game, players decide at each moment what to do next.

(3) Tests. Players are tested by their contribution to the victory of their side, subject to the standards of good sportsmanship. The public will express the verdict on every important occasion by cheers or boos.

(4) Incentives. Players want to see their side win and can assess their own contributions to victory.

(5) Accession. Any normal young man may take up football and become elected to a team of such standing as his performance warrants.

The dynamic system of footballers has special features which are due to the low number of its members. Each member can directly observe all the actions of the others; each can directly note and be directly affected by the advances or reverses of the game, and each can assess his own contribution to the fortunes of his own side. The more important dynamic systems on which society relies are far too large for any of these three closely related conditions to be fulfilled and we must now examine the principles on which dynamic order can be based if the members of the system cannot mutually observe each others' actions, nor overlook the position of the system as a whole and assess its progress.

We shall next discover the essential mechanism by which these larger systems are operated - and can alone be operated - by taking a few examples which represent the most important types of such systems.

Rabbits. in order to simplify reference to them, I shall designate each of my examples by a simple sub-title, of which the first is to be "Rabbits". Suppose we were given the task of filling the earth with rabbits. We might imagine the creator suddenly remembering that he had once designed a rabbit but had forgotten to stock the planet with these animals. He now appoints a committee of zoologists and asks them how many rabbits he should supply for the planet and to what regions these should be allocated. The stock should be as large as possible but not in excess of the number which could survive by reproducing itself. Zoologists would fill their notebooks with details observations of specimen rabbits, supplied to them for examination. They would be fed on every kind of leaves and their rate of reproduction correlated to the amount of food consumed. All kinds of climatic conditions would be applied to them and their capacity tested for burrowing in different soils. Tests would be made by exposing the specimens to invasion by parasites and to the teeth and claws of beasts of prey. Then the zoologists would turn to an examination of the physical geography and the existing fauna and flora of the planet. Scary plain and every valley and every hillside would be registered. In view of its soil and its climate, its vegetation and its quota of beasts of prey, the zoologists would estimate for each patch of land the average expectation of life of a rabbit living on it; assessing also how this expectation would decrease with the density of the rabbit population and how the birth rate would increase concurrently. Thus they would find for each spot of the globe the density of rabbits which at that particular spot would lead to a death rate equal to the birth rate. These densities would be mapped out and presented to the Creator as the solution of the problem. The map would represent the largest stock of rabbits that the planet could support and give directions as to their allocation.

Needless to say, the committee of the zoologists would never be able to produce their map. The number of factors involved and the uncertainty of the relations in operation would render absurd any attempt to draw definite conclusions from them, and the vastness and variety of the territories to be surveyed would enlarge the task to such dimensions that its initial absurdity would be enhanced a millionfold.

The problem is, of course, that of establishing a system of dynamic order, and as such it cannot be handled by any methods of specific allocation. The system can be established,

however, by allowing free play to the rabbits. If only all potentially rabbit supporting areas are stocked with one or two pairs, the animals will multiply and rapidly spread over the planet. Soon a final distribution will be reached which is characterised by the fact that at every point the density of population determines a mortality and a birth rate, which exactly balance.

Fishermen. I have dealt in some detail with the example of the rabbits because it embodies important elements of dynamic order which are quite unaffected by intelligent action. To these we shall turn later. Meanwhile, we shall add here a human example which hardly differs from that of the rabbits. the distribution of primitive populations of hunters and fishers over the earth's surface is established according to the same principles as that of any species of animals or plants. Take primitive fishermen spreading along a coast line and throughout a group of islands. Their density at every point will reflect in the first place the relative abundance of fish, or more exactly, the relative yield of fishing. There will be other factors, like the climate and the availability of vegetable foodstuffs, but so long as the fishermen remain nomads, moving about in small independent groups, the principles of their distribution will be similar to those of the rabbits.

Prospectors. A new element is added to an otherwise analogous situation if we consider a chain of prospectors advancing into new regions in search of hidden mineral resources. They will spread out in all directions to stake out their several claims. Each will try to break away from the beaten track which others have already surveyed. Their desire will be for the unsealed mountain pass from which the explorer's eye sees untouched valleys, open to enterprise. Yet all the time they will also watch the movements of other pioneers, so as to be ready to join them in the exploitation of any exceptionally rich discovery. Each will have to choose repeatedly between a limited share in the latest "gold rush" and the waster but perilous chances of continuing the lone trek. Some will prospect for diamonds, others for copper, gold or uranium, others again for petroleum. Each will apply his own specialised knowledge, and be guided by his own personal intuitive conjectures. They will back their guesses with their fortunes and sometimes stake their lives on their bets. Such a force of prospectors is organised In a maximum effect. They achieve the best application of the resources available to each, to the joint purpose of lifting the mining wealth of the territory under their survey.

The main difference in the method operating in the dynamic system of the Prospectors

as compared with that of the Rabbits and Fishermen lies in the character of the immediate objectives achieved. Rabbits and Fishermen seek food which, having found it, they consume for their own sustenance; Prospectors cannot directly feed on the materials which they discover, but must rely on being rewarded for their discoveries by goods which will satisfy their own needs. This can be done in two different ways: The Prospectors may either offer their discoveries to the community or to individual consumers. The community may reward the discovery of new sites and may even buy some of the materials discovered, by appropriation of public funds. The individual consumer may pay for the same assets by purchasing, their final products from his personal income. The former type of reward is appropriate only in the case when the Prospectors' discoveries meet a collective need which can be properly assessed by the individual in question. We shall shortly explore these two important alternatives further.

Scientists. The dynamic order of scientists closely resembles that of the Prospectors. Instead of hidden minerals, they search for hidden truth, but the method is the same. They spread out in all directions, eager to get away from the beaten track, but also ready to join in the wake of any new break through which a new branch of science opens up. The territories under their survey do not extend in space, but constitute the giant jigsaw puzzle of hidden knowledge. The Prospector's trek leaves behind civilisation and crosses the frontiers of desolation: the Scientist's quest crosses the edge of assured knowledge to the menacing quicksands of error and deserts of fruitless enquiry. His guide, like the Prospector's, is intuitive conjecture and similarly, his wagers are his fortune and, indeed, his life. And the result is again a system of dynamic order; the total available intellectual resources being distributed to the practicable maximum advantage of the advancement of science as a whole.

But in the way they are rewarded, the Scientists, at their best, resemble more the Rabbits or the Fishermen. For like these they enjoy directly the immediate objectives of their pursuit. To them, discovery is largely an end in itself. The point, however, should not be driven too far. For scientific investigators do require for their guidance the valuation of their discoveries (or prospective discoveries) by the public at large. Moreover, they require to be paid and their expenses must be covered. Their rewards will depend on the scientific value for rather the average scientific value) of their discoveries, as assessed by scientific opinion and on the interest the general is taking in the advancement of science. It will be a case of satisfying collective, not individual, wants.

Traders. The example of the Prospectors has shown a feature - or at least a hint of a feature - which plays a dominant part in dynamic structure of economic life. When Prospectors are rewarded by selling to individual consumers the materials which they have discovered, or else articles manufactured from these materials, this is part of a process of trading. The present title "Traders" should define this process in isolation

That people may agree to exchange some of their possessions and mutually benefit by it, is the great discovery of trade. The pioneer settler bartering grain for furs with the native hunters of the surrounding wilderness, is a trader and his savage partner is also a trader. A higher degree of efficiency is achieved by full-time traders who act as mediators of exchange between producers. Such professional traders satisfy on a large scale the desire for mutual exchanges. And such is the ensuing total advantage of their services that they can even take an adequate reward (or profit) for it from the goods handled by them. Therein lies an additional process of agreed exchange.

We may expand our view to include the profession of traders as a whole. In this context they form a system of discoverers resembling, perhaps, most readily the Prospectors. Just as Prospectors move into yet unsurveyed land to reveal the treasures of its soil, so Traders infiltrate between primary producers and discover hidden wealth of potential exchanges.

The difficulty of collecting all the goods available for exchange and then handing them out in their exchanged distribution is enormously reduced if the two phases can be dealt with independently. This can be done through the use of money. You collect all goods from men, the producers, by purchasing their produce for money, and you recover the money by selling the goods back again to men as consumers; the result will be the redistribution of the goods originally collected, to the greater satisfaction of all who had relinquished them.

The use of money involves pricing in terms of money, the full advantage of which becomes apparent only if there are masses of people exchanging their produce - and a large number of traders offering their services as intermediaries. When all these watch each other's bargains they form a market. Within the same market no seller will succeed in obtaining a price for his merchandise which any other seller is prepared to underbid. Nor need he sell to any buyer who does not offer him as much as any other buyer would. Thus at any particular moment there will be only one price for any particular line of goods, the price namely which no one is prepared either to underbid as a seller or to improve upon as a buyer.

