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## Social Implications of Technology

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In this chapter, technology is taken as a social process in which technics proper (that is, the technical apparatus of industry, transportation, communication) is but a partial factor. We do not ask for the influence or effect of technology on the human individuals. For they are themselves an integral part and factor of technology, not only as the men who invent or attend to machinery but also as the social groups which direct its application and utilization. Technology, as a mode of production, as the totality of instruments, devices and contrivances which characterize the machine age is thus at the same time a mode of organizing and perpetuating (or changing) social relationships, a manifestation of prevalent thought and behavior patterns, an instrument for control and domination.<sup>1</sup>

Technics by itself can promote authoritarianism as well as liberty, scarcity as well as abundance, the extension as well as the abolition of toil. National Socialism is a striking example of the ways in which a highly rationalized and mechanized economy with the utmost efficiency in production can operate in the interest of totalitarian oppression and continued scarcity. The Third Reich is indeed a form of "technocracy": the technical considerations of imperialistic efficiency and rationality supersede the traditional standards of profitability and general welfare. In National Socialist Germany, the reign of terror is sustained not only by brute force which is foreign to technology but also by the ingenious manipulation of the power inherent in technology: the intensification of labor, propaganda, the training of youths and workers, the organization of the governmental, industrial and party bureaucracy—all of which constitute the daily implements of terror—follow the lines of greatest technological efficiency. This terroristic technocracy cannot be attributed to the exceptional requirements of "war economy"; war economy is rather the normal state of the National Socialist ordering of the social and economic process, and technology is one of the chief stimuli of this ordering.<sup>2</sup>

In the course of the technological process a new rationality and new standards of individuality have spread over society, different from and even opposed to those which initiated the

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march of technology. These changes are not the (direct or derivative) effect of machinery on its users or of mass production on its consumers; they are rather themselves determining factors in the development of machinery and mass production. In order to understand their full import, it is necessary to survey briefly the traditional rationality and standards of individuality which are being dissolved by the present stage of the machine age.

The human individual whom the exponents of the middle class revolution had made the ultimate unit as well as the end of society stood for values which strikingly contradict those holding sway over society today. If we try to assemble in one guiding concept the various religious, political and economic tendencies which shaped the idea of the individual in the sixteenth and seventeenth century, we may define the individual as the subject of certain fundamental standards and values which no external authority was supposed to encroach upon. These standards and values pertained to the forms of life, social as well as personal, which were most adequate to the full development of man's faculties and abilities. By the same token, they were the "truth" of his individual and social existence. The individual, as a rational being, was deemed capable of finding these forms by his own thinking and, once he had acquired freedom of thought, of pursuing the course of action which would actualize them. Society's task was to grant him such freedom and to remove all restrictions upon his rational course of action.

The principle of individualism, the pursuit of self-interest, was conditioned upon the proposition that self-interest was rational, that is to say, that it resulted from and was constantly guided and controlled by autonomous thinking. The rational self-interest did not coincide with the individual's immediate self-interest, for the latter depended upon the standards and requirements of the prevailing social order, placed there not by his autonomous thought and conscience but by external authorities. In the context of radical Puritanism, the principle of individualism thus set the individual against his society. Men had to break through the whole system of ideas and values imposed upon them, and to find and seize the ideas and values that conformed to their rational interest. They had to live in a state of constant vigilance, apprehension, and criticism, to reject everything that was not true, not justified by free reason. This, in a society which was not yet rational, constituted a principle of permanent unrest and opposition. For false standards still governed the life of men, and the free individual was therefore he who criticised realization. The theme has nowhere been more fittingly expressed than in Milton's image of a "wicked race of deceivers, who . . . took the virgin Truth, hewd her lovely form into a thousand peeces, and scatter'd them to the four winds. From that time ever since, the sad friends of Truth, such as durst appear, imitating the careful search that Isis made for the mangl'd body of Osiris, went up and down gathering up limb by limb still as they could find them. We have not yet found them all, . . . nor ever shall do, till her Master's second coming . . . —To be still searching what we know not, by what we know, still closing up truth to truth as we find it (for all her body is homogeneal and proportionall)," this was the principle of individualistic rationality.<sup>3</sup>

To fulfill this rationality presupposed an adequate social and economic setting, one that would appeal to individuals whose social performance was, at least to a large extent, their own work. Liberalist society was held to be the adequate setting for individualistic rationality. In the sphere of free competition, the tangible achievements of the individual which made his products and performances a part of society's need, were the marks of his individuality. In the course of time, however, the process of commodity production undermined the economic basis on which individualistic rationality was built. Mechanization and rationalization forced the

weaker competitor under the dominion of the giant enterprises of machine industry which, in establishing society's dominion over nature, abolished the free economic subject.

The principle of competitive efficiency favors the enterprises with the most highly mechanized and rationalized industrial equipment. Technological power tends to the concentration of economic power, to "large units of production, of vast corporate enterprises producing large quantities and often a striking variety of goods, of industrial empires owning and controlling materials, equipment, and processes from the extraction of raw materials to the distribution of finished products, of dominance over an entire industry by a small number of giant concerns. . . ." And technology "steadily increases the power at the command of giant concerns by creating new tools, processes and products."<sup>4</sup> Efficiency here called for integral unification and simplification, for the removal of all "waste," the avoidance of all detours, it called for radical coordination. A contradiction exists, however, between the profit incentive that keeps the apparatus moving and the rise of the standard of living which this same apparatus has made possible. "Since control of production is in the hands of enterprisers working for profit, they will have at their disposal whatever emerges as surplus after rent, interest, labor, and other costs are met. These costs will be kept at the lowest possible minimum as a matter of course."<sup>5</sup> Under these circumstances, profitable employment of the apparatus dictates to a great extent the quantity, form and kind of commodities to be produced, and through this mode of production and distribution, the technological power of the apparatus affects the entire rationality of those whom it serves.

Under the impact of this apparatus,<sup>6</sup> individualistic rationality has been transformed into technological rationality. It is by no means confined to the subjects and objects of large scale enterprises but characterizes the pervasive mode of thought and even the manifold forms of protest and rebellion. This rationality establishes standards of judgment and fosters attitudes which make men ready to accept and even to introcept the dictates of the apparatus.

