THE NEMESIS OF AMERICAN BUSINESS

STUART CHASE

1st edition

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H. F. Moore

THE NEMESIS OF AMERICAN BUSINESS

BY

STUART CHASE

THE TRAGEDY OF WASTE

MEN AND MACHINES

THE NEMESIS OF AMERICAN BUSINESS

And in Collaboration with

F. J. SCHLINK

YOUR MONEY'S WORTH

THE NEMESIS OF AMERICAN BUSINESS

AND OTHER ESSAYS

BY
STUART CHASE

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THE NEMESIS OF AMERICAN BUSINESS

I

THE NEMESIS OF AMERICAN BUSINESS

NOT long ago I returned from Mexico. The taxi from the Pennsylvania Station landed us, about seven o'clock in the morning, in front of an apartment house in the east thirties in New York. We rubbed our eyes. How were we to get into the apartment? For the whole length of the block a solid phalanx of men, six abreast, filled the sidewalk from house wall to gutter. Like a great python, the line curved around the corner of Madison Avenue and, like an act of creation under the microscope of a biologist, cells of humanity from every direction were coagulating into its tail as it twisted and swelled toward Fifth Avenue. A policeman, gently enough, tore a breach through the line. With suit cases bulging with the serapes of Taxco and the pottery of Puebla, we made our astonished way between the files of stolid, battered men, and up the stairs.

We had come from one of the poorest of lands to the richest under the sun. But among the Aztec villages we found no unemployment and no visible economic suffering, while here on the sidewalk of the Queen City of the Republic, where, it is alleged, thirty mechanical slaves are equipped to serve the needs of every man, woman, and child, were fifteen

hundred men without work and without food. For hours they will stand here (one has just swayed and collapsed) until to a thousand of them are given tickets, entitling the holder to tramp some miles to the south, and there hours later receive twenty cents' worth of food.

We have the mechanical slaves truly enough, and this bread line is part of the price that we pay for them. A bitter paradox. To hold, as some do, that any worthy man can secure a job if he only applies himself diligently enough is to be guilty of a total, and almost criminal, misconception of the course of the industrial revolution. Let me sketch for you if I can a rough parallel.

In the outlying villages of the central plateau of Mexico I found an almost pure pre-machine culture. Nor was it by any means a neolithic one. Behind it lay the tradition of a very great and noble civilization—that of the Aztecs and the Toltecs who reared their incredible white cities and stupendous pyramids and temples a thousand years ago. Much of that culture remains intact in the Indian of to-day, bent but not broken by the marchings of Spanish conquerors and of revolutionary armies. A group of these villages will comprise an almost completely self-sustaining unit. Houses are built of local materials, clothing is often home grown and spun, food comes from the neighboring fields and groves, recreation is a local product in which all participate, while over the whole economic process broods a spirit of authentic

craftsmanship giving rise to some of the loveliest pottery, glasswork, masonry, weaving which the world knows. Nobody has much; a bad harvest may cause real suffering; you and I would be profoundly uncomfortable adjusting our bathroom-steam-heat-butter-plate complexes to actual living in one of these villages; but there is enough to go around, in the basic biological sense of the term, leisure to enjoy life, economic independence within the exigencies of climate and food supply, while unemployment is as rare as a Freudian neurosis. Indeed, unemployment is a meaningless term in a self-sustaining pre-machine community. In the fields, in the forests, about the house there is always work to be done.

Now let us perform a drastic and—mindful of these kindly Indians—a somewhat ghastly, surgical operation. Let us graft upon this community the technic which James Watt set in motion when he solved the problem of the steam engine a century and a half ago. Invested capital comes sweeping into the country and, with it, interest, profits, and wages. Corporations spring like mushrooms. A lumber company takes over the forest and fuel supply. Contractors undertake the building of houses. Mining concerns exploit the silver, copper, and gold of the surrounding mountains. Factories proceed to the manufacture of textiles, agricultural implements, boots and shoes. Serapes and sombreros go into mass production. Banks open their Doric doorways. High-pressure men make the round of the cabins,

their portfolios bulging with instalment contracts. Radios blare, motor horns grunt, saxophones croon, while down from the mountains two hundred miles away loops a slender wire which one stroke of a machete might sever, pumping the life blood of power and light. Self-sufficiency lies in ruins; the region is clamped into the world machine, drawing its supplies of physical goods from the five continents, its supplies of credit from New York and London.

The Indians will have a higher standard of living: more things—and a perplexing amount of new kinds of trouble. They cease to direct their own economic destinies and go to work for a boss. Money wages supplant their direct means of subsistence. From diversification they turn to specialization; from cottage craftsmanship to work on the assembly line, or in the machine shop. To eat they must punch a time clock and buy at the Arctic and Antarctic store. Without a job they must fall back upon charity—or indeed upon the grave. And unless the transformation here described is directed by a coördinating intelligence hitherto unknown, morning after bitter morning they will awake to find themselves without a job. And for a great variety of reasons.

A badly managed silver mine fails, disgorging a thousand workers. Large profits have been made by a concern manufacturing serapes; almost immediately a dozen new mills have invaded the field,

competition for weavers has been brisk, wages are good. Suddenly the serape market is saturated; prices drop, the old mill and half the new ones shut their doors. Another thousand on the street. A panic seizes the stock market in New York, followed by a business depression. American buyers are marking time, imports decline; presently Mexican glass and pottery factories must put their forces on two days a week. The world price of copper takes a slump. Three mines up in the hills give notice to all but the pump men. A new loom room is set up in a cotton factory. Four women can now produce as much as thirty did on the old machines. The twenty-six punch their clocks and march out. Five banks merge, and hundreds of clerks together with a number of high executives find their services no longer needed. An efficiency man is teaching women to fold clothes with ten motions rather than thirty, and the market will not absorb the two hundred per cent increase in output; half the force is laid off. Meanwhile the systole and diastole of the seasons—the wet and the dry—fill and empty the fields and the canneries which surround them.

Good times come and good times go; men and women are broken in mind and body by the waiting, the uncertainty, the sheer physical deprivation, and join the ranks of the down-and-outers, the unemployables. No longer the rains, the soils, the personal effort on one's environment are the arbiters of the community destiny, but the job. For the reasons

spread upon the record—and for a dozen others—the job is untrustworthy and incalculable.

Whether these Aztec Indians would be better off if they submitted to the surgical operation here formulated lies outside the discussion. Perhaps they would and perhaps they would not. I should guess the latter, but your guess is as good as mine. The point I wish to make is that, granting a mechanized environment, normally administered, *they could not escape unemployment.* Where none are unemployed in the pre-machine environment of to-day, it is safe to assume that after the operation, at least one man out of ten would always be unemployed; and in the troughs of the business cycle the ratio might run as high as two or three out of ten. Under the hit-and-miss methods of free competition and the unlimited pursuit of profit the process implacably takes its toll. Not only does the worker suffer but, by virtue of a ten to thirty per cent decrease in the community's purchasing power, the profit suffers too. Unemployment is the nemesis of modern industry.

II

With the rise of the industrial revolution and the incalculability of the job, at least four kinds of unemployment became chronic phenomena in all nations addicted to the machine:

1. Seasonal unemployment—as experienced by canning factory workers in the winter.

2. Technological unemployment—as experienced by stokers in a liner when one or two white-garbed oil tenders displace them.

3. Cyclical unemployment—as experienced by some four million persons in the United States in 1930 following the stock market crash. The last great cyclical depression was in 1921.

4. Residual unemployment—the creation through the above misfortunes of a permanent class of unemployables incapable of disciplined effort.

In recent years, particularly in America, two further subdivisions of technological unemployment have been in evidence:

5. Stop-watch unemployment—as when, through time-study methods, one bricklayer takes the place of two.

6. Consolidation unemployment—as when, by virtue of a merger, half a dozen vice presidents and a hundred times as many clerks and salesmen find their function as overhead charges irrelevant, incompetent, and immaterial.

The bread line which coiled about my apartment house was an immediate and shattering revelation that these various classes of unemployment were functioning at their best—or worst; that a real business depression had gripped the country; and that the cheerio paragraphs with a Washington date line which I had read in the Mexican papers were, like the workers caught in a merger, irrelevant, incompetent, and immaterial. It would appear that the

administration and the industrial captains had sought by wish fulfillment and holding the right thought to prove the nonexistence of an unpleasant fact. Their efforts were productive of enormous publicity, but something was obviously the matter with the effectiveness of the mental concentration. Here was this bread line. Turning to the back pages of the newspapers, where the optimistic rhetoric gave way to tangible figures, I found a number of other unpleasant facts. Let us glance at them.

The United States Department of Labor has for years calculated an index of factory employment, using the year 1926 as 100. What does the index show since the stock market crash?

September, 1929	99.3
October, 1929	98.3
November, 1929	94.8
December, 1929	91.9
January, 1930	90.2
February, 1930	90.3
March, 1930	89.8
January, 1931	73.1

Down, down, down. For every hundred men working in factories in September only ninety were working in March, ten were on the street. By January, 1931, twenty-six were on the street. Now compare these figures with some earlier ones. The index figure for March, 1929, was 98.6; for March, 1923—also a very busy spring—it was 110.8. The drop between these two prosperous periods of 1923

and 1929—from 110.8 to 98.6—illustrates beautifully, and tragically, the inroads of technological unemployment in six years' time. With 11 per cent fewer men, factories were producing more goods in 1929. But the drop from March, 1929, to March, 1930, was due almost entirely to cyclical unemployment, which in a few months took almost as much toll as six years' growth in technological unemployment. The latter is in the long run the more serious, but the former is the more dramatic.

The American Federation of Labor gives us the percentage of unemployment among its membership month by month. This is primarily an accounting for skilled men. The unskilled do not often join trade unions, while experience has repeatedly shown that the unskilled are more subject to unemployment than the skilled. The percentage of unemployed union members runs:

March, 1929	14%
September	10
October	11
November	12
December	16
January, 1930	20
February	22
March	21
January, 1931	27

Up, up, up—even as the employment indices went down, down, down. These figures show two appalling things. First, that even in the best of times one

skilled man in ten is without a job. Second, that the number of unemployed more than doubled from September, 1929, to March, 1930.

The back-page reports come soberly in. . . . Chambers of Commerce in 200 New York State communities show ratios of unemployment ranging from 5 to 70 per cent. . . . The National Urban League reports 330,000 negroes unemployed. . . . One-third of the hosiery workers of Philadelphia are out of work. . . . Fourteen woolen mills shut down in the Albany district, discharging 1,600, and putting 600 on part time. . . . 150,000 automobile workers jobless in Detroit, the total employed falling from 450,000 to 300,000, with many of the latter on part time. . . . A special study in Buffalo, based on personal interviews and reported by the *Monthly Labor Review,* shows 11 per cent completely idle, and 18 per cent either idle or on part time. . . . A 40 per cent reduction in automobile workers is reported by the *Monthly Labor Review.* . . . Residential construction shows an alarming shrinkage. . . .

What the grand total of unemployed for the nation was in the early spring of 1931 no man knows. Estimates have run from five to eleven million. In my opinion the minimum is 6,000,000, with many more on part time. The figures cited earlier indicate that unemployment has far more than doubled over its normal rate. If, in the best of times, 7 per cent of the 30,000,000 non-farmers "gainfully employed"

are idle—a very conservative figure—this gives us some 2,000,000 in the army of the chronically jobless —the number seeking work in a "good" month like September, 1929.

The reasons for the bread line around my house are rapidly coming into focus. In a sense it is a bread line six million strong, that, in single file, three feet apart, would reach from New York clear across the continent.