Such an agreed adjustment of prices involves also the elimination both of queue. of customers in front, and the accumulation of stocks behind the counter. It equates supply and demand. But we cannot consider this without including in our survey the decisions of producers by which they determine how much to sell. This would lead on to the adjustments they make in their production to meet the demands of the market, which should be reserved for discussion in our next example.

We note meanwhile that the functions of traders establishes a dynamic order of distribution. It results in a re-allocation of goods between a large number of persons in which each single allocation is adjusted to every other one in a manner which maximizes aggregate satisfaction under the condition of uniform prices. Other conditions to which this type of economic máxima are subject will be mentioned later. The dynamic order of reallocation is controlled by the Traders whose services are themselves distributed in a system of dynamic order fundamentally similar to that of the Rabbits and the Fishermen, but resembling more that of the Scientists and most of all that of the Prospectors.

Managers. Before a Trader can sell, he must buy, and so he will always be holding some goods in stock. Other things being equal, the amount of trade he can do will depend on the size of stocks he can hold, which again is the same as the amount of capital he controls. When a Trader makes a profit, he may invest some in increasing his stocks, while when he makes a loss he is compelled to reduce them. He may be considered, therefore, as engaged in exploiting a pile of stocks, which he tries to increase if possible or at least to preserve unimpaired. And this function can be readily expanded to include any process of industrial production as well. Industry differs from trade only by the fact that accumulated stocks are subjected before resale to a process of conversion. Wholesalers of fruit may run a sideline of fruit canning or manufacture of fruit juices. All these are merely different forms of capital exploitation. The whole group of persons in charge of capital and conducting its exploitation will be called Managers. They are persons principally responsible for conducting the business of capitalistic production and distribution.

Each Manager has the use of certain offices, machines and other equipment, and has a sum of money with which to hire workers and buy raw materials. He tries to recover what he has laid out, with added profits, through the sale of the products manufactured (or of services rendered) - or if he is only a trader, he just re-sells the goods he had originally bought. From the profits earned he will have to pay dividends to shareholders - to whom I shall turn

presently in my final example of dynamic order. Some of the profits may be added to the capital, from which all losses will have to be covered. The manager's pay may be a fixed charge on the business, or partly depending on profits; at any rate, his fortunes will depend on the fruits of the capital entrusted to him for exploitation. This he must try to enlarge or at least keep intact; none of it may be used up for his own benefit except to pay his contractual emoluments.

A manager manufacturing goods to be parcelled out to individual consumers and using a variety of labour, raw material and equipment, will operate in a number of markets. He will just buy or hire the necessary resources of production and then sell the manufactured products to the public and also to other managers who might use it for further processes of manufacture. Some of his own outlay goes to other managers who make payments from it for their own resources. Finally, the whole layout of all managers is converted into payments of wages, salaries, etc. as a reward for work done in producing the goods and to a smaller part for dividends, rent and interest in payment for capital lent for the purpose. The money thus distributed to the public is used by them to purchase the goods which they have produced. This is the circulation of money. Some of it is sluiced off so as to pass through the treasury, which taxes away some of our earnings and buys from the proceeds the things (e.g. warships, parks, schools etc.) needed for the satisfaction of our collective wants.

Through the competition of the various managers in buying resources and selling their products (and the competition of those selling to them and buying from them) there goes on a process of reciprocal adjustment of each element of the whole process to every other element of it. That being the case, we may conclude that some joint function of all these adjustments tends towards a maximum. Classical economic doctrine used to claim that this maximum represented the greatest economy of effort combined with the maximum satisfaction of wants and unrestrained praise was given to this operation of the invisible ordering hand of free economic interplay. This claim was excessive; we can affirm with certainty no more than that some kind of dynamic order is set up, which could not be achieved by any agency specifically directing the participating elements. This dynamic order is set up by adjustments which tend to maximise economy and satisfaction. But there are innumerable ways of maximising these, depending on the framework of custom and law to which the process is subject. One kind of economic optimum was achieved so long as parents could hire out their small children to chimney sweeps who made the children climb through chimneys which,

owing to their angular shape, could not be easily cleaned with a brush; but another optimum was achieved when at last in 1875 Lord Shaftesbury pressed through a Bill which effectively terminated the use of climbing boys. A different optimum is established for each particular level of taxation and each different level of monetary circulation. Aist as the particles of a liquid, left to settle down in a container, will reach a different state of dynamic order depending on the shape of the vessel, so each of these states represents a minimum of the total potential energy of all particles, thus also every institutional framework will result in a different maximum of economic satisfaction. Much of these must be regarded - in analogy to the state of the liquid in different vessels - as representing a relative maximum of economic satisfaction. It is the task of social reform to improve these relative maxims. We shall discuss the limitations of this task Inter.

Inside the system of capitalistic production and distribution, controlling its operations from their offices at the seats of production, we see the Managers themselves, mutually adjusted to each other in a system of dynamic order. Each is making the most economic use of his particular share of resources and of his personal abilities and experience, Each Manager follows his individual hunches, thus assuring; that on the aggregate the maximum number of avenues will be explored. As in the case of the Prospectors and the Scientists (and of course the Traders who are only a particular instance of Managers) each Manager backs up his decisions by the wager of his fortunes.

Financiers. The last of my six examples of dynamic order to be presented here will supplement the functions of the Managers to an essentially complete machinery of capitalism. The Managers, I have said, may occasionally plough bank their profits and thus enlarge the capital under their control. But normally they must attract capital from outside. They must borrow it or get it invested in their company's shares. In any case, they must induce some people wishing to invest capital to place some of it at their disposal. These people we shall call Financiers.

We may consider the process of financing first in a more general fashion. It consists in entrusting the expenditure of money to others. This naturally involves that be who entrust the money would be entitled to spend it himself and that he wants it to be spent by the person to whom he entrust it for a purpose of which he approves. To give a penny to a beggar is not a process of financing, but to subscribe it to a charitable institution is. Donations to a University or to a golf club are methods of financing these institutions. In a later essay I

shall describe the proper methods of financing scientific research. It consists essentially in spotting the winners as early as possible and backing them with sufficiently ample research grants. This principle should apply and does apply as a rule equally whether the money comes from private donations or public funds. But we must consider also the differences. A single financing authority, responsible to a constituency from which it receives its funds, cannot be expected to give backing to unorthodox branches of research for which the experts whom they consult express contempt, and to the pursuit of which large sections of the community are opposed. Psychoanalysis, for this reason, could obtain little official support for the first 20 years of its development. Fortunately, other sources of finance were made available by individual followers of Freud. If we want to give a chance to the growth of new trenches of science in which few believe at the beginning, we must provide a number of independent sources from which scientists (or those who claim to be such) may obtain grants in aid of their work. This applies even more to Prospectors whom we may take to represent the whole class of inventors. I have discussed the financing of inventors in the chapter on Patent Reform.

This brings us to the financing of Managers in general. In the capitalist system this is undertaken by a large number of people acting independently; namely by all those who have inherited or earned money which they invest for profit. Financiers of this kind form a dynamic order. They compete in the investment market in which they are the sellers, and the Managers are the buyers. The Financiers sell their money to Managers who pay them by title deeds, such as new issues of shares or debentures. Since Berle and Means revealed the lack of direct control exercised by shareholders in the affairs of limited companies, it has been widely affirmed that the rights of ownership have passed or are passing from shareholders to managers. This conclusion is unjustified. financiers do not want to control the business to which they commit their fortunes, except for the purpose of, and to the extent necessary for, keeping them profitable. They can do that very effectively, and can not even help doing it, by the simple process of taking up the shares of enterprises which seem profitable and selling them again if they feel disappointed in the prospects of further profitability. No enterprise, and no manager conducting an enterprise, can face with equanimity the crumbling of the enterprise's public credit. The power to sell the stock of an enterprise lends the proper weight to the financier's good opinion and makes it well worth cultivating by the manager.

The allocation and continued re-allocation of capital between different managers and

the various enterprises under their control can therefore be effectively performed by the investing public, whom we have represented by the financiers. The competition between financiers, aided by the competition of Managers seeking the support of Financiers, will lead to the establishment of a dynamic order of capital allocation. Like the prospectors spreading out in all directions and the Scientists approaching the unknown from different angles, like the Traders and managers competing for every opportunity to make a profit by the exchange of manufacture of goods, the financiers will pursue every hidden avenue of successful investment. The decision of each will be affected by that of every other, and together they will achieve a relative optimum of total service to the economic system as a whole.