Lewis Mumford has characterized man in the machine age as an "objective personality," one who has learned to transfer all subjective spontaneity to the machinery which he serves, to subordinate his life to the "matter-of-factness" of a world in which the machine is the factor and he the factum.<sup>7</sup> Individual distinctions in the aptitude, insight and knowledge are transformed into different quanta of skill and training, to be coordinated at any time within the common framework of standardized performances.

Individuality, however, has not disappeared. The free economic subject rather has developed into the object of large-scale organization and coordination, and individual achievement has been transformed into standardized efficiency. The latter is characterized by the fact that the individual's performance is motivated, guided and measured by standards external to him, standards pertaining to predetermined tasks and functions. The efficient individual is the one whose performance is an action only insofar as it is the proper reaction to the objective requirements of the apparatus, and his liberty is confined to the selection of the most adequate means for reaching a goal which he did not set. Whereas individual achievement is independent of recognition and consummated in the work itself, efficiency is a rewarded performance and consummated only in its value for the apparatus.

With the majority of the population, the former freedom of the economic subject was gradually submerged in the efficiency with which he performed services assigned to him. The world had been rationalized to such an extent, and this rationality had become such a social power that the individual could do no better than adjust himself without reservation. Veblen was among the first to derive the new matter-of-factness from the machine process, from which it spread over the whole society: "The share of the operative workman in the machine industry

is (typically) that of an attendant, an assistant, whose duty it is to keep pace with the machine process and to help out with workmanlike manipulation at points where the machine process engaged is incomplete. His work supplements the machine process rather than makes use of it. On the contrary the machine process makes use of the workman. The ideal mechanical contrivance in this technological system is the automatic machine."<sup>8</sup> The machine process requires a knowledge oriented to "a ready apprehension of opaque facts, in passably exact quantitative terms. This class of knowledge presumes a certain intellectual or spiritual attitude on the part of the workman, such an attitude as will readily apprehend and appreciate matter of fact and will guard against the suffusion of this knowledge with putative animistic or anthropomorphic subtleties, quasi-personal interpretations of the observed phenomena and of their relations to one another."<sup>9</sup>

As an attitude, matter-of-factness is not bound to the machine process. Under all forms of social production men have taken and justified their motives and goals from the facts that made up their reality, and in doing so they have arrived at the most diverging philosophies. Matter-of-factness animated ancient materialism and hedonism, it was responsible in the struggle of modern physical science against spiritual oppression, and in the revolutionary rationalism of the Enlightenment. The new attitude differs from all these in the highly rational compliance which typifies it. The facts directing man's thought and action are not those of nature which must be accepted in order to be mastered, or those of society which must be changed because they no longer correspond to human needs and potentialities. Rather are they those of the machine process, which itself appears as the embodiment of rationality and expediency.

Let us take a simple example. A man who travels by automobile to a distant place chooses his route from the highway maps. Towns, lakes and mountains appear as obstacles to be bypassed. The countryside is shaped and organized by the highway. Numerous signs and posters tell the traveler what to do and think; they even request his attention to the beauties of nature or the hallmarks of history. Others have done the thinking for him, and perhaps for the better. Convenient parking spaces have been constructed where the broadest and most surprising view is open. Giant advertisements tell him when to stop and find the pause that refreshes. And all this is indeed for his benefit, safety and comfort; he receives what he wants. Business, technics, human needs and nature are welded together into one rational and expedient mechanism. He will fare best who follows its directions, subordinating his spontaneity to the anonymous wisdom which ordered everything for him.

The decisive point is that this attitude—which dissolves all actions into a sequence of semi-spontaneous reactions to prescribed mechanical norms—is not only perfectly rational but also perfectly reasonable. All protest is senseless, and the individual who would insist on his freedom of action would become a crank. There is no personal escape from the apparatus which has mechanized and standardized the world. It is a rational apparatus, combining utmost expediency with utmost convenience, saving time and energy, removing waste, adapting all means to the end, anticipating consequences, sustaining calculability and security.

In manipulating the machine, man learns that obedience to the directions is the only way to obtain desired results. Getting along is identical with adjustment to the apparatus. There is no room for autonomy. Individualistic rationality has developed into efficient compliance with the pre-given continuum of means and ends. The latter absorbs the liberating efforts of thought, and the various functions of reason converge upon the unconditional maintenance of the apparatus. It has been frequently stressed that scientific discoveries and inventions are shelved as soon as they seem to interfere with the requirements of profitable marketing.<sup>10</sup> The necessity

which is the mother inventions is to a great extent the necessity of maintaining and expanding the apparatus. Inventions have "their chief use . . . in the service of business, not of industry, and their great further use is in the furtherance, or rather the acceleration, of obligatory social amenities." They are mostly of a competitive nature, and "any technological advantage gained by one competitor forthwith becomes a necessity to all the rest, on pain of defeat," so that one might as well say that, in the monopolistic system, "invention is the mother of necessity."<sup>11</sup>

Everything cooperates to turn human instincts, desires and thoughts into channels that feed the apparatus. Dominant economic and social organizations "do not maintain their power by force. . . . They do it by identifying themselves with the faiths and loyalties of the people,"<sup>12</sup> and the people have been trained to identify their faiths and loyalties with them. The relationships among men are increasingly mediated by the machine process. But the mechanical contrivances which facilitate intercourse among individuals also intercept and absorb their libido, thereby diverting it from the all too dangerous realm in which the individual is free of society. The average man hardly cares for any living being with the intensity and persistence he shows for his automobile. The machine that is adored is no longer dead matter but becomes something like a human being. And it gives back to man what it possesses: the life of the social apparatus to which it belongs. Human behavior is outfitted with the rationality of the machine process, and this rationality has a definite social content. The machine process operates according to the laws of mass production. Expediency in terms of technological reason is, at the same time, expediency in terms of profitable efficiency, and rationalization is, at the same time, monopolistic standardization and concentration. The more rationally the individual behaves and the more lovingly he attends to his rationalized work, the more he succumbs to the frustrating aspects of this rationality. He is losing his ability to abstract from the special form in which rationalization is carried through and is losing his faith in its unfulfilled potentialities. His matter-of-factness, his distrust of all values which transcend the facts of observation, his resentment against all "quasi-personal" and metaphysical interpretations, his suspicion of all standards which relate the observable order of things, the rationality of the apparatus, to the rationality of freedom—this whole attitude serves all too well those who are interested in perpetuating the prevailing form of matters of fact. The machine process requires a "consistent training in the mechanical apprehension of things," and this training, in turn, promotes "conformity to the schedule of living," a "degree of trained insight and a facile strategy in all manner of quantitative adjustments and adaptations."<sup>13</sup> The "mechanics of conformity" spread from the technological to the social order; they govern performance not only in the factories and shops, but also in the offices, schools, assemblies and, finally, in the realm of relaxation and entertainment.