For a bread line there must be bread, and somebody to provide it. Public and private charities say last winter was the worst since 1921, if not since 1914. My particular bread line, organized by The Little Church Around the Corner, had made no such effort since the panic of 1907. It was feeding 1,000 men daily, only 150 of whom were genuine down-and-outers; "the great majority were honest men who would work if they could." Every trade was represented, including musicians and engineers. There were other bread lines in New York, and three in Brooklyn. The 611 rooms of the Salvation Army's flop house on the Bowery were filled every night, with sometimes as many as 400 men sleeping on the floor. "Things are worse than they have been for a good many years. One fact is very noticeable—the majority of homeless and jobless are native-born Americans."

The Charity Organization Society of New York reports more applications for aid from destitute families than at any time since 1921—100 per cent

greater than in 1929. The Bowery Branch of the Y. M. C. A. distributed as many as 12,000 meal tickets in one day. Five per cent of the applicants held college degrees, and a few were Phi Beta Kappa men. They were largely American born, and their average age was 30. The Welfare Council of New York had to charter an old barge in the East River as an overflow flop house. Twenty-five hundred men were fed daily in Pittsburgh bread lines. The Family Welfare Association of America, tabulating reports from 60 cities, found a 100 per cent increase in relief administered in January, 1930, over January, 1929, and a 200 per cent increase in families in distress due to lack of work.

Hospital beds are also an index of unemployment. Bellevue notes an increase of 12 per cent. "Many of these patients are from lodging houses. Out of work and destitute, their resistance has become lowered and has induced an *acute* condition in what are ordinarily chronic complaints that do not require hospitalization."

Nineteen thirty was a bitter winter on the Bowery and a bitter spring. Yet above the flop houses and the bread lines glared a signboard: "Business is good —Keep it good."

III

As men lose their wages their purchasing power declines. The bulk of purchasing power in the United States consists of wages. This reduces sales in other

industries until they too begin to reduce their working force. The vicious spiral begins to whirl. The *Annalist's* index of factory payrolls fell from 109 in September, 1929, to 95.6 in January, 1930; to 69.7 in January, 1931. According to the *Annalist,* wages have fallen even faster than employment—indicating a certain lack of sympathy with Mr. Hoover's recommendation that wage levels be sustained. A further lack of sympathy is reported from Dayton. Personnel managers were interviewed in respect to their handling of lay-offs. Said one, "All they got was ten minutes' notice. That's not fair, but that's all I got from the New York office." The tabulations of the Labor Bureau, Inc., show a heavy increase in wage cuts in recent months. Farm wages are the lowest since 1923, with supply far in excess of demand. Incidentally, demand is considerably below normal. Mr. William Green, testifying before the Senate, estimated a loss of purchasing power in the domestic market of one billion dollars in the first three months of 1930. In the same hearings Senator Wagner introduced figures to show payroll shrinkages of $200,000,000 a month in factory employment alone. The repercussion is well documented by a drop of $86,000,000 in outlays for building materials in January, 1930, as compared with 1929. This seems to show a certain lack of sympathy with the great construction program which was to guarantee prosperity.

IV

So much for the tangible evidence as to the economic state of the nation. The figures prove that prosperity cannot be sold like a tooth paste, by making people want it. And they prove conclusively that the fifth great era of American commercial prosperity, which began in 1922, ran its course in eight short years (rather below the average span) and died on a certain sixteen-million-share day in October, 1929. Many of us at the time saw no logical reason why a stock market collapse should necessarily undermine business, and indeed there is none; but what most of us did not see was the extent of the black cloud over Detroit which had been gathering all summer. Along about July the nation found itself unable to purchase motor cars as fast as they were being built. Demand began to slacken, and in due time production had to follow suit. The automotive industry was the backbone of the prosperity era, and as, faster and faster, it began to slip, it dragged the whole business structure down with it. Thus undoubtedly a depression was in order, though without any stock market collapse the curve might not have dipped so deep.

It is alleged that factories are now equipped to produce more than 7,000,000 motor cars a year. With safety valves tied down, and selling pressure at the bursting point, not more than 5,000,000 can be absorbed; in 1930 the total dropped to 3,500,000—

just half the factory capacity. Senator Couzens tells us that radio factories can turn out 15,000,000 units a year, while only 3,000,000 can be marketed. In industry after industry potential output is vastly greater than demand—a condition which grows steadily worse. Sometimes I wonder if the whole mass production, low-unit cost, high-pressure selling formula has not gone almost as far as it can under the present limits of income distribution, and is not destined, if not to collapse, at least to be profoundly modified. The automobile was the keystone of the arch, and the stone has slipped. Nor is there any article on the horizon to take its mighty place. A fool-proof airplane might do it, but where is the fool-proof airplane?

V

Americans want things—lots of them. The raw material is available—as yet—to provide them, together with a willing labor force, a beautiful technic of management, and an abundance of capital. So, whatever happens to the mass-production formula and to the motor car, business will go on. It may stagger for a time, but the chances are that it is not permanently crippled. The current depression will pass, and the emergency bread lines fade away. Cyclical unemployment will mark time until the next depression. What threatens to continue unabated, n good times and bad, is technological unemployment with its three faces—the machine, the merger, the

stop watch. In four years oil refineries increased output 84 per cent, and laid off 5 per cent of their men while doing it. Tobacco manufacturing output climbed 53 per cent in the same period, with 13 per cent fewer men at the end. This is the trend throughout industry.

It can mean only one thing. An equivalent tonnage of goods can be produced by a declining number of workers, and men must lose their jobs by the thousands—presently by the millions. Heretofore, after a dreary period of searching, they have found other jobs. But how near to saturation are the filling-station industry, bond selling, insurance, hot-dog stands, spear carrying in Hollywood, and the other "blotting paper" trades? How near are we to a genuine attack on the staggering wastes of distribution, with its inevitable result of a reduction in man power? Nobody knows absolutely, but many are guessing—the author included—that the blotting paper is becoming soggy. The automobile industry alone soaked up 4,000,000 new jobs since 1900, but its curve of employment is now definitely downward.

Says the *Iron Age:* "If the productivity of industry through mechanization continues to increase in the next 25 years in the same way and at the same rate as during the last 25, only 45 men will be needed for the work which to-day requires 70, and that formerly required 100. In the automobile industry 30 workers were doing in 1925 as much work as 100 workers in 1914." What are we going to do with

the 25 men out of 70 that are to be displaced in the next 25 years? And there may be far more than 25 displaced, as the curve of technology is an accelerating one. Dr. Wesley C. Mitchell estimates that no fewer than 650,000 men were added to the ranks of the reserve army of the unemployed from 1920 to 1927. We remember, too, the drop in the index numbers of employment from March, 1923, to March, 1929, already quoted.

Here is a new ensilage harvesting machine that cuts cornstalks in the field and delivers them to the silo, without a human hand touching a single stalk. Here is a new tabulating machine capable of doing the work of 100 skilled actuaries. Here is an automatic mechanism producing 73,000 electric light bulbs every 24 hours, displacing 2,000 hand operators for each machine installed. Here is Section E of the St. Louis concrete sewer project. Thirty-three machine operators, aided by 37 laborers, are doing the work of 7,000 pick and shovel men. Seventy men and machines displace 7,000! The United States Department of Commerce estimates that combines in the harvesting of wheat in one area have cut the force of farm laborers from 50,000 to 20,000. Here are automatic cigar makers, dial telephones; the "iron chink" which has revolutionized the canning of fish, automatic stokers, mechanical glass blowers, automatic power stations; automatic knitting machines, bookkeeping machines, paint sprayers; mechanical cotton pickers, the telephonic typewriter,

automatic check writers—and a hundred more, all taking their toll of direct labor. It must not be forgotten that, in the final balance, the direct labor which is displaced may find a job in building or servicing the machine—but the margin of jobs permanently lost is reasonably wide, otherwise there would be no point in introducing the mechanism.

Turning to the allies of the iron bouncer, we note a recent statement in *Forbes Magazine:* "Never before were so many salaried men looking for positions. Men formerly receiving $10,000 to $30,000 are now anxious to start at half salary. Thus many bargains in human material are available." Under every merger we shall find a bargain basement.

And here are the indefatigable time-study men. Stop watch in hand, they eliminate enough unnecessary movements in the customary method of dipping chocolate to increase production 88 per cent. Moving on to the next shop, they cut the time of assembling carburetors from 450 minutes to 45. Few markets can absorb such staggering increases in output per man. So the unabsorbed fraction must punch the clock for the last time. In swinging a pick in the coal mines, in sorting potatoes, in picking fruit, in scores of occupations, the time-study brigade is eliminating motions, and with them men. Not only in motions, but in shop arrangement, routing, lighting, ventilating, management generally, is the process rampant. Better conditions—true; fewer men—almost always.

If a machine does not get you, a stop watch will; and if you dodge both there is a merger waiting around the corner—such must be the thought which lies none too lightly in millions of American minds to-day. If you are alert enough to keep ahead of all three, God knows when you may trip and plunge into the crevasse of a cyclical depression—like that whose somber figures covering the past eighteen months we have just recorded.

VI

This is no way for a civilized society to behave. Unabated, it will bring most of us to wish that the industrial revolution had never been born. For all our bathtubs, washing machines, and canned asparagus, we may grow more and more envious of the Aztec, who, if he has not so many dandy little jiggers, has at least a steady and rewarding job. And quite possibly some of us may start to smash things up. Such a dependable gentleman as Mr. William Green told the Senate that he had no hopes of keeping his hitherto orderly cohorts in line if the conditions which created unemployment were allowed to follow a masterless drift.

If we care enough about it, we can very greatly diminish, if not altogether liquidate unemployment. It will cost something—but consider what it now costs us in charity, in taxes which flow from public charity, in high labor turnover, in broken shop morale, in the quality of work done by men who

have no feeling of economic security, in accumulating overhead on closed and partly closed factories and, above all, in reduced markets due to loss of purchasing power. I wonder if the total cost of seizing the situation by the throat would equal the total losses now engendered? I am speaking in strict financial terms for the moment, waiving the whole human cost in suffering and degradation.

Conceivably, we might start with an intelligent and honest publicity campaign to replace the winter's dishonorable record of prosperity billboards in the Bowery—a campaign which flatly recognizes facts, however harsh, and tries to swing public opinion toward constructive remedies. We have the precedent in the Safety First and the Cancer Control drives. We might even go so far as to hope that some of the advertising fraternity might give a moment or two from their sterner duties and originate some effective slogans:

Six Hours' Work and Work for Everybody.

Give a Job and Get a Customer.

A Steady Job. Ivory Soap Gives It—Why Not Your Boss?

If Mexicans Can Eat, Why Can't We?

(These are the ravings of a rank amateur. I appeal to those who know the technic to improve them.)

We need to mobilize public opinion as in the Liberty Bond drives—with posters, page spreads, four-minute speakers, radio talks, news reels, editorials,

the whole colorful phenomenon which we Americans do so well, and which is our equivalent of the poor Mexican's fiesta.

In such an atmosphere concrete measures might have a chance of success. They may be launched on many fronts.

The logical, sensible, and only final answer to technological unemployment is to shorten working hours. Under present practice, as the machine advances, fewer men work equally long (or approximately so). Why not keep the entire force on the payroll but work them less? Thus the whole nation would share in technological advances: the worker by a steady job with fewer hours, the owner by steadier markets and profits, due to undiminished purchasing power. This is the final goal. I do not deny that its achievement will take a long time, and more brains and more coördinated planning than have ever as yet blessed the Republic. It would be something, however, to get it into the national consciousness.