Notes for re-writing and conclusion of

TWO KINDS OF ORDER.

The five determinants of ordered action (Powers, Directives, Tests, Incentives, Accession) can be most readily discovered in the government of subordinates within a corporate body. To do one's duty is in general different from following one's personal desires. The distinction is at any rate quite clear when duty demands the obeying of orders, and personal desire is directed merely towards the satisfaction of one's own appetites. Corporate order is set up to ensure that a certain task is done, fragments of which are entrusted to various subordinates. The conception of each particular fragmentary task is present in the mind of the superior and has to be communicated to the subordinate. That is his directive. The subordinate will have somehow to summarise his results and submit them for appraisal to his superior. He will present data by which his achievements can be safely assessed. These are his tests. He must know what rewards to expect and what reproofs to fear. These are his Incentives. When I sit down to my dinner or go into my garden to mow my lawn, these three determinants are blended together and cease to apply. When the lone wolf leaves his lair in search of prey, he also exercises his private freedom which is determined by a single blend of instinct, experience and appetite.

But let us go one step further in our analysis. The subordinate cannot be expected to fulfil his directives, unless he has the requisite powers at his command. These may be largely his bodily powers, but also they are powers vested by consent (i.e. custom or law) in the head of the corporation and delegated by him to the subordinate. Where this is the case there must be an accession to power. This may be by appointment under service contract. In

the feudal order powers were largely vested at birth by custom and law. When that was the case, the whole triad of directives, tests and incentives was replaced to a considerable extent by a system of customary obligation, enforceable by law. To understand this difference, we shall have to analyse the larger order in which corporate bodies of a modern type carry out their functions.

Returning meanwhile to the contrast between coordination and private freedom, we see that within human society much of private freedom can also be exercised only if the individual is possessed by consent of law and custom with certain exclusive powers. The meal to which I sit down must be mine to consume, the garden I potter about in must be mine to make use of. The lone wolf on the other hand roams about and acts freely without relying on law or custom; much of man's freedom is also entirely private.

Dynamic Order.

To illustrate dynamic order I have referred to the self adjustment of a chain of football-forwards. But actually their case is insofar exceptional, that the members or the dynamic system can all directly observe each other and judge at every moment the fortunes of the collective purpose in which they are jointly engaged. It is hardly worth examining, therefore, in what manner the five determinants ripple in this case and the text which refers to this should be crossed out. This brings us to the discussion of our seven examples of large scale dynamic order (Rabbits, Fishermen, Prospectors, Scientists, Traders, Managers, Financiers).

It is the characteristic of dynamic order that every self-adjustment of a member advances a joint purpose of all of them, that joint purpose playing the part of directive. But this directive is known only in general terms. It is largely a commitment to the we), things will work out according to the principles of the dynamic system in question. The directive is merely the automatic fulfilment of a set of given conditions arising from the operation of the dynamic system. It is not given out by any person to any other person. The directive exists as an act of the will to the extent to which the joint purpose of the dynamic system is willed by the community in which it is established.

We shall best recognise the extent to which the joint purpose of the dynamic system is consciously willed by the community which comprises its members - and the way in which that purpose is eventually brought about - if we examine briefly the motives which actuate

the members in the several examples under review. The Rabbits are out for food; instinct, appetite and fear are their guides. Where those are satisfied, they survive - otherwise they die. Like the particles of a fluid settling down in a gravitational field to fill the hollow of a container, each rabbit is impelled by the field set up by the interaction of his appetites with the sight of new grazing grounds to move into, any yet unoccupied place which might offer subsistence to it. Each rabbit follows its own nutritional sexual appetites and the result is an order of leporous ecology which has been willed as a whole by no rabbit. One cannot speak of directives as it would be useless pedantry to define here incentives and tests or powers or accession. Almost as little of these can be recognized in the case of primitive Fishermen, which is closely similar to that of the Rabbits. In all these cases the members of the dynamic order are pursuing the direct satisfaction of their material wants. This is not so for the Prospectors nor for the Traders and managers in general. Since they don't live on their own products, they must find someone who will give them the means of their subsistence in reward or exchange for their products. This reward takes the place of an incentive, to be earned by fulfilling certain tests. If you are not engaged in directly satisfying your own needs but must supply something which will be approved by others, your position resembles that of the subordinate trying to fulfil his superior's requirements and this introduces incentives and tests as determinants of your actions. We can recognize such a situation by the fact that it offers the possibility for profiting by fraud. So long as people make a living by labouring to satisfy their own needs, there is no way of cheating someone. Rabbits or Fishermen living on their own catch cannot profit by cheating, but Traders can take advantage of their customers, just as a subordinate may profit by deceiving his superior.

Perhaps less obviously, yet quite definitely, financiers fell into the same class. They must make their terms acceptable to their clients who will draw their financial support from the most readily available source. The history of usury, hire purchase, etc. shows clearly enough that financiers can profit heavily by lending out money on deceptive terms.

The rewards which Prospectors, Traders, etc. will strive for may be received either from public authorities or, alternatively, from private citizens. This depends on whether the services to be rewarded have aimed at the satisfaction of collective interests or of an aggregate of individual interests. Public authorities are called upon to purchase for public purposes what the public - through them - decides to acquire.

But the public good is involved far beyond this in the whole dynamic order of

production and distribution. The authorities must implement it, guide its activities and protect the citizens against its harmful repercussions. An individual (or corporate body) acting as a member of a dynamic system is thereby set free from specific day-to-day direction by any personal superior. Consider Prospectors, Traders, Managers, Financiers. They are not free from the pressure of necessity; far from it. Yet it remains for them to decide how to meet the situation which confronts them. They have to sense the gradient in the field of possibilities around them along which they may discover the path of survival and prosperity. Their task is never to elaborate a detail in another man's decision but to take a decision on a situation as a whole. It may be a modest decision, requiring little powers of judgment, but however that may be, its limitations will not include any reason of the form: "for X has said so" or "for this will satisfy N". Not being conditional on any specific decision of another person, all action within a system of dynamic order is independent action. In this sense each member of such a system is his own master, and this applies, as much to corporate as to individual members. Nor is this freedom appreciably lessened if members sell their produce to the State, at any rate not so long as the State is only one among many potential buyers. Yet it is for the authorities to decide whether any particular dynamic order should be allowed to operate at all and to determine within what range it should. The methods by which the State discharges its responsibility in this matter can be analysed by recalling once more the five determinants: Powers, Directives, Tests, Incentives, Accessions. We have dealt already with Directives, and made it clear that they are implicit in the consent of the public authority. But even though Tests and Incentives are as a rule to be agreed upon between sellers and buyers partaking in a market, the State or other public bodies have a great deal to say in the matter. They are the guardians of standard weights and measures, and also of the purchasing power of money. They punish the watering of milk and the faking of old masters. Through re-distributive taxation they may alter the whole structure of incentives. Through special taxes they may bring home to a certain class of producers - and impose upon them - the social costs of their enterprise. To others they may repay some of the diffuse social benefits of their produce by according them special subsidies. The case when the government buys the whole produce outright may be considered as an extreme form of such subsidies.

The main public responsibility for the functioning of dynamic order is discharged, however, by shaping the two other determinants of action, namely, Power and Accession. The common consent by which certain resources (or purchasing power giving command of

resources) is vested in certain persons who can then proceed to fructify these through a system of dynamic order, is embodied today principally in the rights to acquire and to dispose of such property for commercial profit. It determines classes of goods and services that can be brought to market and for the marketing of some of these it sets narrow limits and subjects it to detailed regulations. Urban property can be sold or leased only for strictly limited purposes; labour can be hired only if the conditions comply with the respective health and factory Acts. Traders, carriers, caterers, etc. require licences and must operate within the special rules laid down for them by the law. And above all, there exists a whole system of law defining the various forms of contractual obligations through which the network of mutual exchanges can be conducted. The law evaluates the implications of such contracts as loan, purchase, hire, rent, etc. and enforces, through the law courts, their equitable application to particular instances, especially where differences of opinion have arisen between contracting parties. The proprietary rights defined by law are linked to the contractual forms enforced by law. The debtor's right to pledge his property is reflected in the creditor's right to distrain on it in case of default. Modern law enables the shareholders of a company to incur liabilities, through the manager of their company, for which they are not responsible beyond the capital invested by them in the company. This is the legal basis for the powers administered by Managers in the dynamic order of Managers.