Individuals are stripped of their individuality, not by external compulsion, but by the very rationality under which they live. Industrial psychology correctly assumes that "the dispositions of men are fixed emotional habits and as such they are quite dependable reaction patterns."<sup>14</sup> True, the force which transforms human performance into a series of dependable reactions is an external force: the machine process imposes upon men the patterns of mechanical behavior, and the standards of competitive efficiency are the more enforced from outside the less independent the individual competitor becomes. But man does not experience this loss of his freedom as the work of some hostile and foreign force; he relinquishes his liberty to the dictum of reason itself. The point is that today the apparatus to which the individual is to adjust and adopt himself is so rational that individual protest and liberation appear not only as hopeless but as utterly irrational. The system of life created by modern industry is one of the highest expediency, convenience and efficiency. Reason, once defined in these terms, becomes equiva-

lent to an activity which perpetuates this world. Rational behavior becomes identical with a matter-of-factness which teaches reasonable submissiveness and thus guarantees getting along in the prevailing order.

At first glance, the technological attitude rather seems to imply the opposite of resignation. Teleological and theological dogmas no longer interfere with man's struggle with matter; he develops his experimental energies without inhibition. There is no constellation of matter which he does not try to break up, to manipulate and to change according to his will and interest. This experimentalism, however, frequently serves the effort to develop a higher efficiency of hierarchical control over men. Technological rationality may easily be placed into the service of such control: in the form of "scientific management," it has become one of the most profitable means for streamlined autocracy. F. W. Taylor's exposition of scientific management shows within it the union of exact science, matter-of-factness and big industry: "Scientific management attempts to substitute, in the relation between employers and workers, the government of fact and law for the rule of force and opinion. It substitutes exact knowledge for guesswork, and seeks to establish a code of natural laws equally binding upon employers and workmen. Scientific management thus seeks to substitute in the shop discipline, natural law in place of a code of discipline based upon the caprice and arbitrary power of men. No such democracy has ever existed in industry before. Every protest of every workman must be handled by those on the management side and the right and wrong of the complaint must be settled, not by the opinion either of the management or the workman but by the great code of laws which has been developed and which must satisfy both sides."<sup>15</sup> The scientific effort aims at eliminating waste, intensifying production and standardizing the product. And this whole scheme to increase profitable efficiency poses as the final fulfillment of individualism, ending up with a demand to "develop the individuality of the workers."<sup>16</sup>

The idea of compliant efficiency perfectly illustrates the structure of technological rationality. Rationality is being transformed from a critical force into one of adjustment and compliance. Autonomy of reason loses its meaning in the same measure as the thoughts, feelings and actions of men are shaped by the technical requirements of the apparatus which they have themselves created. Reason has found its resting place in the system of standardized control, production and consumption. There it reigns through the laws and mechanisms which insure the efficiency, expediency and coherence of this system.

As the laws and mechanisms of technological rationality spread over the whole society, they develop a set of truth values of their own which hold good for the functioning of the apparatus—and for that alone. Propositions concerning competitive or collusive behavior, business methods, principles of effective organization and control, fair play, the use of science and technics are true or false in terms of this value system, that is to say, in terms of instrumentalities that dictate their own ends. These truth values are tested and perpetuated by experience and must guide the thoughts and actions of all who wish to survive. Rationality here calls for unconditional compliance and coordination, and consequently, the truth values related to this rationality imply the subordination of thought to pre-given external standards. We may call this set of truth values the technological truth, technological in the twofold sense that it is an instrument of expediency rather than an end in itself, and that it follows the pattern of technological behavior.

By virtue of its subordination to external standards, the technological truth comes into striking contradiction with the form in which individualistic society had established its supreme values. The pursuit of self-interest now appears to be conditioned upon heteronomy, and autonomy as an obstacle rather than stimulus for rational action. The originally identical

and "homogenous" truth seems to be split into two different sets of truth values and two different patterns of behavior: the one assimilated to the apparatus, the other antagonistic to it; the one making up the prevailing technological rationality and governing the behavior required by it, the other pertaining to a critical rationality whose values can be fulfilled only if it has itself shaped all personal and social relationships. The critical rationality derives from the principles of autonomy which individualistic society itself had declared to be its self-evident truths. Measuring these principles against the form in which individualistic society has actualized them, critical rationality accuses social injustice in the name of individualistic society's own ideology.<sup>17</sup> The relationship between technological and critical truth is a difficult problem which cannot be dealt with here, but two points must be mentioned. (1) The two sets of truth values are neither wholly contradictory nor complementary to each other; many truths of technological rationality are preserved or transformed in critical rationality. (2) The distinction between the two sets is not rigid; the content of each set changes in the social process so that what were once critical truth values become technological values. For example, the proposition that every individual is equipped with certain inalienable rights is a critical proposition but it was frequently interpreted in favor of efficiency and concentration of power.<sup>18</sup>

The standardization of thought under the sway of technological rationality also affects the critical truth values. The latter are torn from the context to which they originally belonged and, in their new form, are given wide, even official publicity. For example, propositions which, in Europe, were the exclusive domain of the labor movement are today adopted by the very forces which these propositions denounced. In the fascist countries, they serve as ideological instruments for the attack on "Jewish capitalism" and "Western plutocracy," thereby concealing the actual front in the struggle. The materialistic analysis of present-day economy is employed to justify fascism to the German industrialists in whose interest it operates, as the regime of last resort for imperialistic expansion.<sup>19</sup> In other countries, the critique of political economy functions in the struggle among conflicting business groups and as governmental weapon for unmasking monopolistic practices; it is propagated by the columnists of the big press syndicates and finds its way even into the popular magazines and the addresses to manufacturers associations. As these propositions become part and parcel of the established culture, however, they seem to lose their edge and to merge with the old and the familiar. This familiarity with the truth illuminates the extent to which society has become indifferent and insusceptible to the impact of critical thought. For the categories of critical thought preserve their truth value only if they direct the full realization of the social potentialities which they envision, and they lose their vigor if they determine an attitude of fatalistic compliance or competitive assimilation.