The regularization of industry lies somewhat short of the final goal, but concrete beginnings have already been made. The Procter and Gamble Company, for instance, estimates its annual production in advance (the variation does not exceed 3 per cent), divides the total by 48, plans to produce that much soap in every week of the year, and guarantees 48 weeks' steady employment to every man who has been in the factory for a term of at least 6 months.

Regularization may be approached through four channels: the Business Survey Conference of Mr. Hoover, the trade associations, the industrial manufacturer or contractor, the labor union. For some concerns where seasonal and storage problems have not been solved the program is impossible. For others it may have only partial application. But for thousands it could be put into tangible effect if only their managers could be brought to think about it, and their working force to demand it. Regularization can be only an intermediate goal because, while it provides steady work for those employed, it takes no cognizance of those displaced by machines, time studies, or mergers. It helps the ins enormously, but the outs not at all. What it does in effect is to kill seasonal unemployment and perhaps cripple cyclical; technological it leaves untouched.

Third, there are the long-swing construction programs, optimistically and exhaustively discussed these past few months. In respect to them we need more action and less talk. A construction engineer told me that business in his field for the first three months of 1930 had been the worst in his fifteen years' experience. I inquired about the front page stories, and the figures with the rows of zeros. "Bosh," he said, "it was stuff they were going to build anyway, except that a lot of it they didn't build!" Carefully prepared, with something of the intelligence with which an army conserves its supplies, construction work both public and private could

be nursed in the good years and brought forward when a cyclical depression threatened. It was not so done last winter—but the job was new and the time was short. It could be done, and fortunately Senator Wagner's bill recently passed by Congress will expedite it. Beyond the immediate construction programs, consider the vast amount of useful and necessary labor required in a sound national afforestation project, in slum clearance, in regional planning and beautification work. Some day we must tackle such projects. Why not now?

Fourth, we must have better statistics on unemployment, preferably collected through a nation-wide system of public labor exchanges. No engineer can build a dam until he knows how much stone he has to move. Meanwhile the exchanges themselves would be enormously valuable in protecting displaced workers from the villainous brigandage of most private exchanges and in informing applicants honorably and specifically where jobs are to be obtained, if any. This would correct the practice of telling a hundred men in Chicago that there is a job in Milwaukee and collecting $5 from each—with either a single position or a purely fictitious one available when the whole hundred spend their last nickel in reaching Milwaukee. Senator Wagner is endeavoring to lay the groundwork here also.

Fifth, we can raise the age limit at which children are permitted to enter industry, thus salvaging jobs for their elders. If the minimum were placed at 16

years rather than the prevailing 14 years (in most states) some hundreds of thousands of jobs would be conserved. The benefit to the children themselves is too obvious to need argument. At the same time studies should be undertaken to find out the type of job that the older worker is especially qualified to fill, and thus halt the vicious and stupid practice of firing, or refusing to hire, men or women because they are thirty-five or forty or forty-five years old. As industry becomes increasingly automatic, the steadiness and dependability of the older worker should be increasingly valuable. Flighty youngsters may have more muscle, but the automatic function needs no muscle; it needs careful inspection, dial watching, checking, and repairing. I am convinced that competent analysis would reveal thousands upon thousands of jobs in the modern world which the older worker is better fitted to perform than the man under forty.

The above programs, if put into energetic effect, will go far toward liquidating unemployment, but a certain amount of lost time there is bound to be, even under the best of conditions. The industrial machine is not frictionless and never can be. For those who have lost their jobs through no fault of their own, particularly during the transition period, two systems of aid are in order—the dismissal wage and unemployment insurance. The former is a lump sum paid by the company to an employee when forced to give his position to a machine (or for other causes), preferably on a sliding scale based on length of

service. The latter is such a system as that set up by the Dennison Manufacturing Company or the Amalgamated Clothing Workers, where reserves are accumulated from profits and payrolls to meet the just debts of industry when the machine or hard times come. State unemployment insurance is another aspect of the same general remedy, and most certainly should be applied. It has been called the "dole." Yet what we have now—bread lines, handouts, charity, Red Cross—is the real dole system. Unmployment insurance, to which worker, employer and state contribute, restores human dignity and can be made sound economically.

As a certified public accountant, I have been examining corporation balance sheets for many years. Seldom do I find one without a "surplus" account on the credit side, and frequently an appropriated surplus, variously entitled "reserve for dividends," "reserve for depreciation," "reserve for bad debts," "reserve for expansion." But a "reserve for unemployment" I have never seen. The dividends and equities of stockholders have been protected by many ingenious devices. It is time, and more than time, that the flesh and blood which provide them receive equal consideration.

II

THE LUXURY OF INTEGRITY

ONCE upon a time I worked for the United States Government. In the course of my official duties I was directed to make a rather particular and painstaking analysis of the profits of certain mammoth corporations. The welcome of the mammoth corporations, needless to say, was not warm.

One of my subordinates in the investigation was continually getting into trouble. He was a likable fellow, a good routine worker, always ready to do odd jobs after hours. I took a personal interest in his troubles; I loaned him money, patched up a quarrel between himself and his wife, gave him books to read, tried to help him slide a little more easily along his white-collar groove. That he was grateful, that he really respected and liked me, I do not doubt to this day. Yet here is what he did after two years of friendly association:

He ransacked my private files and turned over any evidence showing liberal political tendencies on my part to the aforesaid mammoth corporations. He came into my office late one evening—fortified by a drink or two—and said: "Chase, I'm a Bolshevik. I'm fed up with the whole damned capitalist system. I'd like to help kick it over. I'd like to join some-

thing. You know about these socialists and I. W. W's. I see you reading pieces about them. Tell me all about it, shoot the works, tell me what I ought to join. I'll pay the dues."

At first I thought the poor boy had really come to the end of his rope; that this was a last desperate gesture before the white-collar routine doomed him altogether. Then I began to realize that he was lying: that he was hoping to pick up some information from me which could be twisted in such a way as to discredit my work in the investigation. (Not that I had much to offer.) I went on with my columns of figures, and gradually his receptive attitude waned. "Aren't you going to tell me anything?" he whined. "No," I said. "And I guess you had better go."

He took his hat and went. As the door closed behind him, I knew that the man I had befriended could not afford the luxury of integrity. Someone was paying him to act as a spy. His government salary was little enough, while his wife had definite ideas about her proper position in the world. He had been bought. (I doubt if the vendee got his money's worth.) I was bitter at the time, but to-day that bitterness is tinged with pity. He is only one among many Americans who increasingly cannot afford the luxury of integrity. His case is more dramatic perhaps, but essentially on all fours with the plight of nearly every man you meet upon the street. They, like him, have betrayed their personal sense

of decency and honor because forces are loose too powerful for ordinary clay to oppose.

In the custody and handling of transferable property Americans grow more dependable; but in that more subtle definition of integrity which bids a man play fair with his own soul, never, it seems to me, has the Republic sunk to lower levels. As the machine breeds increased specialization, increased technological unemployment, as mergers spread their threat to white-collar jobs, the case grows worse. The greater one's economic insecurity the greater the tendency to sacrifice spiritual independence and to chant in dreary unison the simple credo of the yes man. It is my contention that for uncounted millions of Americans the price of integrity is more than they can afford. Nor should I be surprised if the ratio of growth in the process bore more than a casual relationship to the growth in urban as against rural population.

Even as the interlocking technical structure of industry makes for an increasing tenuousness in the condition of the live nerves of transport, power, and communication which provide city dwellers with physical necessities, so the psychological condition of the inhabitants of Megalopolis grows more precarious. Living in a crowd, it has become highly important to *fit in*. There are fewer square holes for square pegs; to make the close-locked wheels of industry turn, an employee must be as round as a ball-bearing. This smooth and oily quality that eases the friction

of the highly organized machine is in a way more vital than professional training, ability, or energy. One man may be genial and tactful by nature, while nine have to achieve tact and geniality by effort. For the milk of human kindness the most obvious substitute is soft soap.

II

The yes man had no place in the pioneer tradition. The pioneer had his faults and virtues. The faults included a prodigal wastefulness, a disposition to befoul one nest and move on to the next, a certain laxity in respect to the social amenities. The virtues included a sturdy independence, and the compulsion, if need arose, to look every man level in the eye and tell him to go to hell. Reasonably secure in the fruits of his own labor and thus economically independent, he could express in any company his honest opinions as forcibly as he pleased, and, subject to the local *mores*—the base line from which all human behavior must stem—he could translate his beliefs into tangible performance. He could vote for candidates he respected, agitate for reforms he believed in, refuse to do jobs which galled his sense of decency or craftsmanship, come and go as the seasons dictated, but not at the bidding of any over-lord. His opinions may have been frequently deplorable, his acts often crude and peremptory, but he was free to be true to the best that he knew—and so, by the Eternal! a man, and not a rubber stamp.

His was not the gentleman's code of honor, but one less punctilious, more democratic, more human, and probably in the long run superior. The gentleman has a divided responsibility; he must not only seek to be true to himself, but he must maintain a wide margin between himself and the herd. The pioneer was of the herd and proud of it, and could thus devote himself single-mindedly to the one responsibility. Compare, let us say, a thousand assorted pioneers of the Berkshire Hills in Massachusetts in 1800 with a thousand assorted New York bank clerks in 1930, and, unless the monumental history of the Berkshires which I have lately ingested is a tissue of falsehoods, you will find about as many no men in the former area as you will find yes men in the latter. The ratios, I should guess, have reversed themselves in one hundred and thirty years. With the no men will lie character, courage, individuality, saltiness. With the yes men will lie radios, automobiles, bathtubs, and a complete paralysis of the will to act in accordance with their fundamental inclinations. That Berkshire babies were fashioned of better stuff than bank-clerk babies, I absolutely deny. Opinion for opinion and belief for belief, it is probable that the New York thousand have a more civilized outlook, a better stock of human values in their heads, than had the Pittsfield thousand. But for the latter integrity was cheap and abundant, while for the former it is very dear. Like all luxuries, it can be bought, but few dare to pay the price. For the

price may be the job, and the job means life or death.

If you object that most men and women are without a sense of honor, then call it early conditioning. From the cultural mulch in which we are reared—compounded of the influences of parents, school, church, folkways, literature—our personalities are formed. We take and we reject; we give lip service to much that our hearts do not subscribe to. But certain principles we make our own. Integrity consists in living up to them. I am not here concerned with those broad principles of morality which now, as in the days of David and Solomon, move more or less *in vacuo,* but rather with a far more concrete and personal standard. I ask only if your behavior squares with your conception of what honest behavior should be, and care not twopence how lofty or low the original conception. A stream can rise no higher than its source.

The point is not that we traduce our honor to climb up—such behavior has affected a fixed fraction of the race since the Cro-Magnon man—but that most of us to-day are forced to traduce our honor *to cling to what we've got;* aye, to exist at all. It would be easier if life were simpler, but the perspiring supersalesmen take excellent care that life shall never simplify. No more have we won to a standard of living held respectable by our fellows, than presto! a new and higher standard confronts us—two-cars-per-family, college-for-all-the-children, annual models

in furniture, country club memberships—and this we must attain on pain of social disapprobation. There is no level, but a steady ascending curve which tolerates little margin of saving, no dependable economic security. While jobs grow more uncertain, desires, built in by the high-pressure fraternity, grow more clamorous. In this compound-pressure pump, the wayfaring man finds it almost impossible to be true to his innermost nature.