It is not my purpose to analyse here this complex subject in any detail; I am concerned only with the major principles by which the government of dynamic systems is determined. But before drawing my conclusions about these principles, we have yet to recall some related subjects. In the examples of the Rabbits and Fishermen we have seen individuals living by self subsistence interacting in a dynamic system. Such a system needs no government. We have seen also systems of production based on mutual subsistence: Traders, Managers, Financiers, all live by exchange. Moreover, apart from the case of primitive barter, which we have left out of account here, we have also seen that in each of these instances there is some investment involved. The process of production includes a preparatory phase — such as the making of tools and the clearing and ploughing of land — which represents invested capital. We have seen that such systems of dynamic order can exist only under a government (which may be by custom or law) safeguarding certain proprietary rights and enforcing contractual obligations — which will involve in general the pledge of property. Needless to say perhaps, not all forms of self subsistence will involve

dynamic order. A solitary rabbit or a fisherman may live happily on an island and die of old age. More important is the fact that proprietary rights may require protection even though production is self subsistent. Primitive self-supporting communities facing unlimited unexploited territories will establish harsh laws for the protection of their property against thieves among their own number. Only contractual law is characteristic of a system of mutual subsistence. Nor does the reverse hold. Primitive economic systems and the feudal system in particular involve a considerable degree of mutual subsistence, not based on contract and hence not forming a dynamic system. Primitive societies may show considerable division of labour, and of other functions not usually called labour, yet the distribution of the product is not by mutual agreement between the different producers, but by fulfilment of mutual obligations laid down by custom. Feudalism was a pattern of customary rights and obligations by which a well defined division of functions was maintained, in societies of a patriarchal type, proprietary rights are much more limited than in a commercially conducted economy; land, cattle and other inventories are not transferable by agreement. But any system of divided labour which does not operate through contractual exchange is much more rigid and incomparably less productive than any that is based on marketing. Societies which have no trade are miserably poor, unless they are founded on slavery and the prosperity of the people is assessed without including the slaves.

We can now sum up our principal conclusions on the government of a productive system of dynamic order. We may concentrate our attention on systems operating on a high level of divided labour, for these alone possess the exceptional productive powers which can maintain Western standards of life. We may disregard that part of the productive system which caters for collective wants, for they represent today - except at the height of a total war - the smaller part of the community's requirements, by far the larger part having its origin in individual desires. We may also take it that the system will use a productive apparatus, representing a considerable quantity of investment. As a result we have before us a dynamic order of exchanges between individuals as consumers and individuals, or individuals organised to corporate bodies, as producers.

Such a system would be instantly paralysed if an attempt were made to replace its self adjustments by a central agency specifically directing its activities. Millions of indispensable adjustments would be disrupted. On the other hand, no such system can exist without the investment of individuals by effective consent of the community with powers over certain

resources. Some persons must have power to invest wealth which they could otherwise have spent for their own enjoyment; and some persons (either the same or others) must have power to exploit that wealth commercially; to buy or hire the factors of production and sell the produce; also reward the financiers. These powers we may call proprietary rights; without them the system cannot exist. (They lay down the determinants; Powers and Accession).

Here is the source of the honors which corporations that are members of a productive system of this kind have at their disposal for distribution among their employees. no such far-reaching proprietary rights were present in a feudal system and it was possible, therefore, to assign to every person a status at birth which, though it greatly restricted his freedom, made his functions more independent of his superior's decisions, than is the case for a subordinate employee of a modern corporation.

The proof I have given for denying the possibility of replacing a dynamic order (with numerous members) by the action of a specific ordering agency, implies also that the particulars of a dynamically achieved order are essentially unpredictable to the human mind. Society may consent to the operation of the system and endow its members with the requisite powers. It will charge them with a general task, hoping that the particulars will turn out to conform with the intention implied. Individuals participating in a system of dynamic order may be said to accept this general task as their directive, but since this task is not known in its particulars, the individual must make his decisions, not in view of this general task, but in respect to the field of specific interest in which he is placed. He must be given a personal incentive, the pursuit of which will involve the advancement of the general task. When the general task consists in exchanging services so as to secure the highest aggregate of individual satisfaction, then this incentive can only consist in obtaining in exchange for a minimum of one's own services the maximum of satisfaction to oneself. Inherent in the operation of gain as an incentive is the sanction of material loss as a punishment for failure; personal savings and business capital will be pledged as hostages for loss of livelihood or failures in business. The exchanges taking place in a dynamic system must be arrived at by self-adjustment, that is mutual agreement. To reach agreement members will have to try mutually to satisfy the tests set by their potential partners.

The nature of the contracts that can be concluded will obviously depend on the nature of the proprietary rights - and the rules of inheritance etc. by which property is acceded to -

as granted by law and custom.

Contracts invariably involve some promise; even though no more than the assurance that the eggs sold to you are fresh. A differentiated economy which assures the highest advantages of divided labour will necessarily entail the giving and taking of a variety of promises, the fulfilment of Which will have to take place in highly complex and very often unforeseen situations. Contracts will therefore often require interpretation and enforcement by the public authorities. They must, at any rate, be capable of enforcement, as otherwise dishonesty would be offered too great a temptation.

Every contractual right is an overseer's post from which a sharp watch is kept over some performance which forms an integral part of the economic system. Citizens as consumers impose their judgment on managers competing for their custom, while managers keep up to scratch the services of the same citizens as their employees. Citizens as creditors and investors control managers as guardians of their investments.ⁱ In the network of mutual supplies formed between managers, each manager supplying to another is controlled by his customer. Competition prevents suppliers and employees from charging more than others would be prepared to accept and buyers and employers from getting supplies or labour at a lower price than others would be prepared to pay for them. While these operations are undoubtedly imperfect, their potency is unsurpassed and indeed not even remotely approached by that of any other agency. For it extends over the whole range of mutual adjustments constituting a system of dynamic order, and the performance of such a system cannot be kept under the control of any outside authority, which is unable to judge what these adjustments ought to be. The shortcomings of such a system are easy to discover and in the eagerness for reform which springs from such discovery, these shortcomings may overshadow the massive fact of the system's absolute indispensability.

This finally leads up to the viewpoint from which the proper functions of a public authority, responsible for the maintenance of a system of dynamic order, swing fully into perspective. The method of control is of interest in the first place. It can be derived from the limited span of control. The public authorities must leave the immense majority of specific decisions which constitute the operations of the economic system to the self-adjustment of its members; yet it is equally indispensable that they should take a share of responsibility for every single one of these decisions. It follows that every single command of the public authorities must apply to a very large number of actions by individual citizens. Their function

is thus limited to the laying down of conditions subject to which individuals must act - conditions which must of course be fixed in advance of the actions to which they will apply. In other words, the public authorities are limited in the control of dynamic order to issuing hypothetical commands of a general and relatively permanent character, commonly known as laws. Other commands of this type by which public direction takes effect, are laid down, even more rigidly, in customs and moral principles.

Some laws and customs impose definite exactions on the subject; they tell him to do certain things. The law of conscription commands that you enlist at a certain age; custom requires that you congratulate your wife on her birthday, raise your hat on meeting a lady etc. but the more generalised laws and customs, like the highway code or the manner of asking your way in the street, are purely hypothetical commands which leave the initiative entirely to the individuals submitting to them. They merely lay it down what kind of action is lawful. No dynamic system can consist in the performance of legally exacted duties, though this may be an opportunity for dynamic self-adjustment. The conduct of proceedings in Courts of Justice, for example, is a legally exacted duty of His Majesty's Judges; yet these proceedings form part of a dynamic order for the application and continued development of the law. But an economic order based on exaction of legal duties would not be a dynamic, but a patriarchal or feudal order - for a dynamic order must be based on the self adjustment of each member's actions to that of the others.

Mandatory laws will necessarily contain references to specific places, times, etc. for it is impossible to lay down definite duties on any other terms. Permissive laws may also prescribe more or less detailed particulars. Every trading licence, ration book or passport may be regarded as forming part of the existing structure of legal commission. But the particulars fixed by a legal act will very rarely represent a primary decision of the State or any other public body; usually they arise in the course of putting into effect in particular places and circumstances and applying to individual cases laws made primarily in quite general terms. The lower executive organs of the State are largely occupied with the task of enforcing the laws and policies fixed in general terms at the top. As we descend from tier to tier, we see these general rules elaborated in increasing detail to meet particular requirements. Questions regarding particulars regularly come up for decision at the centre only in matters of foreign diplomacy. In economic life such decisions are regularly made in foreign trade

negotiations for large public constructions and a number of other isolated instances. The total amount of discretion exercised in all the decisions of public authorities is minute in comparison with that exercised by individual agents - particularly by the economic units of a marketing economy - within a modern country.