Several influences have conspired to bring about the social impotence of critical thought. The foremost among them is the growth of the industrial apparatus and of its all-embracing control over all spheres of life. The technological rationality inculcated in those who attend to this apparatus has transformed numerous modes of external compulsion and authority into modes of self-discipline and self-control. Safety and order are, to a large extent, guaranteed by the fact that man has learned to adjust his behavior to the other fellow's down to the most minute detail. All men act equally rationally, that is to say, according to the standards which insure the functioning of the apparatus and thereby the maintenance of their own life. But this "introversion" of compulsion and authority has strengthened rather than attenuated the mechanisms of social control. Men, in following their own reason, follow those who put their reason to profitable use. In Europe, these mechanisms helped to prevent the individual from acting in accordance with the conspicuous truth, and they were efficiently supplemented by

the physical control mechanisms of the apparatus. At this point, the otherwise diverging interests and their agencies are synchronized and adjusted in such a manner that they efficiently counteract any serious threat to their dominion.

The ever growing strength of the apparatus, however, is not the only influence responsible. The social impotence of critical thought has been further facilitated by the fact that important strata of the opposition have for long been incorporated into the apparatus itself—without losing the title of the opposition. The history of this process is well known and is illustrated in the development of the labor movement. Shortly after the first World War, Veblen declared that “the A.F. of L. is itself one of the Vested Interests, as ready as any other to do battle for its own margin of privilege and profit. . . . The A.F. of L. is a business organization with a vested interest of its own; for keeping up prices and keeping down the supply, quite after the usual fashion of management by the other Vested Interests.”<sup>20</sup> The same holds true for the labor bureaucracy in leading European countries. The question here pertains not to the political expediency and the consequences of such a development, but to the changing function of the truth values which labor had represented and carried forward.

These truth values belonged, to a large extent, to the critical rationality which interpreted the social process in terms of its restrained potentialities. Such a rationality can fully develop only in social groups whose organization is not patterned on the apparatus in its prevailing forms or on its agencies and institutions. For the latter are pervaded by the technological rationality which shapes the attitude and interests of those dependent on them, so that all transcending aims and values are cut off. A harmony prevails between the “spirit” and its material embodiment such that the spirit cannot be supplanted without disrupting the functioning of the whole. The critical truth values borne by an oppositional social movement change their significance when this movement incorporates itself into the apparatus. Ideas such as liberty, productive industry, planned economy, satisfaction of needs are then fused with the interests of control and competition. Tangible organizational success thus outweighs the exigencies of critical rationality.

Its tendency to assimilate itself to the organizational and psychological pattern of the apparatus caused a change in the very structure of the social opposition in Europe. The critical rationality of its aims was subordinated to the technological rationality of its organization and thereby “purged” of the elements which transcended the established pattern of thought and action. This process was the apparently inevitable result of the growth of large-scale industry and of its army of dependents. The latter could hope effectively to assert their interests only if these were effectively coordinated in large-scale organizations. The oppositional groups were being transformed into mass parties, and their leadership into mass bureaucracies. This transformation, however, far from dissolving the structure of individualistic society into a new system, sustained and strengthened its basic tendencies.

It seems to be self-evident that mass and individual are contradictory concepts and incompatible facts. The crowd “is, to be sure, composed of individuals—but of individuals who cease to be isolated, who cease thinking. The isolated individual within the crowd cannot help thinking, criticizing the emotions. The others, on the other hand, cease to think: they are moved, they are carried away, they are elated; they feel united with their fellow members in the crowd, released from all inhibitions; they are changed and feel no connection with their former state of mind.”<sup>21</sup> This analysis, although it correctly describes certain features of the masses, contains one wrong assumption, that in the crowd the individuals “cease to be isolated,” are changed and “feel no connection with their former state of mind.” Under authoritarianism, the function of the masses rather consists in consummating the isolation of the



individual and in realizing his "former state of mind." The crowd is an association of individuals who have been stripped of all "natural" and personal distinctions and reduced to the standardized expression of their abstract individuality, namely, the pursuit of self-interest. As member of a crowd, man has become the standardized subject of brute self-preservation. In the crowd, the restraint placed by society upon the competitive pursuit of self-interest tends to become ineffective and aggressive impulses are easily released. These impulses have been developed under the exigencies of scarcity and frustration, and their release rather accentuates the "former state of mind." True, the crowd "unites," but it unites the atomic subjects of self-preservation who are detached from everything that transcends their selfish interests and impulses. The crowd is thus the antithesis of the "community," and the perverted realization of individuality.

The weight and import of the masses grow with the growth of rationalization, but at the same time they are transformed into a conservative force which itself perpetuates the existence of the apparatus. As there is a decrease in the number of those who have the freedom of individual performance, there is an increase in the number of those whose individuality is reduced to self-preservation by standardization. They can pursue their self-interest only by developing "dependable reaction patterns" and by performing pre-arranged functions. Even the highly differentiated professional requirements of modern industry promote standardization. Vocational training is chiefly training in various kinds of skill, psychological and physiological adaptation to a "job" which has to be done. The job, a pre-given "type of work . . . requires a particular combination of abilities,"<sup>22</sup> and those who create the job also shape the human material to fill it. The abilities developed by such training make the "personality" a means for attaining ends which perpetuate man's existence as an instrumentality, replaceable at short notice by other instrumentalities of the same brand. The psychological and "personal" aspects of vocational training are the more emphasized the more they are subjected to regimentation and the less they are left to free and complete development. The "human side" of the employee and the concern for his personal aptitudes and habits play an important part in the total mobilization of the private sphere for mass production and mass culture. Psychology and individualization serve to consolidate stereotyped dependability, for they give the human object the feeling that he unfolds himself by discharging functions which dissolve his self into a series of required actions and responses. Within this range, individuality is not only preserved but also fostered and rewarded, but such individuality is only the special form in which a man introcepts and discharges, within a general pattern, certain duties allocated to him. Specialization fixates the prevailing scheme of standardization. Almost everyone has become a potential member of the crowd, and the masses belong to the daily implements of the social process. As such, they can easily be handled, for the thoughts, feelings and interests of their members have been assimilated to the pattern of the apparatus. To be sure, their outbursts are terrifying and violent but these are readily directed against the weaker competitors and the conspicuous "outsiders" (Jews, foreigners, national minorities). The coordinated masses do not crave a new order but a larger share in the prevailing one. Through their action, they strive to rectify, in an anarchic way, the injustice of competition. Their uniformity is in the competitive self-interest they all manifest, in the equalized expressions of self-preservation. The members of the masses are individuals.