III

Consider initially the simple and widespread practice of yesing the boss—to use the current phrase. The man with the strong jaw sits at the head of the conference table, his confreres gathered around him, each with pad and sharpened pencil. From the strong jaw comes the announcement of a certain policy—perhaps a wage reduction, perhaps a wage increase, perhaps a universal system of time clocks. He looks about him. The policy may be utterly repugnant to his staff, but, "I check with you, chief," "check," "check," "check"—the little threadbare word runs round the table. Not always, to be sure, but frequently enough to make our case. On any given business day, the number of such checks and yeses must be astronomical in magnitude. It would be interesting to chart their yearly curve superimposed upon a curve exhibiting the growth of mergers.

The psychological effect of continually pretending to agree with that with which one does not agree is

disastrous. An internal conflict is set up which tends to polarize work into neutrality. Initiative, concentration, straight thinking evaporate, leaving only purposeless activity. Probably less damage is suffered by the individual who knows in advance the fire he must pass through and deliberately makes up his mind to prostitute his talents. He is tragic enough, but a less unhappy exhibit on the whole than the hordes who fool themselves into thinking that they are doing honest work, unaware of the conflict beneath the surface. In business offices there is usually one of the former to ten of the latter.

Next let us consider that very considerable fraction of the population engaged in making commodities which the maker knows to be evil, shoddy, adulterated, and a rank imposition upon the public. He may whistle cheerfully enough, say "What the hell?" and believe that the plight of the public troubles him hardly at all. But deep down inside the continued outrage to his instinct of workmanship troubles him considerably. It is contrary to the whole history of mankind to waste good hours of labor on worthless or evil products.

Not long ago I delivered an address on the Russian economic experiment. I told of the method whereby an oil pool was developed as a single geological unit without competitive drilling and its appalling waste. After the lecture an engineer came up to me. He seemed deeply stirred. "My God," he said, "do you suppose I could get a job in Russia?

I'm sick of drilling wells in competitive fields, watching most of my work run to waste. I know how a pool ought to be organized, but with all this offset drilling we aren't allowed to organize it." In his excitement, it was only too plain that there was a tragic breach between his standard of workmanship and the work that he had to do.

Of the ten million factory employees in America today, the two million in the building trades, and the two hundred thousand engineers, how many can hold up their hands and say that they take pride in what they make? Many of them, of course, are operating processes so specialized that they have no idea of what they are helping to produce, but the majority are probably still aware of it. The show of hands is not impressive. When one considers the weighted silks, the bulk of the patent-medicine traffic, jerry-built bungalows on Garden Crest developments (I have talked to the carpenters working on them), shoes that dissolve into their essential paper, rickety furniture brave in varnish—commodity after commodity, process after process, the reason is sufficiently clear.

Leaving the factory, we come out upon the market place. Here we find a group almost as numerous as the producers, pushing goods which they know to be inferior or useless. A salesman has no canons of workmanship to be outraged, but if he has to sell an inferior product, and knows it, his case is not much happier than that of his fellow in the shop. He has to lie blatantly, loudly and continually. He has to

tell the world that bad products are good. He becomes used to it, of course; he may even take a little pride in his sales charts. But that does not mean that somewhere behind the table pounding, door-bell ringing, and copy writing there is not a *man,* who, in the darkness of the night after an ill-advised dinner, does not sometimes wish to God he could earn his living doing something he believed in.

We now come to one of the saddest exhibits on the list. There may be more deplorable human behavior than the violation of hospitality practiced daily by uncounted thousands of house-to-house canvassers, but I am at a loss to know what it is. Since time out of mind it has been the kindly human custom to welcome the stranger at the gate. The reaction is doubtless tied up with a dim fear that, some day, you too may be a-wandering and need rest and welcome. On this ancient custom the up-and-coming canvasser is forced to trade. In company schools he is deliberately coached in ways and means for capitalizing the instinct of hospitality, for gaining admission, a chair, a respectful audience—only to outrage it in the end.

Here, to quote an actual case, is a woman canvasser who announces herself as a member of the local school committee—only she is not a member of the school committee but recites a name which induces the lady of the house to think that she is. The "committee," it appears, recommends a certain book to aid the children's education. The visitor mentions the children by name, their ages, their bright looks.

The lady of the house is pleased. The cost of the book is five dollars. Her face falls. She cannot afford five dollars. Haltingly, ashamedly, she confesses it. The canvasser turns on her with the sure-fire line, "Mrs. Green, don't you care enough about the future of your children to pay five dollars?" What mother can resist such an accusation? Company statistics coldly demonstrate that seven times out of ten it consummates a sale. Yet what troubles me is not the plight of Mrs. Green with a worthless volume on the parlor table, but the utter abandonment of self-respect on the part of the lady canvasser. Had she hit Mrs. Green with a blackjack as she stood defenseless and welcoming on her own doorstep, the loss of personal integrity could hardly have been greater. Hospitality is a particularly precious custom in a civilization which drifts so rapidly to cities and apartment houses. By ruthless violation the canvassers have all but killed it.

Not content with the assault in person, enterprising vendors of commodities, particularly of certain types of securities, are lately using the telephone to effect a sale. In one day at my office I was called to the telephone five times by total strangers giving a Wall Street address, succulently outlining the profit to be made by an immediate purchase of American Consolidated International Class B. To the first man I tried to be polite, to the second I was curt, for the other three I simply hung up the receiver. But the day was ruined by a feeling of baffled rage, partly at

my assailants, and partly at myself for having to crush the habit of years of being courteous to those who had taken the trouble to call me on the telephone.

Yet canvassers, like the rest of us, must eat. I remember when I lived in Chicago a neighbor in the woolen business dropped in upon us one evening. We welcomed him into the living room and were somewhat surprised to find that he had a large box under his arm. His face was set. He opened the box and disclosed some excellent woolen sweaters and hose, male and female. We admired everything—the admiration of friends. Would we buy some? We were thunderstruck, but kept our faces straight, and bought. Obviously, our guest had struck a vein of bad luck and been reduced to capitalizing his acquaintanceships. Always afterwards he avoided us. Our friendship had come to an end. How many friends did that hard winter cost him?

IV

This brings us to that growing army of "publicity men" and women who sometimes do not—but frequently do—give the best of their years and their vitality to pushing causes in which they have no faith, and to booming personalities whom privately they designate as stuffed shirts. Business being business, their shingle is normally out for any propaganada however worthless, and for any publicity seeker however shameless. As in the textile industry, there is

overproduction in the publicity game, and a client is a client. How many nationalists at heart are writing purple copy for peace societies; how many socialists at heart lauding the benign activities of the power trust; how many intelligent judges of human character stirring the tom-toms for men they despise?

In this connection, the testimonial writer demands a note. If he—or she—really likes the product, well and good. But in many cases he or she has never tried it. A thumping lie is exchanged for a bag of gold. The flight of Lindbergh from America to France was a fine and stirring achievement. But even finer to my mind is the fact that he has never sold his honor to a manufacturer.

Consider the activities of the ghost writer. According to the rules of this flourishing profession, he writes the speech for somebody else to deliver or the article or book for somebody else to sign. In certain cases he endeavors to put into words the somebody else's general thoughts, but in other cases the somebody else has no general thoughts, and it is his function to supply them. Thus he foists on the public an entirely false picture of his client; he puts brains—his brains—into a man of straw; and far worse, he abuses the craft of letters which the Lord has given him by writing words in which he places no credence, while neatly dodging responsibility by placing his client's name above them. As a writer I have frequently been invited to "ghost" under such circumstances and once or twice have been

sorely tempted by the size of the fee. Fortunately my economic circumstances at the time were such that I could afford to refuse. Heaven knows when, unfortunately, they will be such that I cannot afford to refuse. But when I fall, I shall know that my position as a responsible professional man—voicing his own thoughts and signing his own stuff—has come to an end.

I know a writer of newspaper editorials. Himself a liberal, he has to grind out a thousand words daily which reflect the ultra-conservative policy of the paper for which he works. He keeps a record like a batting average chart, noting the editorials to which he can subscribe against those to which he cannot. When he last showed it to me he was scoring about .150—say one out of seven.

Pot boiling is no new phenomenon. Many of the Humanists' greatest heroes were known to stoop to the practice from time to time. It may be defined as doing, for a cash consideration, work markedly below the level of the artist's best. In the past, stark necessity was its chief inspiration. To-day as I go about among novelists, poets, playwrights, painters, I find a new motive widely voiced. We will, they say, "ghost," write success stories, produce canned editorials and advertising copy, concoct synthetic drama (a new type of laboratory research), illustrate magnificent brochures, or what you will, in order that we may lay aside a cash reserve, and *then* watch us burn up Olympus. I am still watching. The formula in

most cases is spurious. A continued and calculated flow of second-rate work is more than likely to poison the original spring. One can cite names—a number of very promising names—but it would be too painful. Enough that American art and literature have lost some distinguished ornaments because integrity comes too high.

Lastly we shall consider a usage almost as widespread as yesing the boss, one indeed that may be said to be an integral part of the folkways of a pecuniary civilization. I refer to the art of backslapping in the interest of a profitable sale. Under the canons of this culture complex it is encumbent upon the vendor to welcome the prospective vendee with all the warmth and sympathy hitherto reserved for dear and chosen friends. He must be dined and wined, his most infantile pronouncements must be received with the highest respect, one's home must be thrown open to him, his lightest fancy instantly satisfied. The fact that the company pays the bills is entirely beside the point. The point is that the whole procedure, like the canvasser's behavior, makes a mockery of natural human intercourse. Friendship is one of the few compensations for a complex life. To shower upon strangers and upon people who never could be one's friends all the earnests of comradeship is to debase rare metal. The dismal panorama passes before us: Manufacturers' agents departing with suit cases of gin to dentists' conventions. . . . Rotary club luncheons with members

roaring songs, embracing one another, "Jim" calling to "Joe" (and Jim hates Joe)—all in the hope of more business. . . . The hearty dinner at home to the chief buyer for the National Widget Corporation, with one's wife in a new and alluring frock and carefully coached in the art of drawing out Mr. Blatterfein on his favorite topic—the postage stamps of the Hawaiian Islands. . . . The high and costly strategy employed by publisher B in weaning an author away from publisher A—the agent preferably to be an old college friend. . . . "Contact men" in dinner coats at week-end parties.

Backslapping may not always be for business reasons, but it is usually for pecuniary reasons. I recall participating in a dinner to a man who was as stupid as he was rich. The basic idea of the dinner was to obtain money from him in order that a certain charity might make up its deficit. At the close of the banquet our guest arose and delivered himself of as monumental a series of banalities as it has ever been my ill fortune to hear. When he took his seat, amid vast applause, we, the hosts, arose one by one, and respectfully asked questions and were grateful for answers that we knew to be absurd. Finally we gave our guest a rousing vote of thanks for a most instructive evening. Later, because his publicity man had used my name, I wrote him a letter—a slimy, unctuous letter—recalling his brilliant address and the needs of the charity in question. I was never so pleased in my life as when he kicked us all down-

stairs, and refused to give a penny. In some dim way it restored my self-respect. Charities are worthy—some of them—but are they worth such abasement?

V

We have but touched the surface of the phenomenon, and already most of us are in it up to the waist, if not indeed completely mired. Certain groups are less involved than others, and a rough appraisal of relative saturation might prove instructive.