This is merely another manifestation of the vastly greater number of relations that can be coherently adjusted by mutual interaction between the members of dynamic systems as compared with the number that can be so adjusted by a central authority, however numerous the subordinates in its service. There is here also a potential link with democracy. No government which would vastly exceed in its range of decisions the scope of questions on which public opinion can rationally assent or dissent, could be considered democratic. The limits set intrinsically by its administrative span of control to the sum total of discretionary public action seem to be not much wider than what Parliament can usefully discuss, and to which the public opinion of the country - aided by the interpretative functions of the press - can rationally respond. Otherwise political democracy would be impossible.

We have now before us the structure of public responsibility for an economy based on market relations. There must be a system of laws defining property and contract, and there can be added to this, within an admittedly limited range of control - but representing nevertheless an important public responsibility - a number of more specific regulations and concrete decisions. This picture entirely precludes anything remotely approaching central direction. It similarly reduces to absurdity any vision of a new economic consciousness in the light of which every citizen will labour not for his own profit, but for the public good. For it appears impossible that anyone should participate properly in an economy based on agreed competitive exchanges, except by the pursuit of individual profit. The slogan "Planned production for community consumption" is as foolish in its second as in its first half.

But so is also the still widespread idea that a completely free market economy is conceivable. The difficulty of defining a pure market economy is foreshadowed already by the fact that a legal basis of the market must be provided by the State and that marketing may prevail in economic life on a variety of different legal foundations.

The proper position of the market in respect to the State can be assessed, perhaps, best in general terms by looking upon it as a dynamic order of agreed exchanges. We may presume that every such exchange is thought profitable to themselves by both partners, and that hence each exchange increases the aggregate satisfaction of the two. From this we may

be tempted to conclude that the operations of the dynamic system in question will maximise the aggregate satisfactions of all participants. But this would actually be saying rather too much, for two partners may find mutual satisfaction over a whole range of different terms of exchanges in which the advantage of one partner could be greater or smaller than that of the other. One aide will always be in a better position than the other to hold out for a harder bargain, and this will not be eliminated either by the free play of competition, for the whole class of partners the sellers - who include workers - in a sellers market, or the buyers - who include employers - in a buyers' market) may all be in a stronger bargaining position than their opposite numbers. Moreover, when exchanges are made, as is customary, in terms of money, the seller can never be sure what prices will rule by the time he spends his earnings, and these will actually depend in a roundabout fashion on the prices achieved by the sellers themselves when they earned the money. And finally there is the obvious point that the ultimate distribution of goods through the market will depend on the primary distribution of assets. Though rich and poor, film star and cinema, usherette, will all benefit by the operations of the market, those with large possessions and abilities of great market value will take home bigger shares. The maximum of aggregate satisfactions established between such partners by the market will clearly represent only a relative maximum. The market mechanism will bring about any of these relative maxims of aggregate satisfaction, according to the original "setting" of the system, and it offers no definite mechanism to adjust these settings themselves and to pass from one relative maximum to another.

To put it more generally, the great principle of the market is no more than an opportunity for individuals to exchange their assets in every conceivable combination of bargaining partnership, under the control of public competition. While an economic system based on market relations differs profoundly from any self-subsistent economy (as exemplified by the fishermen) and also from any system of exchange based on legal duties (like the feudal system) it can itself be embodied in a great many forms, each of which will achieve its own distinctive maximum of aggregate satisfaction. Insofar as the public authorities can find rational criteria to give 'reference - on behalf of their constituents - to one such relative maximum over another, and can discover and establish the insti

tutional framework for its achievement, it will be carrying out the proper functions of a government. Looking back on the history of the past 150 years, I can find sufficient evidence for saying that in fact a wide field lies open here for economic reform by the modification of the social framework. A dynamic order of production and distribution can be operated only on the principle: "to each what he can get". Any radical abandonment of this method would condemn the industrialised masses of modern times to extinction by famine. It is certainly capable of satisfying the needs of the masses at a level far above that prevailing in past ages. Insofar as everybody gets preferably what he needs, it approximates to the ideal of "to each according to his needs." Any attempt to realise that each should be supplied "according to his needs" must therefore proceed by making what everybody can get more closely coincide with what everybody needs. We will also supplement this by central allocations particularly for communal use, but must never expect these to replace the market economy as the chief organiser of production and distribution. Actually, the principle "to each according to his need" is so vague as to be almost meaningless. If each is to determine his own needs and to help himself from "the public stores" to what he thinks fit, (as Marx seems to contemplate in the Critique of the Programme of Gotha) then all the best bits will be taken away by the people who have queued up earliest and those at the tail of the queue will go empty. If on the other hand, a central authority should hand out all manner of things on the ration as they think fit, then any complex assortment of goods - containing millions of different lines of merchandise - would be reduced to mere junk. Such products are almost worthless unless they are distributed in a manner which permits each consumer to select carefully what he needs most. Moreover, any such system of distribution would heavily hamper a dynamic system of production. For it would deprive the people as consumers from any means of directing themselves as producers to the satisfaction of their needs. Since they would not express their demands in terms of willingness to buy, producers could not find guidance for what is needed most, by the pursuit of profitable sales. And consequently - worst of all - they could not compete with each other by offering money for the purchase of labour, raw materials and other resources, which would rapidly bring the productive apparatus to a standstill; much as Russian industrial production was halted in 1920/21. The Communist idea "to each according to his need" is therefore totally impracticable; but what we should aim at instead - and what is also vaguely thought of in the Communist principle itself - is the principle "to each what he ought to receive". And the purpose of reform must be to make

"what each can get" approximate as closely as possible to "what each ought to get."

More precisely, while it appears indispensable that we rely for the guidance of the production apparatus and of the process of distribution on the acquisition principle or "to each what he can get", there is room for the operation of the principles of humanity and justice in the legal setting of the market and particularly in the laws which determine how much each will be able to get. Compassion and justice cannot tell us where to erect factories, for what purpose, nor how to run them from day to day or distribute their product to the public. While all this must be derived from the operations of a dynamic order based on the acquisitive principle, no such system could ever operate without a measure of kindness and honesty or without the law; and certainly no such system can be considered rational unless it is deliberately gamed in the light of compassion and justice and is supplemented so far as practicable, by governmental action based on these same principles.

There have been some interesting attempts to extend the concept of maximum aggregate satisfaction to serve as a guide for choosing between different relative maxima of aggregate satisfaction. While any particular relative maximum is achieved by exhausting all possible exchanges which make both partners better off; it is suggested that the best possible maximum would be reached by similarly exhausting all processes which would reduce the satisfaction of one partner less than it adds to that of the other. If it is true that the rich man can give from his abundance and relieve the poor from painful penury, without even noticing the loss, there is here a road to an absolute maximum of satisfaction for both partners involved. At the end of this road we would find equal wealth for all as representing this maximum for society as a whole.

I doubt, however, that this argument has real substance to it. I can imagine circumstances in which equal distribution would almost certainly be accepted. Suppose a population of a few millions were marooned without means of subsistence on a deserted continent. (This is not so fantastic an assumption today). A wealthy nation which wanted to help them could do that most economically by sending them money to buy things from her and from other countries who would accept her currency in exchange for theirs. It seems clear to me that such bounty would be distributed equally per head of the stricken population. But I think this would be due to considerations of justice, rather than to the principle of maximum total satisfaction. For suppose there were some notorious drunkards and gluttons among the recipients of foreign bounty, and others well known for their puritanical tastes. Would those

having modest desires be penalised in favour of the greedy? I do not think that such a law would be acceptable, though it would maximise aggregate satisfaction according to the principle to which I have referred.

Moreover, it would prove impossible even to formulate this principle satisfactorily for the usual case of a population supporting itself by its own efforts. Shall the pleasures of idleness be assessed as part of a man's share ? And what about the enormous pleasure some people get out of their work ? Would their share of goods be reduced to make up for this ? I hardly think that would be acceptable to any rational community.

And again, suppose - as would undoubtedly happen - that the absence of proper incentives would seriously reduce total production. The policy aiming at maximum aggregate satisfaction through distributive equality would then turn out to be self-defeating and we would have to look for some other principle to guide us. A programme of equal shares might perhaps become practicable if productivity were to continue to increase rapidly to higher levels. The average level of income has in most parts of the world not yet overstepped the line of oppressive misery, which, if imposed by a system of equality on all members of the community, would leave no one sufficiently free of daily cares and household chores to acquire education and engage in the various avenues of discovery on which all material progress of mankind - and in fact even the current functioning of any efficient economic system - must inevitably depend. A society which attaches no value, to material benefits may accept material equality as its foundations; for this would still permit saints and prophets, and even perhaps some poets and painters to arise and work for the redemption and ennoblement of man. But hardly any study which requires twenty years schooling and special training, and the subsequent lifelong concentration on discovery could be expected to take place if everyone on the planet would be reduced to the average level of terrestrial productivity, as represented today - at a guess - by the Roumanian peasant. A world population magically reduced one morning to uniform standard of Roumanian peasant hood, with such education as that standard would permit to acquire, would shortly be overcome by famine and - by want of any effective leadership - would soon decline further, down perhaps to the level of nomadic hunters. To the people of the United States, whose income is about ten times higher than the world's average, it may be possible to establish equality of incomes without any serious loss in the general standard of living. But even that seems improbable, and would, at any rate, not embody maximum aggregate utility which - clearly - would be

achieved only if applied to the entire population of the planet.