The individual in the crowd is certainly not the one whom the individualist principle exhorted to develop his self, nor is his self-interest the same as the rational interest urged by this principle. Where the daily social performance of the individual has become antagonistic to his "true interest," the individualist principle has changed its meaning. The protagonists of

individualism were aware of the fact that "individuals can be developed only by being trusted with somewhat more than they can, at the moment, do well";<sup>23</sup> today, the individual is trusted with precisely what he can, at the moment, do well. The philosophy of individualism has seen the "essential freedom" of the self to be "that it stands for a fateful moment outside of all belongings, and determines for itself alone whether its primary attachments shall be with actual earthly interests or with those of an ideal and potential 'Kingdom of God.'"<sup>24</sup> This ideal and potential kingdom has been defined in different ways, but it has always been characterized by contents which were opposed and transcendent to the prevailing kingdom. Today, the prevailing type of individual is no longer capable of seizing the fateful moment which constitutes his freedom. He has changed his function; from a unit of resistance and autonomy, he has passed to one of ductility and adjustment. It is this function which associates individuals in masses.

The emergence of the modern masses, far from endangering the efficiency and coherence of the apparatus, has facilitated the progressing coordination of society and the growth of authoritarian bureaucracy, thus refuting the social theory of individualism at a decisive point. The technological process seemed to tend to the conquest of scarcity and thus to the slow transformation of competition into cooperation. The philosophy of individualism viewed this process as the gradual differentiation and liberation of human potentialities, as the abolition of the "crowd." Even in the Marxian conception, the masses are not the spearhead of freedom. The Marxian proletariat is not a crowd but a class, defined by its determinate position in the productive process, the maturity of its "consciousness," and the rationality of its common interest. Critical rationality, in the most accentuated form, is the prerequisite for its liberating function. In one aspect at least, this conception is in line with the philosophy of individualism: it envisions the rational form of human association as brought about and sustained by the autonomous decision and action of free men.

This is the one point at which the technological and the critical rationality seem to converge, for the technological process implies a democratization of functions. The system of production and distribution has been rationalized to such an extent that the hierarchical distinction between executive and subordinate performances is to an ever smaller degree based upon essential distinctions in aptitude and insight, and to an ever greater degree upon inherited power and a vocational training to which everyone could be subjected. Even experts and "engineers" are no exception. To be sure, the gap between the underlying population and those who design the blueprints for rationalization, who lay out production, who make the inventions and discoveries which accelerate technological progress, becomes daily more conspicuous, particularly in a period of war economy. At the same time, however, this gap is maintained more by the division of power than by the division of work. The hierarchical distinction of the experts and engineers results from the fact that their ability and knowledge is utilized in the interest of autocratic power. The "technological leader" is also a "social leader"; his "social leadership overshadows and conditions his function as a scientist, for it gives him institutional power within the group . . .," and the "captain of industry" acts in "perfect accordance with the traditional dependence of the expert's function."<sup>25</sup> Were it not for this fact, the task of the expert and engineer would not be an obstacle to the general democratization of functions. Technological rationalization has created a common framework of experience for the various professions and occupations. This experience excludes or restrains those elements that transcend the technical control over matters of fact and thus extends the scope of rationalization from the objective to the subjective world. Underneath the complicated web of stratified control is an array of more or less standardized techniques, tending to one general pattern, which

insure the material reproduction of society. The "persons engaged in a practical occupation" seem to be convinced that "any situation which appears in the performance of their role can be fitted into some general pattern with which the best, if not all, of them are familiar."<sup>26</sup> Moreover, the instrumentalistic conception of technological rationality is spreading over almost the whole realm of thought and gives the various intellectual activities a common denominator. They too become a kind of technique,<sup>27</sup> a matter of training rather than individuality, requiring the expert rather than the complete human personality.

The standardization of production and consumption, the mechanization of labor, the improved facilities of transportation and communication, the extension of training, the general dissemination of knowledge—all these factors seem to facilitate the exchangeability of functions. It is as if the basis were shrinking on which the pervasive distinction between "specialized (technical)" and "common" knowledge<sup>28</sup> has been built, and as if the authoritarian control of functions would prove increasingly foreign to the technological process. The special form, however, in which the technological process is organized, counteracts this trend. The same development that created the modern masses as the standardized attendants and dependents of large-scale industry also created the hierarchical organization of private bureaucracies. Max Weber has already stressed the connection between mass-democracy and bureaucracy: "In contrast to the democratic self-administration of small homogeneous units," the bureaucracy is "the universal concomitant of modern mass democracy."<sup>29</sup>

The bureaucracy becomes the concomitant of the modern masses by virtue of the fact that standardization proceeds along the lines of specialization. The latter by itself, provided that it is not arrested at the point where it interferes with the domain of vested control, is quite compatible with the democratization of functions. Fixated specialization, however, tends to atomize the masses and to insulate the subordinate from the executive functions. We have mentioned that specialized vocational training implies fitting a man to a particular job or a particular line of jobs, thus directing his "personality," spontaneity and experience to the special situations he may meet in filling the job. In this manner, the various professions and occupations, notwithstanding their convergence upon one general pattern, tend to become atomic units which require coordination and management from above. The technical democratization of functions is counteracted by their atomization, and the bureaucracy appears as the agency which guarantees their rational course and order.

The bureaucracy thus emerges on an apparently objective and impersonal ground, provided by the rational specialization of functions, and this rationality in turn serves to increase the rationality of submission. For, the more the individual functions are divided, fixated and synchronized according to objective and impersonal patterns, the less reasonable is it for the individual to withdraw or withstand. "The material fate of the masses becomes increasingly dependent upon the continuous and correct functioning of the increasingly bureaucratic order of private capitalistic organizations."<sup>30</sup> The objective and impersonal character of technological rationality bestows upon the bureaucratic groups the universal dignity of reason. The rationality embodied in the giant enterprises makes it appear as if men, in obeying them, obey the dictum of an objective rationality. The private bureaucracy fosters a delusive harmony between the special and the common interest. Private power relationships appear not only as relationships between objective things but also as the rule of rationality itself.