The independent farmer, standing closest to the pioneer tradition, leads the list. Despite the steady encroachments of business motives upon his way of life—for agriculture is far more a way of life than a pecuniary pursuit—he still has the best chance among all classes of Americans to call his soul his own. Perhaps the independent storekeeper, surviving in those few remote neighborhoods where chain stores and full-line forcing have not rendered his life a burden, takes second place. I know a few still functioning in the White Mountains of New Hampshire. They are the sort of men who will not send a bill when the neighbor who owes it is ill or out of luck.

Next in line we might place the housewife. More remote from the commercial front than her spouse, she still frequently reserves the right to speak her mind freely, "to stand right up in meeting," as we New Englanders say. I recall the case of a brilliant

young accountant who, shortly after winning his C.P.A., was given an opportunity to make a million dollars, more or less, in a few months' time. All he had to do was to approach certain corporations with an offer to split whatever rebates he might earn for them in their filed income tax returns. His share in turn was to be split with a government examiner who supplied the names of such corporations as had legitimate claims for rebates in past tax payments. He told his mother of the glittering opportunity. "Tom," she said, "you know when I come to wake you in the morning I shake you hard, and you don't stir?" "Yes," he said. "And then I shake you even harder, and you give a little moan?" "Yes." "And finally I shake as hard as I can, and you open one sleepy eye?" "Yes." "I'd hate to come in morning after morning and find you awake." He turned down the job and has been sleeping soundly ever since.

Reasonably high in the comparative scale would come the skilled manual worker affiliated with a strong trade union. One does not find an unduly grave percentage of yes men among locomotive engineers, machinists, or building trades workers. In the main they are utterly dependent on their jobs, but their jobs are objective and technical, while the backing of the union—sometimes with its benefit clause—stiffens their independence and self-respect.

Next we might place independent manufacturers and entrepreneurs. The great corporations are fast undermining them, financially and spiritually; but

many sturdily maintain the Forsyte tradition, refuse to grow maudlin about Service, honestly admit they are in business for profit and not for public welfare, and take pride in producing a sound article, honestly sold. Below them would stand professional men and women, with physicians at the head of the group and lawyers at the bottom. There was a time when this class topped the whole list, but that was before competition became so keen; before the days of split fees, ambulance chasing, and yesing the president of the university. Professors, like canvassers, must eat. If the gentle reader is of a professional persuasion, he is doubtless an exception, but as a journeyman member of his class, I know that all too frequently I am not an exception.

On a level with professional people would come the unskilled manual workers, with farm laborers at their head. They are largely a beaten lot, but many of them lose their jobs so often they get used to it, and accumulate, if not independence, at least a certain stoicism, a bitter crust against a bitter world. Not far below them we find the servant class—some two millions of them in America. Here we note a peculiar phenomenon. Servants are protected to a degree by their time-honored professional status. Nobody expects their work-a-day manners to reflect their real personalities, and thus they are enabled to preserve some semblance of integrity behind and remote from the frozen smiles and conventional obsequiousness of their trade.

From servants it is a long drop downward to the salesman, though here again we note, or are beginning to note, a loss of human dignity which is freezing into a convention. It is the salesman's business to be hypocritical if necessary, just as it is the servant's business to be servile. We do not expect much from a salesman or a blurb-writer save words, and presently he may be able to save his soul by taking, in his business hours, some such conventionalized and definite status as the butler or the waiter takes.

Salesmen are low in the scale of integrity, but at least they are alive. They have even been known to tell the boss what they thought of him and throw the job in his face. Clerks and office workers, being all but dead, must stand still lower. They are the saddest group of yes men on the whole list.

As we feel for the bottom, we encounter in the murky gloom a large round object. Dragging it with some reluctance toward the light, we discover it to be a politician. To expect integrity from an elected public servant is almost to expect a miracle. When Mr. Dwight Morrow, running for senator in New Jersey, actually and honestly spoke his mind about prohibition the shock was almost too great for the country to bear. Editorial writers lost their heads completely at the wonder of it. The politician leads a harrowing economic life, granted; there are often sound reasons for his debasement, but this incident would seem to make it plain that it is not always

good business, or good publicity, to flounder so persistently in the lower depths. Once and again the poor fellow might come up for air.

We would seem to have touched the bottom. Not quite. We have yet to deal with certain types of corporation executives. As a class, executives may be arranged up and down the scale, but enough of them at least to be identified as a sub-species are the least enviable exhibit in the whole national category, firmly anchored to the ocean floor. Their case is the more deplorable in that they have less excuse than most of us for being untrue to themselves. They have more economic security than all the rest of us combined. Instead of quaking for their jobs, they need quake only for their balance sheets. They have sold themselves, not to inexorable terms of livelihood, but to a legal abstraction, an almost mythical monster, in whose bowels is nothing more than a certificate of incorporation. (Some anthropologist should do a sound monograph on the totem worship and animism involved in the modern conception of a corporation.) They dare not open their mouths in public, put pen to paper, pronounce judgment on any social question, attend a banquet—almost take a bath—without first securing the received policy of the company for which they work. They move in a world of juggernauts and spooks which pass under the name of unfavorable publicity. They cower before the dire warnings of counsels on public relations. Instead of honestly admitting they are in business for

profit, they squirt atomizers filled with the rank perfumes of "service," "good will," "public duty" in all directions, until the atmosphere of the nation is choked with alien gases. They wriggle, this subspecies, into schools, universities, women's clubs, churches. They teach the teacher to teach the little children to wash their little hands with their little cakes of Banana Oil Soap. It is difficult to walk a block in Washington without bumping into one of their legislative agents. Even as the Russians substitute Communism for God, these gentlemen substitute their Corporation. It can do no wrong. Once I was walking the streets of Boston with the vice-president of a great financial institution. We came to a little decayed brick building near the docks. He stopped, with reverence in his every gesture, and all but took off his hat. "This," he said, "is where our Company first began to do business." We might have been visiting the birthplace of a saint.

I should like to see old Jolyon Forsyte at a few American directors' tables; I should like to hear him express his mind freely at a conference of Junior Executives. Here was a man who ransacked the world for tea, sold you only the finest, and took a good round profit on the transaction. He did not cower before sticks of type, cared not a damn about "unfavorable publicity," had no corporate god to serve, and could call his soul his own.

I have been perhaps unduly harsh with that fraction of corporate executives who have forsworn all

canons of personal integrity to serve a paper monster. But I should like them to know how their activities impress the outside public; and I would point out, furthermore, that the lesson taught the politicians by Mr. Morrow is equally applicable in their case. They could afford to substitute facts for propaganda far more frequently than they do.

If you think that I have been passing moral judgments, I have completely failed in writing this article. Questionable morals as reflected in graft, peculation, and legal crime lie quite outside the discussion. Such behavior is to be found in every civilization since Mesopotamia; whether the ratio is worse in modern America I do not know, and for the moment do not care. Owing to the colossal temptations for graft inspired by prohibition, it may well be worse at the present writing; but this, we trust, is a temporary phenomenon. All I have tried to say is that you and I, and Americans generally, have each a personal standard of honorable conduct. Under prevailing conditions, largely economic, it is frequently impossible to live within striking distance of that standard. Dr. Paul S. Achilles of Columbia, professor of vocational psychology, estimates that over 50 per cent of Americans are not happy in their work. (The suicide rate per thousand has jumped fivefold in seventy years.) I am but pointing out a major reason for that unhappiness. There is better stuff in us than we are permitted to express, and callous as routine

may have made us, the failure of self-expression still hurts. In the end nothing but a greater margin of economic security—the rock which stiffened the backbone of the pioneer—can bring release.

III

MEGALOPOLIS

A DISTINGUISHED savant has perfected a mechanical contrivance which measures the intensity of noise. To my knowledge nobody has yet invented a device to register quantitatively likes and dislikes. During most of one's conscious hours spent in a great city—or anywhere else for that matter—one is so intent upon his job, his food, his sweetheart, or his transit connections that no reactions, in the sense of liking or disliking the impending environment, are registered at all. Here it is, world without end; nothing can be done about it; why bother to appraise it?

Suppose, however, we begin this inquiry into the future of the great city by halting for a moment the remorseless pursuit of the next sixty minutes, and deliberately allow both the pleasurable and the painful sensations of city living to filter through to consciousness.

Fifteen years ago I enjoyed residing in Boston—pleasure slightly outweighed pain. Ten years ago I enjoyed living in Washington, with a higher pleasure margin. In the interim I took up residence in Chicago and suffered a large debit balance. This was not due to human intercourse but only to the physical impact of the town. The people of Chicago are the

pleasantest I have ever met. For the past decade I have lived in New York, with an adverse reaction only less than that experienced in the headquarters of the racketeers.

Coming into Manhattan, I begin to feel a strange uneasiness like a slight attack of seasickness; leaving it, I suddenly grow more cheerful. Why? I am no confirmed bucolic; no city-hater in cheesecloth and sandals. The thoughts which men generate in cities are as important to me as bread. For the past few weeks I have been noting specific impressions in an attempt to come to closer terms with this mysterious feeling. The record is voluminous, running to hundreds of cases. Here is space for only a few of the more typical, together with certain generalizations into which many of the cases fall. You realize, of course, that we are here dealing more with the testimony of the five senses than with economics, or philosophy, or divination. You realize, too, that lacking a machine like that of Dr. Free, the intensity of the reaction cannot be given, only the bare fact.

Positive Reactions—pleasurable

The city from the East River at sunset
Brooklyn Bridge
Cube masses against blue sky
Corrugated ridges of step-backs—say at 34th Street
Fifth Avenue below 14th Street—where fine old houses and a ghost of dignity remain
The interior of the Graybar Building; many of the newer building interiors

Inside block gardens—say Mark Van Doren's
The view of the city from a high roof garden, particularly at night; towers indirectly illuminated
Bars of sunlight under the elevated railroad
The interior of the Grand Central Station
The Bronx River Parkway
Girls on Fifth Avenue above 42nd Street (one out of six is lovely)
Building excavations, with a nuzzling steam shovel
The inside of power houses
Morningside Heights and Riverside Drive, looking across to the Palisades
The American Wing in the Metropolitan Museum
The new Hudson River Bridge
Here and there a shop window with modern decorations
The oaths of taxicab drivers
A Stadium concert on a summer night

Negative Reactions—painful

Jammed traffic
Fire-engine sirens, motor-car horns, the cacophony of riveting, loud speakers, steamboat whistles (at night), most people's voices, the rasp of elevator doors, the roar of traffic in general, and that of the elevated in particular
All trucks (probably because I saw a woman killed by one on Seventh Avenue)
The insignificance of the sun and moon
A feeling akin to being at the bottom of a well
Central Park (it reminds me of a warmed-over meal)
The lower East Side with its dreadful old-law tenements
Park Avenue and its apartment houses like so many packing cases

The expression on the faces of most people
The smell of incompletely burned gasoline, of barber-shops, of Grand Street, of the garbage mountain in Queens, with the locomotives on top of it, of Chinatown, of the subway, of soda fountains
Movie palaces—with one or two exceptions
Delicatessen stores
Signboards and car signs
All travel by subway, tunnel or street car
The noon-hour crowd in front of establishments manufacturing garments
Suburbs—with a few exceptions
The outside of power houses
The gentlemen with no immediate purpose in life around Times Square
The ripping open of streets—like a public operation
Filling stations
Trees—probably because I love trees
Dust, dirt, and cinders
Most restaurants, particularly cafeterias. (In Paris the reaction is mainly pleasurable. Why the difference?)
The crush of skyscrapers around the Grand Central Station—the big bullies
City refuse on Long Beach—even on Fire Island, forty miles away

These lists give, I fear, a shattering insight into the shortcomings of the compiler's character, but there are at least honest. These are the sorts of things which alternately elevate and depress that unique system of electrons which comprises my

earthly temple. You, gentle reader, will disagree in detail, but will you disagree in general? Our electronic systems may diverge but all follow a basic pattern known as *homo sapiens*. What the lists say, in essence, is this:

There are more painful than pleasurable sensations in one's contact with a huge American city of the present day. Pleasure is found in sudden glimpses, in certain lights on architectural masses, in occasional arresting and amusing adventures, in the arts which the great city has to display.