These conclusions apply without even taking into account the effects of inequality in providing an incentive to competitive efforts. They would hold true even if all inequality were hereditary. But actually the race between rivals in pursuit of wealth is among the greatest driving forces in the world. It was the most important stimulus for the unparalleled economic achievements of the United States in the past 100 years. It seems hardly an exaggeration to say that inequality of wealth is an institution which has been indispensable to the material progress of mankind and in the long run highly profitable to the great masses who are placed by it at a relative disadvantage. Unless general agreement can be assured for the conferment of material privileges on certain members of society, there can be no peaceful progress of society.

A leaderless society cannot be maintained at any higher level of differentiated activity and leaders must be granted material privileges if they are to use their creative and directive capacities to the full. Any attempt to reduce the standard of living of an elite below the level that is necessary for this purpose will prove unstable. At first the revolutionary leaders of Soviet Russia limited their own income to that of a worker's wage. Though even that level was a good deal above that of the average of the population as a whole and though the material advantages connected with the carrying out of governmental duties were added to it, the situation proved intrinsically untenable. People in eminent positions could not spend hours queuing up for cigarettes, nor was it rational to let them live in overcrowded and unheated rooms or travel in railway corridors. It seemed desirable to take special care for their health and provide recreation for them in mind and body. The granting of such material privileges of leadership comes about quite spontaneously in a society with a will to communal survival. The difficulty is that it may shock the sense of justice and also excite envy. In a free society where justice can always be openly appealed to and envy can be also openly aroused, Unless sufficient agreement can be reached on the proper measure and allocation of inequality, there will be perpetual strife between rival groups contending for the possession of privilege and society may break up into warring classes. Even less acute disagreements may cause serious damage by sapping the will to co-operation between classes, which is indispensable to the effectiveness of government and indeed of the administration of both public and private concerns.

A free society which is thus paralysed by irreconcilable conflicts about privileges will

inevitably fall into servitude. For the desire for some form of organised and secure social life will assert itself and give allegiance to some leader who promises to establish such a life on the only basis that is still possible - namely by force. The rule of violence is always in the background, ready to establish itself in any society in which large and active groups are making irreconcilable demands, and also if society as a whole, or in its majority, demands the impossible and is not prepared to co-operate on any other basis. The former case is common enough; we have it today in Palestine between Arabs and Jews, communal strife in India and the religious wars of earlier days are further examples. The present distressing situation in Britain is an example of a society in danger of disintegration by pressing for unworkable forms of economic organisation. Here lies also the principal origin of Soviet despotism. The modern destruction of liberty has been due largely to the paralysing and disintegrating effect of the socialist fallacies of equalitarianism, "planning" and "production-for community consumption". The disruption of society by these ideas prepared the way first for Mussolini and then for Hitler.

This may seem a digression, but I have actually not lost sight of my subject. The proposal of an absolute maximal of aggregate satisfaction achieved through equality of incomes does raise all these questions, which would require in fact to be taken much further, to include for example the important factor of vicarious satisfaction derived from the splendour of their rulers by those who heartily identify themselves with the rulers. The recent discussion on an annual allowance of £50,000 for the newly married royal princess and her husband could be used to illustrate this strong popular motive. The appeal made in cinemas to the poorest audiences by pictures of inordinate luxury would add strength to this point. But enough has been said to prove my main contention, which is that the choice between different settings of the dynamic order of production and distribution must properly lie with moral considerations, which must be sufficiently agreed upon by the conflicting interests and discordant schools of thought within a society, if that society is to remain united and free. We shall see that the criterion of moral propriety is never quite absent and often decisive throughout the whole range of governmental action which not only lays down the framework of an automatic market but undertakes also to supplement its operations from a collective point of view.

Having made this clear, we may take one step back and briefly survey the whole field of implicit consensus and specific action by which a community operating through a market

takes direct responsibility for its economic life. The framework of a system of dynamic order consists - we may recall - in the four determinants: Powers, Accession, Tests and Incentives and the public authorities will express their Directives to the members of the system by the appropriate setting of these determinants. A system of private enterprise is characterised for example by giving to individuals the power of disposing over money for the alternative uses of consumption or investment in definite enterprises; whereas a system like that of the Soviets allows them only investment in government bonds as the only alternative to expenditure for consumption - the public authorities being alone entitled to make definite investments, be it from state loans from profits of public enterprises or from taxation (with loans of public enterprises to their suppliers playing a subsidiary part). I would call this a difference in Powers. But submit naturally, there is connected with it a profound difference of Accession. A system of private enterprises can function only if some people can get money which they can and will voluntarily invest. Bo long as the community is very poor, it will be difficult to collect sufficient voluntary investments unless some people are allowed to become much richer than others. We find for example that in Britain today (in spite of an income per capita which is about five times that of the planetary average) even the moderate equalisation of incomes brought about by labour legislation makes it difficult to maintain a sufficient rate of investment without causing inflation. In view of this connection it may be difficult - at least in a poor society - to maintain private enterprise without allowing large private fortunes to be amassed from profits and accumulated further by passing from one generation to the other by way of inheritance. I would call this a characteristic way of determining Accession, which also involves, insofar as it would allow large profits to accrue, a particular setting of Incentives.

The liberation of Europe from feudalism involved the abolition of a whole structure of powers rooted in status and their replacement by a system of proprietary powers which granted much wider rights of disposal over land, labour, money and equipment, through the market. But simultaneously there set in a movement for restricting these powers where they appeared excessive. The abolition of the slave trade in the British Dominions and later throughout the world, was one of the earliest examples. But by the middle of the 19th century this movement had established its claims over a very wide range, particularly in respect to working conditions. Legislation has also been very effective in creating quite new titles of economic rights which could be brought to the public market. Thus the Statute of

Monopolies (1623 ?) - while abolishing the old type of monopolies for existing lines of production - laid the foundations of the modern patent law by granting temporary monopolies for the manufacture and sale of novel commodities. An even more momentous innovation was made by the Company Law of 1846 ? which established the rights to invest capital into a business while limiting the shareholder's liability to the money which he had invested. Patents and industrial shares are bundles of powers created by law which have immensely increased the range of the modern investment market.

I have mentioned before the supervision of Tests exercised by public authorities. Some commodities are supervised to prevent adulteration, others - or even the same, as in the case of milk - to prevent contamination. The principal public agency upholding the standards of marketed goods consists in the general consensus of businessmen. A high standard of general honesty is a most important economic asset. For the lightning rapidity of dealings on the stock exchange, for example, it is indispensable that a dealer's mere word should be his bond.

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The rest of the field - and it is an enormous field - of the responsibilities which properly fall to the public authorities (or, more directly, to public opinion embodied in custom or expressed in public appreciation) can be conveniently placed under the heading of the fourth determinant - that is Incentive. The adjustment of Incentives must be taken to include also the granting of gratuitous public benefits. Redistributive taxation, social insurance and other such processes which are given not as rewards for effort but according to need are all part of a system intended to assure that while men must strive for what they can get, they should receive what they ought to get.

We must remember at this point that the economic system is part of the social system and that the part cannot be said to fulfil its purpose if it disrupts the whole. Our supreme social purpose is not the production of a maximum amount of goods but to strive for a good society. It has been argued convincingly (by Boulding) that the extermination of large parts of Europe's population by the Black Death reduced for a time the pressure on the means of subsistence and brought a wave of prosperity to the survivors; so that they could accumulate sufficient capital to start a system of higher productivity, from which the wealth of modern

Europe took its origin. Thus economically, the Black Death may have proved a boon; yet no society could survive which would use such means to achieve prosperity. If it could be shown - as I believe It could) that prosperity could be achieved in India and China by the artificial spreading of some deadly plague which would exterminate three-quarters of the population, this would not make such a policy acceptable. Economic policies will rarely do nothing more than make everybody better off. And though it is often permitted to disregard these implications, we must never forget that as soon as economic life does not clearly serve to make everybody better off, we are unable to define its purpose. Any attempt to disregard this may lead - as it has often done in the past - to economic theory being used for the defence of social monstrosities and to be made a peril to the coherence of a free society. We are faced herewith an essential weakness of the principles of laissez faire, the recognition of which should lead very near to the position of a Socialism cured of its basic fallacies.