In the fascist countries, this mechanism facilitated the merger between private, semi-private (party) and public (governmental) bureaucracies. The efficient realization of the interests of large-scale enterprise was one of the strongest motives for the transformation of economic into totalitarian political control, and efficiency is one of the main reasons for the fascist

regime's hold over its regimented population. At the same time, however, it is also the force which may break this hold. Fascism can maintain its rule only by aggravating the restraint which it is compelled to impose upon society. It will ever more conspicuously manifest its inability to develop the productive forces, and it will fall before that power which proves to be more efficient than fascism.

In the democratic countries, the growth of the private bureaucracy can be balanced by the strengthening of the public bureaucracy. The rationality inherent in the specialization of functions tends to enlarge the scope and weight of bureaucratization. In the private bureaucracy, however, such an expansion will intensify rather than alleviate the irrational elements of the social process, for it will widen the discrepancy between the technical character of the division of functions and the autocratic character of control over them. In contrast, the public bureaucracy, if democratically constituted and controlled, will overcome this discrepancy to the extent that it undertakes the "conservation of those human and material resources which technology and corporations have tended to misuse and waste."<sup>31</sup> In the age of mass society, the power of the public bureaucracy can be the weapon which protects the people from the encroachment of special interests upon the general welfare. As long as the will of the people can effectively assert itself, the public bureaucracy can be a lever of democratization. Large-scale industry tends to organize on a national scale, and fascism has transformed economic expansion into the military conquest of whole continents. In this situation, the restoration of society to its own right, and the maintenance of individual freedom have become directly political questions, their solution depending upon the outcome of the international struggle.

The social character of bureaucratization is largely determined by the extent to which it allows for a democratization of functions that tends to close the gap between the governing bureaucracy and the governed population. If everyone has become a potential member of the public bureaucracy (as he has become a potential member of the masses), society will have passed from the stage of hierarchical bureaucratization to the stage of technical self-administration. Insofar as technocracy implies a deepening of the gap between specialized and common knowledge, between the controlling and coordinating experts and the controlled and coordinated people, the technocratic abolition of the "price system" would stabilize rather than shatter the forces which stand in the way of progress. The same holds true for the so-called managerial revolution. According to the theory of the managerial revolution,<sup>32</sup> the growth of the apparatus entails the rise of a new social class, the "managers," to take over social domination and to establish a new economic and political order. Nobody will deny the increasing importance of management and the simultaneous shift in the function of control. But these facts do not make the managers a new social class or the spearhead of a revolution. Their "source of income" is the same as that of the already existing classes: they either draw salaries, or, insofar as they possess a share in the capital, are themselves capitalists. Moreover, their specific function in the prevailing division of labor does not warrant the expectation that they are predestined to inaugurate a new and more rational division of labor. This function is either determined by the requirement of profitable utilization of capital, and, in this case, the managers are simply capitalists or deputy-capitalists (comprising the "executives" and the corporation-managers<sup>33</sup>); or it is determined by the material process of production (engineers, technicians, production managers, plant superintendents). In the latter case, the managers would belong to the vast army of the "immediate producers" and share its "class interest," were it not for the fact that, even in this function, they work as deputy-capitalists and thus form a segregated and privileged group between capital and labor. Their power, and the awe which it inspires, are derived not from their actual "technological" performance but from their social

position, and this they owe to the prevailing organization of production. "The leading managerial and directorial figures within the inner business sancta . . . are drawn from, or have been absorbed into, the upper layers of wealth and income whose stakes it is their function to defend."<sup>34</sup> To sum up, as a separate social group, the managers are thoroughly tied up with the vested interests, and as performers of necessary productive functions they do not constitute a separate "class" at all.

The spreading hierarchy of large-scale enterprise and the precipitation of individuals into masses determine the trends of technological rationality today. What results is the mature form of that individualistic rationality which characterized the free economic subject of the industrial revolution. Individualistic rationality was born as a critical and oppositional attitude that derived freedom of action from the unrestricted liberty of thought and conscience and measured all social standards and relations by the individual's rational self-interest. It grew into the rationality of competition in which the rational interest was superseded by the interest of the market, and individual achievement absorbed by efficiency. It ended with standardized submission to the all-embracing apparatus which it had itself created. This apparatus is the embodiment and resting place of individualistic rationality, but the latter now requires that individuality must go. He is rational who most efficiently accepts and executes what is allocated to him, who entrusts his fate to the large-scale enterprises and organizations which administer the apparatus.

Such was the logical outcome of a social process which measured individual performance in terms of competitive efficiency. The philosophers of individualism have always had an inkling of this outcome and they expressed their anxiety in many different forms, in the skeptical conformism of Hume, in the idealistic introversion of individual freedom, in the frequent attacks of the Transcendentalists against the rule of money and power. But the social forces were stronger than the philosophic protests, and the philosophic justification of individualism took on more and more of the overtones of resignation. Toward the end of the nineteenth century, the idea of the individual became increasingly ambiguous: it combined insistence upon free social performance and competitive efficiency with glorification of smallness, privacy and self-limitation. The rights and liberties of the individual in society were interpreted as the rights and liberties of privacy and withdrawal from society. William James, faithful to the individualistic principle, asserted that, in the "rivalry between real organizable goods," the "world's trial is better than the closest solution," provided that the victorious keep "the vanquished somehow represented."<sup>35</sup> His doubt, however, as to whether this trial is really a fair one seems to motivate his hatred of "bigness and greatness in all their forms,"<sup>36</sup> his declaration that "the smaller and more intimate is the truer,—the man more than the home, the home more than the state or the church."<sup>37</sup> The counterposition of individual and society, originally meant to provide the ground for a militant reformation of society in the interest of the individual, comes to prepare and justify the individual's withdrawal from society. The free and self-reliant "soul," which originally nourished the individual's critique of external authority, now becomes a refuge from external authority. Tocqueville had already defined individualism in terms of acquiescence and peaceful resignation: "a mature and calm feeling, which disposes each member of the community to sever himself from the mass of his fellow-creatures; and to draw apart with his family and his friends; so that, after he has thus formed a little circle of his own, he willingly leaves society at large to itself."<sup>38</sup> Autonomy of the individual came to be regarded as a private rather than a public affair, an element of retreat rather than aggression. All these factors of resignation are comprehended in Benjamin Constant's statement that "our liberty should be composed of the peaceful enjoyment of private independence."<sup>39</sup>

The elements of restraint and resignation which became increasingly strong in the individualist philosophy of the nineteenth century elucidate the connection between individualism and scarcity. Individualism is the form liberty assumes in a society wherein the acquisition and utilization of wealth is dependent on competitive toil. Individuality is a distinct possession of "pioneers"; it presupposes the open and empty spaces, the freedom of "hewing out a home" as well as the need to do so. The individual's world is a "world of labor and the march," as Walt Whitman says, one in which the available intellectual and material resources must be conquered and appropriated through incessant struggle with man and nature, and in which human forces are released to distribute and administer scarcity.