Pain is found in noise, dust, smell, crowding, the pressure of the clock, in negotiating traffic, in great stretches of bleak and dour ugliness, in looking always up instead of out, in a continually battering sense of human inferiority.

These mile-high walls are everything, man is nothing. In Boston and Washington the walls were negotiable; one could respect one's self. That was years ago. Now the traffic roars on Boylston Street and Pennsylvania Avenue as it does at Herald Square. Internal-combustion engines are not so dwarfing as mile-high walls, but in such boiling steel masses they overawe the pedestrian, force him below the plane of human dignity. Why must we scamper like rats rather than walk like men?

II

Megalopolis is not a pleasant home for many of its citizens, awake or asleep. Even for those—and

they may be the majority—whose pleasure quotient exceeds the pain, the gross volume of the latter, however unconscious, does much to retard a gracious and civilized life. Look at the faces in the street. The machine has gathered us up and dumped us by the millions into these roaring canyons. Year by year more millions are harvested, the canyon shadows deepen, the roar grows louder. No man, no group of men, knows where this conglomeration of steel and glass and stone, with the most highly complicated nervous system ever heard of, is headed. So, with an open field, I make bold to present three main alternatives:

First—Megalopolis can continue its present course of becoming increasingly congested, hectic, and biologically alien to an ordered human life; its vast transportation systems pumping us back and forth from "places where we would rather not live to places where we would rather not work"—until a saturation point is reached. This may take the form either of a sudden and disastrous technical breakdown or a less dramatic surfeit of citizens with their environment, resulting in steady emigration and an ultimate collapse of land values. In the case of New York, with its twenty billions on the assessors' rolls, such a collapse would rock the financial structure of the nation. A mechanical breakdown is not so probable for horizontal cities, such as Washington; but Clarence Stein, the distinguished architect, regards it as very probable for vertical cities such as New York.

Second—By virtue of an aroused public opinion or a benevolent dictatorship—of which there are few signs to date—it is conceivable that in the case of those cities which had not entangled and enmeshed themselves beyond all human aid, drastic measures of coördination and preplanning might be introduced, fundamental enough really to adapt Megalopolis to civilized existence. We have the technical knowledge to do it, machines are always ready to help as well as to hinder; we have the engineering ability, and even for some areas the specific blueprints. But nobody has yet found a practical way to reckon with the land speculator and his colossal pyramid of values, duly capitalized on congestion. As Lewis Mumford acutely points out, the trouble with American cities is not that they have not been planned, but that the plan—in the configuration of a gridiron—has had no other purpose than to provide the most advantageous method for selling and reselling real estate. Cities have been laid out for profitable speculation, not for human use, and in the defense of that plan the most powerful forces in the Republic have fought, now fight, and will fight so long as they can stand and see. It is for this cogent reason that no fundamentally constructive program can be anything more than "impractical." In such a city as Washington, laid out a century ago with an eye to living rather than to rent collecting, the chances of introducing the necessary adjustments are, of course, somewhat brighter than in Chicago or New York.

Third—Whether we save our cities by functional

planning or continue somehow to exist in their ever grimmer canyons, there is always the possibility that on some fine morning a swarm of bombing planes will appear above the skyscraper tops, laugh heartily at the impotent clamor of anti-aircraft guns and, by means of a few judicious tons of radium atomite, poison gases, and, shall we say, typhus-fever cultures, dropped at strategic points, put an end to our hopes or to our miseries, as the case may be, and that quite finally. In the next war it is the great city which is to come in for the most intensive extermination. Upon this point all military experts of any intelligence seem singularly unanimous.

I shall not examine this last alternative in any detail. It deserves mention and is now mentioned. Perhaps there will be no more wars. Perhaps, by virtue of the League of Nations and Messrs. Hoover and MacDonald arm in arm, the institution of war now stands officially liquidated. Your smile answers mine. And as you smile you accept unreservedly the probability of another major conflict. There is always the chance, of course, that it will not be your city which the enemy selects for scientific experimentation. But it will be some hefty member of *genus megalopolis,* and probably more than one.

Turning now to the more immediate enemy within. What are the chances of technical breakdown? Is a saturation point approaching? What is the evidence, beyond the likes and dislikes of one insignificant citi-

zen, that Megalopolis provides physically and spiritually an alien home? First let us sketch briefly its nervous system.

Below its streets you will normally find:

1. Water mains—from six inches to six feet in diameter. If the latter burst, they "cause more havoc than dynamite"
2. Gas mains—spreading wholesale death if punctured
3. Steam mains—carrying heat from central plants to office buildings, also temperamental
4. Sewers—some of them big enough to drive a truck through, and not particular where they end
5. Subways—140 miles of them in New York. In some places there are four tubes one below the other. They carry the equivalent of the total population of the United States every two weeks. The whole system is now being doubled at the cost of $700,000,000. It will only make congestion worse. Blasting must be carried on close to four-foot water mains, while many men die from silica dust. ("Fifty-seven per cent of all rock drillers, blasters, and excavators examined were suffering from a probably fatal pulmonary disease resulting from the inhalation of rock dust")
6. Electric light and power cables
7. Telephone cables—up to 2400 wires on a single cable
8. Telegraph cables
9. Pneumatic mail tubes
10. Sidewalk vaults—always good hosts to sewer gas, as we shall see

Here are ten subterranean nerves—that is, theoretically subterranean. As a matter of fact, it is a dull day on any block when gentlemen in goggles and dun-colored overalls, armed with prodigious flares and ripping mechanisms, are not hauling one or another of the arteries toward the surface, to pound and batter them unmercifully. In a hundred yards of street, I counted eleven separate assaults in a week. Four of them cost me a good many hours' sleep. But Dante would have enjoyed the midnight spectacle.

On and above the surface is another great series of nerves, equally important if less mysterious. It comprises:

1. Bridges and causeways which admit traffic, particularly foodstuffs, to the city
2. Trolley lines
3. Elevated railways
4. Railroad terminals and switch yards
5. Milk and ice supply, the truck delivery service generally
6. Traffic control
7. Fire-fighting apparatus
8. Ambulance, hospital, and burial services
9. Garbage and waste collection—an obstreperous nerve
10. Street cleaning and snow disposal
11. Building and safety inspection
12. Elevator service—without which hardly more than ten per cent of normal business could be carried on
13. Radio wave-length control
14. The maintenance of landing fields, and the control of transportation by air

There is hardly an item in either the subterranean or the surface systems which is not cardinal to the continued functioning of Megalopolis. If one prime nerve is cut for any length of time, urban environment starts to disintegrate, leaving the wayfaring man—who has not the faintest notion of the technic which provisions him—as helpless as an airplane in a tail spin. For him the water supply runs no farther back than the faucet; the food supply than the delicatessen store. Furthermore, so interlocked is the whole structure that the failing of one nerve is almost sure to result in the rupture of others.

That these arteries are not functioning altogether smoothly some recent occurrences demonstrate. Recently a mile of London streets was suddenly ripped open by gas explosions—"thrown into the air like confetti." Many citizens were hurt, while the surrounding population was frightened as it had not been since the Zeppelin raids. The property damage was immense. The Surveyors Institution proceeded to investigate this and other mysterious gas explosions and has recently handed down its report. It finds that automobiles and trucks are now putting a strain on road surfaces and the terrain thereunder which they were never designed to meet. Pipes, conduits, and mains continually increase their diameters; the load from above grows heavier, and the vitally essential cushion of earth between the two grows scantier. Steel, like flesh and blood, is subject to fatigue. Iron and steel mains suffer an accelerating deterioration due to vibration and the sudden tem-

perature changes which the scantier earth promotes. Proper inspection is utterly impossible under modern traffic conditions. Meanwhile the steady removal of trees and the open spaces of loose earth about them takes away the natural outlets through which gases may harmlessly escape. Increasingly, gases are compressed beneath a solid roof of stone, brick, and asphalt. "The closing of these outlets," says the Institution, "results in either the accumulation of gaseous mixtures in abandoned sewers and subsoil cavities, or gas may penetrate laterally into adjoining vaults and basements. Actual ignition may occur through the use of a naked light or from a spark produced by the short circuiting of an electric fitting." As the vault and its inhabitants take their upward way, it is often difficult to determine which method of ignition furnished the inciting cause.

A great surgeon had given his life to mitigating human suffering. He established a clinic in the city of Cleveland. Suddenly he found himself working desperately to save the lives not only of his patients but of his colleagues and hospital staff. For forty-eight uninterrupted hours he labored, but at the end more than a hundred persons were dead. An unknown gas had exploded in the X-ray film room, to kill every human being whose lungs it touched. Thus a place of healing had turned into a shambles—no man quite knowing why.

On a summer afternoon last year a young man wandered down to the bank of the Hudson River

in Hoboken. Gazing across the greasy water at the skyscrapers of Manhattan, he lit a ruminative cigarette and flicked the match into the water. Where would a match be safer? He was rewarded by a blinding explosion which nearly cost him his life. He was standing over a sewer outlet from which oil and gas fumes were pouring. The conflagration rushed two ways; backfiring through the sewer, and out on the surface across the dry meadows towards homes and factories. Manholes began to shoot skyward all over town. Before that one match in the Hudson River had exhausted itself, fire and explosion had caused hundreds of thousands of dollars' worth of damage, and disrupted the life of the whole community.

Not long ago the Muggerberg Company of Hamburg, Germany, allowed phosgene gas to escape through its stacks at night. It formed a blanket over the city and, before it could be dissipated, eleven persons had been suffocated to death.

The ninth car of a subway express jumped the track at Times Square, crashed through a concrete wall and was cut in two. All safety devices were working, but the switchman's normal reflexes were momentarily in abeyance. This "man failure" cost 17 killed and 101 wounded. The situation in the tunnel at the rush hour was indescribable. Can we expect ever to eliminate man failure in the gigantic pressure of the rush hour? Cars with seats for 44, straps for 56, a total of 100, now carry 252 persons

at the morning and evening peaks. The close-up as the last sardines are kicked and battered into their cans, strong-armed guards assisting, is likewise indescribable. Indeed, subways have been shrewdly designated by Mr. E. K. Lindley as "feed pipes for skyscrapers," constituting the perfect vicious circle. The higher the skyscrapers, the more subways are dug to fill them. The greater the subway capacity, the more skyscrapers are reared to absorb it. Thus the new Eighth Avenue line in New York produces automatically a new one hundred and ten story building on Eighth Avenue.

A short circuit in a power house at Fiftieth Street started a tiny fire, but a smoky one. Almost instantly all power left the Grand Central Station. Throughout the night no train could move in or out. In the tunnels powerful electric engines came helplessly to rest, and the frightened passengers climbed ladders through manholes to the street. Haughty continental expresses stopped at the city limits. Suburbanites milled and jostled in the terminal, ultimately to decide that it was a long walk home, and to begin searching for a bed.