I have spoken before of the redistribution of gross incomes in accordance with the agreed demands of compassion and justice. While I cannot undertake to analyse this process much further here, I want to say that it is meant to include such emergency measures as rationing and price control in wartime. Modern industrial masses are normally supplied with their indispensable foodstuffs cheaply by a large international market. If Britain were cut off from these sources, food prices in a free market would be multiplied manifold. While richer people would continue to buy an almost undiminished amount of food, the poor would be left to famish. The simplest way to avoid this is through rationing of foodstuffs. Similar considerations apply to industrial resources, like rubber, which were rationed in wartime to avoid a sharp increase in prices, which would have accentuated the existing inflationary pressure and brought quite unjustifiable profits to people who happened to own stocks of rubber. It is quite possible, however, that a better result could have been obtained by allowing prices to rise and clapping down a rigorous tax on all the ensuing profits. American economists (Milton Friedman) say that this would have led to much more effective saving of tyres already in use on motor cars which formed by far the greatest rubber store in the country. Taxation preserves, or largely preserves, the operations of the market and should therefore be preferred to rationing and price control whenever it also sufficiently safeguards the social interest.

A set of principles which may guide the public authorities to a wide range of economic functions that are proper to them, may be derived from the obvious justification of

certain forms of public expenditure. A new battleship provides for a collective need at the expense of the aggregate of individual needs. By collecting taxes and paying from the proceeds the expenses incurred by naval dockyards in producing a battleship the public authorities modify the existing system of incentives to the effect of diverting the citizens' efforts from the satisfaction of individual to that of collective comfort. It is assumed that when considering higher taxation for increased public expenditure, the public does in fact fully balance the advantages of the two alternative courses of action that lie open to them.

This principle inevitably carries us much further. For there is no bargain concluded in the market-place which does not have repercussions beyond the grounds on which it was concluded by its partners. Every decision to buy something rather than continue to hold the money, affects the level of prices, and the general state of employment. The choices which buyers make between different lines of expenditure may lay waste whole townships specialising in some old established industry. There is hardly a purchase made that does not contribute to the hardening or the modification of some habit which will have its effects on family life or general human relationships. Drink, food, entertainment, travel, education, health, newspapers, books, furniture, heating, housing, servants not an item that is not full of social significance. And similarly, each time a particular process of manufacture is adopted, there are consequences entailed in the act which go far beyond the grounds on which the decision was taken and will affect society at large in many ways. The health of workers and their happiness at work will be affected. Noise, smoke, pollution of rivers, effects on road traffic and the landscape, soil erosion, exhaustion of natural resources, international trade relations - there is no end to the social costs which may be incurred or avoided by such repercussions.

Every instance of this kind can be treated as a positive or negative contribution to the satisfaction of collective needs. When the social satisfaction is positive, the public authorities should pay for it and thus cause the preferment of the line of action from which it emanates. A subsidy is due on these grounds to the sellers and buyers of books which disseminate useful knowledge. Similarly, when a doctor treats a patient for an infectious disease they may both claim a public reward for helping to stamp out the infection. And conversely, there are innumerable occasions when the public may claim the right to impose a special tax to recoup itself for damage suffered by the unfavourable social repercussions of individual economic decisions.

These principles are widely accepted today. It is easy to include within their scope also the claim for a correction of the dynamic systems of production due to imperfect operations of competition. But this will be better left to be examined later. Another matter which it may suffice merely to recall in passing is the normative element in all decisions concerning the social good. Taxes on smokes, spirits and betting are never free from the intention of acting as correction for feckless and perhaps even vicious habits. Government grants for educational institutions, theatres, music, etc. convey social approval of these works.

These qualifications do not affect the principle establishing a claim to a public subsidy wherever benefits emanate from an exchange or a process of conversion beyond aggregate individual satisfactions achieved locally by the buyers, sellers and managers of production; nor the complementary principle establishing a public claim for damages in the form of taxes in compensation for any costs caused to society beyond those consciously incurred by the individuals disposing of resources through the market. This principle is sharply narrowed down, however, by the inherent administrative limitations of public authorities.

I have described before the situation of a government facing a network of order achieved by direct mutual adjustments and explained that since these are many thousand times more numerous than its span of control comprises, the government can affect any considerable portion of them only by generalised commands. It will be useful to have a name for this method of exercising authority and we shall call it the method of supervision. A few more implications of the supervisory situation have to be pointed out at this stage.

A specific command enters into the particulars of a situation to which it refers, a generalised command abstracts from the particulars and looks upon every situation from one well defined narrow angle. To the mother, the birth of her child is like no other birth, and to every man his own death is like no other death; but to the Registrar General all births and deaths are the same; he is concerned with them all, but only to the point of requiring that they be properly reported to him. That is the angle of his particular authority. You cannot bury a dead man without a doctor's certificate; that is the angle of the doctor's authority. If the doctor refuses a certificate, the police step in and the coroner's jury is called in to deal with the situation from their angle. As a result, proceedings may be opened against a person suspected of having murdered the deed man and a law court will adjudicate his case from their angle. If he is convicted, the prison director, the executioner and the prison chaplain will each take their prescribed official part in the sequel. Each of the numerous authorities

which perform the supervisory function of the State goes into action - or can be called into action - in response to a certain test which represents one specific aspect of a situation.

The more numerous the cases that have to be acted upon, the more narrow and formal have to be the critical tests. Watch a traffic policeman at a busy crossing, stopping some cars and waving on others, irrespective of the persons carried by them. There is a Burgeon racing to save a patient, held up to give passage to an aimlessly outing old lady. Watch the members of a long bus queue at night moving by slow steps towards their destination. If we knew them all, and the purpose of their journeys, we would give unhesitatingly priority to some over the others. But this obviously cannot be done. You cannot employ a tribunal of social welfare at each traffic corner and each bus queue.

The need for establishing simple standard requirements for all processes in which you handle large masses, is well known in all branches of public government. A small body of civil servants recruited from a narrow ruling class could be successfully selected purely on the basis of personal recommendations. A modern civil service to which access is open to all, must be selected by examinations, involving a measure of objective tests. Other things being equal, the more widely a test will be relied on, the more formal will it have to be. The personal opinion of the headmaster of a minor school on one of his pupils will carry sufficient weight with the authorities and private firms of his own town; but if the pupil leaving school goes further afield, he must have a certificate based on some generally applied, more or less objective, and therefore more mechanical, tests. Also, other things being equal, the more authoritative the test is to be, the more it will tend to be mechanical. A private firm may select candidates for appointment by more delicate and subjective criteria than the university can employ in officially qualifying them. Universities cannot help using examination tests which they know often give an advantage to less thoughtful students because the more penetrating tests would be uncertain and often unfair.

It is an old maxim, that the law must be certain; it is equally accepted that it must also be enforceable. A law that is easily evaded gives too much temptation to dishonesty and thus penalises the conscientious law-abiding person. A tax, for example, which relies entirely on the veracity of the taxpayer in declaring his income may easily become a tax on probity and a subsidy for the cultivation of deceit.

Hence we may conclude that a supervisory authority will have to rely on certain tests when assessing claims for subsidies and liabilities to special taxation in compensation for the

social benefit, or the social costs of market transactions. Whenever they deal with a large number of such cases, the authorities will have to rely on criteria which can be presented very briefly, without going into any detail about the situation which they represent. When these tests are to form the basis of a claim for remuneration from public funds, they will have to be authoritative and unambiguous, which means that they must be publicly and objectively ascertainable. This may be a relatively simple matter, as for example when the Government subsidises the extirpation of tigers or cobras by paying so much per head for dead tigers or cobras delivered. But even such tests may be misleading if people raise cobras on farms and make a regular income by slaughtering the increment. There is a strong case, as I have shown elsewhere, for rewarding inventors from public funds, rather than granting them a monopoly, but a serious obstacle is presented to this suggestion by the difficulties of finding reliable objective tests for assessing the social benefit of inventions.

The situation is similar when the authorities have to assess liability for special taxation. They must be able to measure the social costs of the transactions in question and the measurement must be rapid and based on criteria that are not easily falsified. It is clear on these grounds that the general claims for social subsidies and liabilities to social taxes will be applicable only in a small fraction of the transactions which do appear to have social repercussions.