In the period of large-scale industry, however, the existential conditions making for individuality give way to conditions which render individuality unnecessary. In clearing the ground for the conquest of scarcity, the technological process not only levels individuality but also tends to transcend it where it is concurrent with scarcity. Mechanized mass production is filling the empty spaces in which individuality could assert itself. The cultural standardization points, paradoxically enough, to potential abundance as well as actual poverty. This standardization may indicate the extent to which individual creativeness and originality have been rendered unnecessary. With the decline of the liberalistic era, these qualities were vanishing from the domain of material production and becoming the ever more exclusive property of the highest intellectual activities. Now, they seem to disappear from this sphere too: mass culture is dissolving the traditional forms of art, literature and philosophy together with the "personality" which unfolded itself in producing and consuming them. The striking impoverishment which characterizes the dissolution of these forms may involve a new source of enrichment. They derived their truth from the fact that they represented the potentialities of man and nature which were excluded or distorted in the reality. So far were those potentialities from their actualization in the social consciousness that much cried out for unique expression. But today, *humanitas*, wisdom, beauty, freedom and happiness can no longer be represented as the realm of the "harmonious personality" nor as the remote heaven of art nor as metaphysical systems. The "ideal" has become so concrete and so universal that it grips the life of every human being, and the whole of mankind is drawn into the struggle for its realization. Under the terror that now threatens the world the ideal constricts itself to one single and at the same time common issue. Faced with fascist barbarism, everyone knows what freedom means, and everyone is aware of the irrationality in the prevailing rationality.

Modern mass society quantifies the qualitative features of individual labor and standardizes the individualistic elements in the activities of intellectual culture. This process may bring to the fore the tendencies which make individuality a historical form of human existence, to be surpassed by further social development. This does not mean that society is bound to enter a stage of "collectivism." The collectivistic traits which characterize the development today may still belong to the phase of individualism. Masses and mass culture are manifestations of scarcity and frustration, and the authoritarian assertion of the common interest is but another form of the rule of particular interests over the whole. The fallacy of collectivism consists in that it equips the whole (society) with the traditional properties of the individual. Collectivism abolishes the free pursuit of competing individual interests but retains the idea of the common interest as a separate entity. Historically, however, the latter is but the counterpart of the former. Men experience their society as the objective embodiment of the collectivity as long as the individual interests are antagonistic to and competing with each other for a share in the social wealth. To such individuals, society appears as an objective entity, consisting of numerous things, institutions and agencies: plants and shops, business, police and law, government,

schools and churches, prisons and hospitals, theaters and organizations, etc. Society is almost everything the individual is not, everything that determines his habits, thoughts and behavior patterns, that affects him from "outside." Accordingly, society is noticed chiefly as a power of restraint and control, providing the framework which integrates the goals, faculties and aspirations of men. It is this power which collectivism retains in its picture of society, thus perpetuating the rule of things and men over men.

The technological process itself furnishes no justification for such a collectivism. Technics hamper individual development only insofar as they are tied to a social apparatus which perpetuates scarcity, and this same apparatus has released forces which may shatter the special historical form in which technics is utilized. For this reason, all programs of an anti-technological character, all propaganda for an anti-industrial revolution<sup>40</sup> serve only those who regard human needs as a by-product of the utilization of technics. The enemies of technics readily join forces with a terroristic technocracy.<sup>41</sup> The philosophy of the simple life, the struggle against big cities and their culture frequently serves to teach men distrust of the potential instruments that could liberate them. We have pointed to the possible democratization of functions which technics may promote and which may facilitate complete human development in all branches of work and administration. Moreover, mechanization and standardization may one day help to shift the center of gravity from the necessities of material production to the arena of free human realization. The less individuality is required to assert itself in standardized social performances, the more it could retreat to a free "natural" ground. These tendencies, far from engendering collectivism, may lead to new forms of individualization. The machine individualizes men by following the physiological lines of individuality: it allocates the work to finger, hand, arm, foot, classifying and occupying men according to the dexterity of these organs.<sup>42</sup> The external mechanisms which govern standardization here meet a "natural" individuality; they lay bare the ground on which a hitherto suppressed individualization might develop. On this ground, man is an individual by virtue of the uniqueness of his body and its unique position in the space-time continuum. He is an individual insofar as this natural uniqueness molds his thoughts, instincts, emotions, passions and desires. This is the "natural" *principium individuationis*. Under the system of scarcity, men developed their senses and organs chiefly as implements of labor and competitive orientation: skill, taste, proficiency, tact, refinement and endurance were qualities molded and perpetuated by the hard struggle for life, business and power. Consequently, man's thoughts, appetites and the ways of their fulfillment were not "his;" they showed the oppressive and inhibitive features which this struggle imposed upon him. His senses, organs and appetites became acquisitive, exclusive and antagonistic. The technological process has reduced the variety of individual qualities down to this natural basis of individualization, but this same basis may become the foundation for a new form of human development.

The philosophy of individualism established an intrinsic connection between individuality and property.<sup>43</sup> According to this philosophy, man could not develop a self without conquering and cultivating a domain of his own, to be shaped exclusively by his free will and reason. The domain thus conquered and cultivated had become part and parcel of his own "nature." Man removed the objects in this domain from the state in which he found them, and made them the tangible manifestation of his individual labor and interest. They were his property because they were fused with the very essence of his personality. This construction did not correspond to the facts and lost its meaning in the era of mechanized commodity production, but it contained the truth that individual development, far from being an inner value only, required an external sphere of manifestation and an autonomous concern for men and things.