Two thousand truck drivers recently threatened to strike in one great city. Immediately the entire perishable food supply was imperiled. If they could have held their ranks, a mortgage on the City Hall would not have been too great a price to buy them off. Nor would two thousand have been necessary. An engineer once explained to me how one hundred

key technicians in power houses, flood-gate stations, and signal towers could bring the entire life of Megalopolis to an abrupt conclusion. A tiny piece of carelessness in a Springfield generating station shut off all light and power from the city for many hours. Business was brought to a standstill, traffic ceased, one factory alone lost 3,500 man hours.

An epidemic may secure a start in an hour's time from an unnoticed flow of polluted water into the municipal supply. It is physically impossible for chemists to analyze water continuously in order to determine how much chlorine is needed to purify it. But here at last is a ray of sunshine. A Swiss has invented an "automatic chemist," which keeps the chlorinating process on duty twenty-four hours in the day. It was exhibited recently but has yet to be adopted and installed by any American city. It induces speculation as to how many other vital services are in need of similar automatic controls.

III

So much for the factor of technological tenuousness. The nerves of Megalopolis are jumpy, and under the going custom of hit-and-miss nobody makes it his business to find out how jumpy, or to plan any rational system for lessening the pressure. The drift is toward an even worse confusion, and so, inevitably, toward the possibility of an ever more serious technical collapse.

Let us turn now to human nerves. The wayfaring

man remains sublimely unaware of a chlorine deficiency in his water until an epidemic overwhelms him, but motor cars and their collateral smells and noises pursue him every moment of the day and night. In the first eight months of 1929, 821 persons were killed by automobiles in the streets of New York, against 666 during a similar period in 1928. In less than two years motor cars have killed as many people in the United States as there were American soldiers killed in the war and wounded seven times as many as there were soldiers wounded. One in three of the fatalities is a child under fifteen. City-driving speeds have doubled in twenty years.

As I go about American cities, and particularly as I drive about them in taxicabs, I notice how the margin of safety continually declines. Where I allow, let us say, a five-foot tolerance when driving myself, the taxicab chauffeur will cut it to two feet, one foot, to nothing at all. At the present time motor traffic is operating on inches where it used to operate on yards. Probably the only thing which saves us from ten times the death toll is that when we are not cutting corners on one wheel, we are hopelessly stalled in a frozen traffic jam. Recently, on foot in New York, I started with a bus at Washington Square, and proceeded north along Fifth Avenue. At Fifty-ninth Street I halted and, taking out my watch, counted out fifteen minutes before that particular bus appeared. The trouble is that the nervous strain of waiting makes

for an embittered recklessness when the lanes are opened up—and no better evidence of that strain can be found than in the insane tooting of every horn in the whole congealed mass. The Queensboro Bridge has been christened by a New York editor, The Bridge of Nervous Breakdowns. "Given a reasonable expectancy of life, steady nerves, infinite patience, and a Christian resignation to fate, a man will no doubt get from one end of it to the other. But how many of us can boast these qualities at 6 P.M.?" He calls for double-decking—which, when the news is abroad, would, one fears, simply mean doubling the nervous breakdowns.

The evening of Labor Day, 1929, was unbearably hot and sultry. It was—according to the sublime processes of the New York holiday custom—the evening selected by some three million people to return to town. Two million had spent the day at Coney Island (and there is one of Megalopolis' most incredible sights: lucky the man who can fight his way into the water on such a day) or at Long Beach or Rockaway Beach or Atlantic City; the other million comprised the returning vacationists. Twenty-two persons were killed on the streets. Eighteen sections of extra trains arrived simultaneously at the Grand Central Station. The subways were choked beyond all endurance; trains ran ninety minutes late; buses, five hours late; the jam of the Holland Tunnel under the Hudson River was so prodigious that incoming motorists left their cars in Jersey City gutters

and fought for standing room on the ferries or in the tubes. Bumper to bumper, the steel files ran thirty, forty miles into the country over the Albany Post Road, the Boston Post Road, the Merrick Road, the Jericho Turnpike; with bed long after sun-up for those at the remoter ends of the file. Thus Megalopolis enjoys its holiday.

Citizen A: "Are you going to the country for the week-end?"

Citizen B: "How could I get back?"

It would be a great mistake to suppose that such conditions are found only in New York. Manhattan is a sublime exhibit, but one to which every other American city aspires with the utmost enthusiasm. Look at the skyscrapers shooting out of the Texas plain—congestion deliberately created amid unending miles of open space. I sometimes wonder if the erection of lofty buildings does not often transcend the economic basis altogether. How many are built for the sheer satisfaction of registering the highest altitude yet reached; how many to expand the ego of the promoter?

British scientists predict the coming of the deaf age owing to metropolitan noises and, justly enough, select New Yorkers as the first who are to lose their hearing. Herald Square, according to Doctor Free's instrument, is fifty-five sensation units above quiet. To talk to a person in front of Macy's one must shout as loudly as to a person more than half deaf. Ordinary street noises produce a result comparable

to that of one-third deafness, with certain locations doubling this rebate. A badly serviced truck produces five times as much clamor as one of the same make in good repair. Typists require nineteen per cent more energy to work in a noisy room than in a quiet one. Twenty per cent of all office workers' energy is wasted combating sound. The Wright Whirlwind motor and the New York subway both register seventy-five units on Doctor Free's machine, five units higher than a riveting machine in full cry.

The Health Commissioner of New York tells us that people are taking to drugs and sedatives to make them sleep. In the laboratories of Colgate University white rats, continuously exposed to normal city sounds, grow less, eat less, are less active and playful than their brothers exposed only to quiet. School children, it has been found, are very seriously handicapped in their work by street noises. Professor Spooner of Oxford, overwhelmed by such facts, calls despairingly upon the League of Nations to attack the problem. "Never," he says, "has civilization been confronted with such a malignant plague."

Not to be outdone by Doctor Free, Mr. Howard C. Murphy, a heating and ventilating engineer, has invented a machine for measuring dust, and so deluged us with another shower of gloomy statistics. The dirtiest city in America is St. Louis, fighting its way through 17,600 dust particles per cubic foot—with Cincinnati, Pittsburgh, and Detroit, in that

order, following close behind. New York, for once, loses its crown, having only 9,700 particles per cubic foot; but this is about four times as much as in country air. Winter death rates in cities have now passed summer death rates "due to one outstanding factor—smoke, dust and contaminated air." Meanwhile, though the sun may occasionally shine, all health-giving ultra-violet rays are completely excluded by the dome of dust and smoke which forever hangs above the skyscraper tops.

In brief, Megalopolis, for all its gaudy show, its towering architecture, its many refinements and cloistered comforts, is not physically fit for ordinary people to live in. And as the noise, dust, accident, explosion, and traffic congestion figures show, it grows continually worse. The technological limits of the machine have been repeatedly outraged until now the tangle of vital nerves is so complicated and involved that it is safe to say no one understands them or realizes in the faintest measure the probability and extent of some major lesion.

This, the first of the three alternatives submitted earlier, is my favorite for the future of great cities. They will drift blindly into breakdown. The final collapse may be very sudden and very terrible, due, let us say, to unendurable pressures of underground gases. More probably, Megalopolis will become so alien to normal living that even Jews, with two thousand years of urban adaptation in their inheritance, will leave it. Nor will the irate citizen

return until guaranteed space in which to breathe, move, and function adequately. This will demolish the whole structure of land values, and in the end demand the complete rearrangement of metropolitan anatomy.

IV

Can we reverse the process, grasp the second alternative, and rearrange before the breakdown? Logically we can, psychologically we probably shall not. No one in his senses would advocate that Megalopolis should abandon its mechanical arteries, and go back to the London of Doctor Johnson. But it is difficult to see why anyone in his senses should not demand that technological tenuousness be adequately appraised and squarely met. If we are to live in mechanical cities—and that is the path we have chosen—we ought to respect the mechanism. If the structure of real estate values—the subway-skyscraper complex, for instance—insists on choking the mechanism, then we ought either to abolish the structure and run the city on sound engineering principles or abolish the city as a complicated mechanical phenomenon altogether. Nor can the choice be indefinitely delayed.

If we want a city to use and enjoy we must give up great sections of the real estate racket. It must be planned for function, its nervous channels protected with space, open areas, "balanced loads," adequate and incessant supervision. Dynamite as a clearing

agent must be freely employed, a whole new orientation of work areas, play areas, home areas, established. If the landlord refuses to budge, then dynamite the landlord—by vigorous condemnation proceedings if you prefer. Technically the thing is complicated, but certainly negotiable. One can nominate a dozen engineers and architects who, given a free hand, could make even New York genuinely habitable and reasonably safe within a decade—and at a cost not so much greater than that of the new subway program. Dynamite is relatively cheap.

But the job would have to be done with the same high-handedness and vigor which characterized the War Industries Board when, over-riding a thousand encrusted traditions and petty rights, it put the nation on a war footing. A perfectly ruthless civic will must operate. Tear down a square mile here, a square mile there. Obliterate this reeking slum. Double the width of this street; abandon and build on that one. Construct great causeways to by-pass through traffic. A year in Sing Sing for any loud speaker audible after ten o'clock. No private motor cars at certain hours below Fifty-ninth Street, New York; and only 15,000 taxicabs. Two years in Atlanta for an unserviced truck making five times the noise it should. Fifty thousand trees to be set out immediately. Sidewalk cafés to be widely encouraged. Half of all subways to be permanently sealed, with a two-day festival and free beer. Three years in the Andaman Islands for a reeking chimney. Garbage

to be completely carbonized and by-producted. Four years on Nova Zembla for polluting river or harbor waters with oil refuse. Forty per cent of all industry to move outside the city limits to designated areas. (Suburbanites can thus commute *outward* as well as inward to their work.) The death penalty for all the officers and employees of companies caught broadcasting advertising matter from airplanes (as recently recommended by a hospital doctor in a letter to the *World*). And so on.

You are smiling again. But I am not. When I think of the city fit for the high gods to live in which modern engineering might build . . . when I remember what Megalopolis might be . . .

IV

THE ABUSE OF CAPITAL

An Inquiry into Overproduction

A GENERATION ago the automobile industry was unknown. It has been created out of whole steel in the past thirty years, particularly and especially in the past ten. It is probably the most mechanized and most modern of all the world's industries. Ten thousand years ago farming was well known. Save hunting, it is the most ancient of all economic crafts. Motor-car making and agriculture thus stand at the extreme left and the extreme right respectively, of the economic field. Yet each suffers from the same handicap. Both are readily capable of producing far more units than the market can absorb, with resulting disastrous competition, wasteful selling effort, and chronic unemployment. In the massed ranks of other industries, reading from left to right, I can call to mind but very few in which the blight of overproduction is not endemic. Throughout Western civilization—with reservation in respect to France—the malady takes a frightful toll, which is clearly mounting with the years.

In April, 1929, the automobile plants of the United States were capable of producing 7,000,000 units a year. Plant-expansion programs have gone

forward since that date. Yet in 1930, only 3,500,000 cars came off the assembly line. To make matters worse, whereas in 1923, 3,000,000 people in the United States became, for the first time in their lives, the proud owners of new cars, in 1929, the potential market had been so far exploited that there were only 500,000 such persons. A lush virgin territory has been reduced to cut-over lands; a *new* market has largely given way to a *replacement* market.