It is also clear that the potency of a supervisory authority in its task of redressing the social balance of individual transactions depends on the strength of social conscience on which it can count in the execution of its operations. The intention, deeply enshrined in the socialist faith, to make the economic system run by motives of altruism, is foolish and dangerously misleading; there is no way of running a marketing system except by letting each person strive for what he can get. But the socialist tendency to relax the strain of acquisitiveness by appealing for self restraint can, in its proper place, form a rational development in a system which always depends for its operations on the presence of certain standards of honesty. The voluntary saving of coal in the winter of 1947 was an example of this. More important attempts in this direction are the appeals to workers to restrain their wage demands and for managers to cut prices and profits below the level they can competitively achieve. The Keynesian analysis of economic dynamics indicates that the circulation of money is unstable against any attempt to increase the wage earners' share of goods beyond a certain level by increasing nominal wage rates. Stability in this respect

would seem to depend largely on our capacity to control and supplement the competitive struggle for higher wages by the application of principles of social equity. The heightening of social conscience and the discovery of new techniques which will make use of an increase in probity and goodwill for the purpose of achieving a generally acceptable distribution of incomes, appears a legitimate and indeed an urgent purpose to strive for. By overcoming the strains under which we are labouring through this problem today, we will carry the free society one stage further to a higher measure of conscious coherence. Much further analysis will admittedly be needed in order to shape this line of thought into a reliable instrument of policy.

Unmanageabilities.

The fundamental error of laissez faire was to assume that a system of private enterprise can solve all economic problems. The triumph of Socialism was to point out this mistake - its blunder to assume that public control could necessarily solve the tasks which private enterprise cannot accomplish. Socialist criticism has insisted on the diseconomies of imperfect competition. It has pointed out the fact that the market can only adjust the proportions of currently produced goods and services in accordance with the structure of costs and the structure of demand, but cannot tell us whether any novel line of merchandise is worth producing or not. An analysis of this problem shows that a novelty which is a commercial loss to its producer may well represent a social gain. This is obvious enough if we take a new invention which has been expensive to develop and which - as it may happen for many reasons, for example because the inventor's country has no patent law as was the case in Holland until 19.. and in Germany today is not covered by patent. As soon as the invention is on the market, others will be able to produce it cheaper than the inventor (or promotor) who has to pay off his cost of development, so that he will be forced to produce at a loss.

We may add that the whole process of marketing inventions is extremely uneconomical. The market functions well only in respect to products which can be readily allocated to individual consumers and which are simultaneously enjoyed and destroyed by them. A loaf of bread can be allocated to a definite person and is simultaneously enjoyed and destroyed by him. In that case there is no difficulty for a person to take possession of the loaf and it is reasonable that he should reward its producers by paying for it. But it is extremely

difficult to allocate to one person the benefits of an invention, nor is it rational that the person to whom it is handed over as best it can be - should pay its full price, since the invention is not destroyed - but is in general made rather more valuable - by its use. And finally, any conceivable method of allocating the invention to specific users will inevitably limit its full utilisation - merely for the purpose of collecting a reward for the inventor. The matter is somewhat different with inventions which serve a collective purpose, like defence. The government can reward them, even though the absence of any other buyer competing for its purchase may make the bargain somewhat arbitrary; but there is no rational way at all of collecting a reward for inventions which are capable of benefiting thousands of scattered individuals in a hundred different ways, as do inventions improving the ordinary articles of use, or the processes of making them.

The only way the market offers to ascertain that these individuals have benefited, and to what extent, is by making them pay for the use of the invention, but any technique which will enforce such payments inevitably reduces the benefits of the invention to the public.

This example, which has been studied in greater detail elsewhere, serves us as an introduction to a more general treatment of unmanageable economic problems. I shall illustrate various instances of this condition by a number of imaginary examples.

Atmospheric economy. Suppose a new technical system were invented which would require the operation of about the same type of factories as are now in existence, but would not produce things that can be parcelled up and handed to individual customers for enjoyment and consumption. Instead it would produce a warm and nutritive atmosphere which would make it unnecessary to provide food, clothing or shelter, and, for full measure, would also cure all diseases and make the countryside so lovely that no one would wish to travel for the sake of a holiday. We would still have to labour, in the old manner, plough the land and hack the coal, but the total atmospheric benefit would be achieved at so much less cost that their production would clearly be preferred to that of the goods now commonly in use to cover the same needs.

Now suppose that this atmospheric satisfaction of all men's material wants prevails to the extent that there is nothing more produced that can be bought by them in separate portions. Then they would have no use left for money. Consequently, men would no longer make any efforts to earn money. Workers could not be recruited by offering them wages, resources of production could not be collected by offering to buy them, managers would earn

no profits, financiers would make no investment, nor watch over the profitability of their holdings. The whole system of exchanges by which men as consumers direct men as producers toward the most economical use of resources would be totally eliminated. The dynamic order of mutual adjustments among producers would have vanished and, since - as I have proved - no specific ordering agency can even remotely approximate the effectiveness of such an adjustment, no rational adjustment could in fact take place. In other words, the system of production which we have by its technical performance cannot in fact come into existence on account of the total impossibility of organising the economic adjustments required for its rational operation.

It is of course conceivable that an arbitrarily chosen allocation of labour and other resources would in fact produce atmospheric satisfaction cheaply enough to be deemed acceptable to the community. The system, if accepted, would be precarious for it would be impossible to adjust the allocation of resources rationally to any change in the existing supplies. But even this need not be considered as prohibitive. The method may be so cheap that it may be quite reasonable to use it, in spite of the probably grossly uneconomical utilisation of resources involved in it and the danger of even worse to come in future. In spite of its complete unmanageability - as defined above - the system would then embody a centrally directed economy which would be superior in its efficiency to the alternative of a market economy producing the usual kind of things that are handed out in parcels.

An Economy of smells and noises. Let us now take one imagination to the other extreme and construct a technology producing the usual type of distributable goods but drawing entirely on diffuse resources. We would again have factories distributed all over the country in the same fashion as those existing today but they would be run according to a new technology which would produce all that we need at a negligible effort of labour, while far greater costs would arise in the general inconveniences like smells, radiations, infections, noises, fumes, river pollutions, defacements of the landscape etc. which the operation of factories cause all around them. Suppose that the operation of each plant would involve "costs" in terms of these inconveniences, spreading in some irregular, but quite definite, fashion over many miles of territory around them, while the physical interdependence of the several plants would be such that the "costs" incurred by any one of them would effect in a definite way the "costs" incurred by each of the others. The problem of production could be formulated in these new terms without difficulty. It would consist in minimising the total

amount of inconveniences incurred by the population in the course of producing any given set of finished goods and in adjusting the total amount of inconveniences incurred at a level where any further increment should be just equal, and opposite, to the increment of value produced by it. Such a proposition is perfectly definite; but it is also perfectly insoluble. It is insoluble centrally because it involves the mutual interaction of a large number of units on a multitude of lines; and it is also insoluble by bargaining because the costs can be controlled by no process of give and take arranged between the interacting units. An economy of the kind which we have constructed would in fact be absolutely unmanageable.

Clockwork economy. A third example of total unmanageability can be given by imagining a technology which entirely excludes the operation of competition between productive plants. Suppose a society is based on one single machine which produces everything that is needed for food, clothes, shelter, etc. Such a machine may be assured to be extremely complicated and delicately adjusted. Suppose it consists of, say, 30000 parts each of which is quite distinct from the others, each being made of a different material in a special shape. Let us assume that these parts can be assembled only in one particular sequence. We must start with No. 1 then join to it No. 2 and so on, until the 30000 are fitted together completely. Not before the last part is added, shall the machine be of any use whatever. Now suppose that local conditions are such that each part can be produced only by one single plant - and then let us consider the problem of distributing resources (labour raw materials, etc. of the usual kind) between the 30000 plants. We have here the conditions of absolute uniqueness both of the products on sale - since no single part can be replaced by another - and uniqueness also of buyers since each part can be of use only to one single buyer.

The first thing that strikes one in such a case is that each plant management can hold out for any price so long as it leaves over to the others a bare subsistence and that it can do that both as seller and as a buyer. Thus all are at the mercy of each. But what is worse: the ensuing chaos is irremediable. In view of the total absence of competition there is no way of establishing a reasonable price at which the parts shall be sold for the purpose of assembling them. And consequently, there is no conceivable rational way of allocating resources to the 30000 plants. The system, that is, proves to be entirely unmanageable. The society which we have postulated could practise no economy in the utilisation of its resources.

Private property of the plants postulated here and their operation according to the profit-making motive would lead to a war of all against all. But State ownership would

scarcely offer a positive alternative. It could not allocate resources rationally, nor assess the efficiency of any particular management. All it would do - and this may be the best solution - is to fix some arbitrarily chosen allocation of resources and make any change from that illegal. That would correspond approximately to the conditions of patriarchal economy in which all means of production, including labour, are fixed, inalienable possessions of the clan.