The process of production has long dissolved the link between individual labor and property and now tends to dissolve the link between the traditional form of property and social control, but the tightening of this control counteracts a tendency which may give the individualistic theory a new content. Technological progress would make it possible to decrease the time and energy spent in the production of the necessities of life, and a gradual reduction of scarcity and abolition of competitive pursuits could permit the self to develop from its natural roots. The less time and energy man has to expend in maintaining his life and that of society, the greater the possibility that he can "individualize" the sphere of his human realization. Beyond the realm of necessity, the essential differences between men could unfold themselves: everyone could think and act by himself, speak his own language, have his own emotions and follow his own passions. No longer chained to competitive efficiency, the self could grow in the realm of satisfaction. Man could come into his own in his passions. The objects of his desires would be the less exchangeable the more they were seized and shaped by his free self. They would "belong" to him more than ever before, and such ownership would not be injurious, for it would not have to defend its own against a hostile society.

Such a Utopia would not be a state of perennial happiness. The "natural" individuality of man is also the source of his natural sorrow. If the human relations are nothing but human, if they are freed from all foreign standards, they will be permeated with the sadness of their singular content. They are transitory and irreplaceable, and their transitory character will be accentuated when concern for the human being is no longer mingled with fear for his material existence and overshadowed by the threat of poverty, hunger, and ostracism.

The conflicts, however, which may arise from the natural individuality of men may not bear the violent and aggressive features which were so frequently attributed to the "state of nature." These features may be the marks of coercion and privation. "Appetite is never excessive, never furious, save when it has been starved. The frantic hunger we see it so often exhibiting under every variety of criminal form, marks only the hideous starvation to which society subjects it. It is not a normal but a morbid state of the appetite, growing exclusively out of the unnatural compression which is imposed upon it by the exigencies of our immature society. Every appetite and passion of man's nature is good and beautiful, and destined to be fully enjoyed. . . . Remove, then, the existing bondage of humanity, remove those factitious restraints which keep appetite and passion on the perpetual lookout for escape, like steam from an over-charged boiler, and their force would instantly become conservative instead of destructive."<sup>4</sup>

#### NOTES

1. Cf. Lewis Mumford, *Technics and Civilization*, New York 1936, p. 364: The motive in back of "mechanical discipline and many of the primary inventions . . . was not technical efficiency but holiness, or power over other men. In the course of their development machines have extended these aims and provided a vehicle for their fulfillment."

2. Cf. A. R. L. Gurland, "Technological Trends and Economic Structure under National Socialism," in *Studies in Philosophy and Social Science*, IX (1941), No. 2, pp. 226ff.

3. Areopagitica.

4. *Temporary National Committee*, Monograph No. 22, "Technology in Our Economy," Washington, 1941, p. 195.

5. *Temporary National Economic Committee, Final Report of the Executive Secretary*, Washington 1941, p. 140.



6. The term "apparatus" denotes the institutions, devices and organizations of industry in their prevailing social setting
7. L. Mumford, *op. cit.*, pp. 361ff.
8. *The Instinct of Workmanship*, New York, 1922, p. 306f.
9. *Ibid.*, p. 310. This training in "matter of factness" applies not only to the factory worker but also to those who direct rather than attend the machine.
10. Florian Znaniecki, *The Social Role of the Man of Knowledge*, New York 1940, p. 54f. Bernard J. Stern, *Society and Medical Progress*, Princeton 1941, Chapter IX, and the same author's contribution to *Technological Trends and National Policy*, U. S. National Resources Committee, Washington 1937.
11. Thorstein Veblen, *op. cit.*, p. 315f.
12. Thurmarn Arnold, *The Folklore of Capitalism*, New York 1941, p. 193f.
13. Thorstein Veblen, *op. cit.*, p. 314.
14. Albert Walton, *Fundamentals of Industrial Psychology*, New York 1941, p. 24.
15. Robert F. Hoxie, *Scientific Management and Labor*, New York 1916, p. 140f.
16. *Ibid.*, p. 149.
17. Cf. Max Horkheimer and Herbert Marcuse, "Traditionelle und kritische Theorie," in *Zeitschrift für Sozialforschung*, VI (1937), pp. 245ff
18. Cf. the discussion on the law Le Chapelier in the National Assembly of the French Revolution.
19. Hitler's speech before the Industry Club in Düsseldorf, January 27, 1932, in *My New Order*, New York 1941, pp. 93ff.
20. *The Engineers and The Price System*, New York 1940, pp. 88ff.
21. E. Lederer, *State of the Masses*, New York 1940, p. 32f.
22. Albert Walton, *op. cit.*, p. 27.
23. W. E. Hocking, *The Lasting Elements of Individualism*, New Haven 1937, p. 5
24. *Ibid.*, p. 23
25. Florian Znaniecki, *op. cit.*, pp. 40, 55
26. *Op. cit.*, p. 31—Znaniecki's description refers to a historical state of affairs in which "no demand for a scientist can arise," but it appears to refer to a basic tendency of the prevailing state of affairs
27. Cf. Max Horkheimer, "The End of Reason," above.
28. Florian Znaniecki, *op. cit.*, p. 25
29. *Wirtschaft und Gesellschaft*. Tübingen 1922, p. 666.
30. Max Weber, *op. cit.*, p. 669
31. Henry A. Wallace, *Technology, Corporations, and the General Welfare*, Chapel Hill 1937, p. 56.
32. J. Burnham, *The Managerial Revolution*, New York 1941, pp. 78ff.
33. *Ibid.*, p. 83f.
34. Robert A. Brady, "Policies of National Manufacturing Spitzenverbände," in *Political Science Quarterly*, LVI, p. 537.
35. *The Thought and Character of William James*, ed. R. B. Perry, Boston 1935, II, p. 265.
36. *Ibid.*, p. 315
37. *Ibid.*, p. 383.
38. *Democracy in America*. trans. H. Reeve, New York 1904, p. 584.
39. Quoted in E. Mims, *The Majority of the People*, New York 1941, p. 152.
40. See for example Oswald Spengler, *Man and Technics*, New York 1932, p. 96f., and Roy Helton, "The Anti-Industrial Revolution," in *Harpers*, December 1941, pp. 65ff.
41. In National Socialist Germany, the ideology of blood and soil and the glorification of the peasant is an integral part of the imperialistic mobilization of industry and labor.
42. For examples of the degree to which this physiological individualization has been utilized see *Changes in Machinery and Job Requirements in Minnesota Manufacturing 1931-36*. Works Projects Administration, National Research Project, Report No. 1-6. Philadelphia, p. 19.
43. See Max Horkheimer, "The End of Reason," above
44. Henry James, "Democracy and Its Issues," in *Lectures and Miscellanies*, New York 1852, p. 47f.