Jumping now across the economic front to agriculture, we find that the basic problem of the American farmer lies in his "surplus." The government at the present writing has bought and holds in storage millions of bushels of wheat in a heroic and possibly calamitous attempt to keep the surplus from crushing wheat farmers altogether. Four factors, according to Dr. O. E. Baker, have speeded up the agricultural surplus in recent years, and promise, moreover, to speed it even faster in the future:

1. Mechanized farming.
2. Better seeds, stock, soil treatment and land use.
3. Drastic shifts from less productive to more productive crops per acre—from corn to cotton in the South; from hay to fruits and vegetables all over the country, particularly in California.
4. The extensive shift from beef cattle to dairy cattle, hogs, and poultry—the latter producing far more human food per unit of animal food consumed. A man can be fed for a year in theoretical calories on two and one-half acres of hay stoked into milk

cows, but to keep alive on beefsteaks, he calls for *eleven* acres of grain, plus several acres of pasturage thrown in. Agricultural engineers are outdoing themselves computing these chemical and mathematical comparisons; farmers are following their logical and scientific deductions—and the surplus promises to rise to heights hitherto undreamed of.

In brief, the better we do things, the worse we are off. Or again, the more potential goods with which we are capable of blessing mankind, the worse for us and for mankind. (That echo of a sardonic laugh is from the shade of William Morris.)

II

Overproduction, particularly in this year of world-wide depression, is on every man's tongue. What precisely does it mean? There are indeed distinguished savants who affirm there is no such thing. In one sense they are perfectly correct. Let us look into the term a little more carefully.

The actual overproduction of goods destined for the ultimate consumer, in the sense that they never reach him but have to be thrown away, is a reasonably rare phenomenon. Cases have been cited of shiploads of bananas and carloads of vegetables making gay the waters of Manhattan, because they could not be given away, but the authenticity of such reports is dubious.

Far more frequent is a conflux of goods upon the market which can be absorbed, but only by a very

painful lowering of the producer's price—often below the cost of production. The phenomenon is, however, a very ancient one; the consumer often secures some advantage from it, if not the producer; while the nation-wide policy of hand-to-mouth buying by both manufacturers and merchants, inaugurated after the depression of 1921, has tended to reduce the ravages of overstocked shelves and sacrifice sales.

The average wage in the United States is somewhere in the vicinity of $1,500 a year. If the reader has ever tried to support his family on that sum he knows the number—the very considerable number—of goods he would like to purchase but must forego. In respect to the whole body of finished goods, it is not so much *overproduction* as *underconsumption* which is the appalling fact. As a nation we can make more than we can buy back. Save in certain categories, there is a vast and tragic shortage of the goods necessary to maintain a comfortable standard of living. Millions of tons of additional material could readily be marketed if purchasing power were available. Alas, purchasing power is not available.

Thus one horn of the dilemma is a money and credit system which does not throw off purchasing power as fast as factories can throw out vendable commodities. It is the more acute with the entrance of mass production upon the economic field. While average income creeps slowly upward, potential industrial output in a given field may increase at twice, five times, a hundred times the pace.

Which brings us to the other horn. The most immediately critical factor in the whole "overproduction" situation, to my mind, is *excess plant capacity* —which means more mills, more mines, more machines, aye, more farmers' fields—than can be used. Not only is this equipment almost always in excess of purchasing power, but frequently, if you please, *it is in excess of consumption requirements, granted unlimited purchasing power.* American shoe factories are equipped to turn out almost 900,000,000 pairs of shoes a year. At present we buy about 300,000,000 pairs—two and one-half pairs per capita. There is admittedly a considerable shortage of shoes, but could we wear out, or even amuse ourselves with, five pairs per capita? I doubt it. For myself two pairs a year satisfy both utility and style. Yet if we doubled shoe consumption—gorging the great American foot, as it were—one-third of the present shoe factory equipment would still lie idle. There are more shoe factories than we have any conceivable need for, either here or in Utopia.

Whether the capital equipment exceeds money power to buy, or man power to consume, the hobgoblins in the picture are overhead costs. Taxes, insurance, interest, depreciation, obsolescence, repairs, the services of watchmen, executive and clerical salaries, general office expenses—all go merrily onward whether a wheel turns or not. If few are turning, they will eat up the profits earned on those wheels, and keep the plant as a whole operating at a

loss. The greater the plant, the greater the overhead; the bigger they come, the harder they fall. But nobody in his senses builds a plant with any idea except that of continuous, profitable operation. Rosy sunrises illumine every factory chimney which climbs upward. The promoter knows that, *granted continuous operation,* his overhead expense per unit of output can be kept to a minimum. The greater the volume, the lower the overhead cost; and, of course, the bigger the plant, the greater the volume. He never stops to consider—the American success saga does not permit him to consider—the reverse of the shield: to wit, the bigger the plant, the greater the costs of possible idleness.

Abnormally low costs when everything is humming. Abnormally high costs when everything is slack. As more plants and greater plants invade any particular field, the chances in favor of slackness are bound to grow. Unless, of course, purchasing power grows equally fast, which it does not. And there we are.

Why do plants so consistently outrun demand? The figures make it perfectly plain that they do, but why does capital take such gorgeous risks? Who, in the light of the facts just cited, would be fool enough to build a new shoe factory? The reasons are many. Promoters do not know the facts; indeed some do not seem to want to know them. A new device, an improvement on an old device, a happy advertising slogan, a new technical method of manufacturing, a

rumor of great profits being made by those already in the field, a patent, a selling contract secured in advance—all offer the chance for rushing in where angels fear to tread. And rush we do; others may have failed, but we shall succeed. It is all very human, and profoundly in accord with the American tradition. I bemuse myself sometimes in speculating upon the amount of new capital which has gone into dentifrices, cosmetics, and fat reducers simply on the strength of an advertising man's showing of copy in advance of any plant construction whatsoever. The plant may make money, lots of it, while the public craze for the article lasts, but it becomes superfluous concrete and steel when the craze subsides.

There seems to be no urgent social need for the 78 sizes of bed blankets now upon the market, or the 278,000 types of men's sack suits, or the 6,000 varieties of single-bit axes; or for numberless other overstyled commodities concerning which the American Standards Association can give you the most appalling information. Yet every style and size requires as a rule special equipment and added investment.

Untold plants, furthermore, have expanded to meet a peak demand—a demand which never comes again. Thus during the war new coal mines were opened right and left. After the war demand fell away by 100,000,000 tons, and will probably never climb again to the dizzy peak of almost 600,000,000 tons. The war is responsible for current excess capacity in many industries.

Lastly, and very much to the point in connection with our discussion of purchasing power, the margin between total costs and selling price has been so high in the well-situated establishments that an enormous amount of net profit has been available for new investment. The living expenses of the rich have absorbed only a small fraction of their total incomes. The balance has flowed into new enterprises, some of them extremely necessary enterprises, many of them only adding to an industry already overequipped. If more of the gross receipts had been returned in wages, industry would have stood on a more solid base, with less loose capital seeking even looser investment. In brief, a bad distribution of income has done much to foster excess plant capacity. Instead of being used, capital has been abused. Once it was widely held that if profits were tampered with, "capital would leave the country." We might have been better off to-day if it had. We have altogether too much capital in relation to purchasing power.

III

Excess plant capacity is inescapable under the blessings of an economic system founded on the basis of free competition and *laissez faire*. Ever since James Watt put his first steam engine into a cotton mill it has plagued Western civilization. But for a century or more it was held, with some show of reason, that the virtues outweighed the defects. If A had a monopoly and was making an undue profit,

it was to society's advantage to have B build a similar plant, invade the market, and bring prices and profits back to normal. If C, similarly inspired, came in too late and had to scrap his plant, it was wasteful and unfortunate to be sure, but C's loss was overbalanced by A's, B's, and society's gains. A, B, and C furthermore were all individual entrepreneurs; little capitalists with little money, drawn from a limited investment field. The procedure was not unlike the ebb and flow of independent retailers to-day—the new shingles on Main Street about equalling the petitions in bankruptcy in any given year. The shores of the system were strewn with wreckage, but the wrecks were small, and the system *functioned.*

Now, however, in a great and increasing segment of industry, the day of the small capitalist, the little plant, is over. Billion-dollar corporations are almost as thick as airplanes overhead. Even where the plant itself has not vastly expanded, one concern will operate a string of smaller mills. The ebb and flow of free competition, the rush of capital to the point of high profits—like levels of water in connected tanks —is not the fluid thing it used to be. Where it once took thousands, it may now take millions of dollars of capital effectively to invade a given field, particularly where mass production is dominant. No longer can we view with benign equanimity the operation of majestic laws. The units are too great, the investment too heavy, the employees too numerous, the possibility of waste and loss too enormous for us to

look with anything but the liveliest apprehension upon bankruptcies, shut-downs, part-time functioning, indeed anything but capacity operation of these mammoth structures.

If competition also had gone, we might have something to be thankful for. Great monopolies articulated to consumer demand, producing according to the latest findings of the technical arts, running at approximate capacity the year around, might mean monopoly profits (if unregulated), but would also mean no waste of capital, far less unemployment, no excess plant capacity, no overproduction—even as the Telephone Company now functions. But alas, competition, far from declining, has accelerated. While it is more difficult for the new concern to enter the field, the concerns already in it, by constantly improving their technical methods, introducing new machines, scientific management, research work, have enormously increased their potential output, and achieved the same result. Competition among giants is more bloodthirsty than among pygmies. Clans of giants, furthermore (under the general style of trade associations) move against other clans in related industries (lumber versus bricks), while superclans making luxuries do battle with superclans producing essentials (motor cars versus food or housing).

All down the line competition has intensified. Out of the pressure has grown the Higher Salesmanship, "service," annual models, instalment contracts, con-

tact men, red and blue charts—the whole gaudy phenomenon of modern distribution. Generally speaking these efforts, while often effective to begin with, cancel one another in the end (as when all products are endorsed by the same stars), thus placing an enormous additional burden of waste on the mechanics of distribution, which must be added to the retail price, *and thus further limiting purchasing power.* To-day it is estimated that the producer takes but half the consumer's dollar on the average; the rest goes into advertising, selling, and transportation.

While purchasing power received some stimulation through the device of instalment selling (to be precise, about six billions of stimulation) the bulk of it went into luxuries and semi-luxuries, creating a top-heavy industrial structure. With the present depression, the boomerang comes back. Laden down with instalment contracts, the wayfaring man cannot buy simple food and clothing in the volume that would be good for him, and especially good for industry at this time. As the *New York Times* editorially remarks: "It is hardly unreasonable to suppose that when the glamour of full employment and exceptional business profits met with a sudden check, the mere continuance of payments on such instalment contracts, made at the height of speculative enthusiasm, must have added to the public's inability to make new purchases." The mass production plants in the luxury fields, fed by the glass tube of instalment sales, are now particularly and dangerously

exposed to the paralysis of overproduction. Some philosophers, like Mr. Paul Mazur, held that through high-pressure selling the formula for Utopia had been won. It now appears that the formula has only made confusion worse confounded.

IV

England, the mother of the industrial revolution, working in big units for specialized markets in coal, cotton, and shipbuilding, finds herself to-day on the verge of economic collapse due to shifts in market demand and the idle plant which has resulted. Two hundred thousand coal miners will never enter the pits again, while 3,000,000 workers are unemployed the country over. The total creeps steadily upward, with no relief in sight. Germany had in July, 1930, 2,774,000 unemployed. Italy has nearly half a million out of work; little Austria 300,000; Poland and Sweden abnormally high totals. Indeed the only major exception to serious overproduction (in one or more of its definitions) and unemployment, seems to be France. France has not embraced mass production and big industrial units with any such loving solicitude as has distinguished her sister nations. She has clung to handicrafts, small units, peasant proprietorship. Her people work long hours for a low standard of living (measured in dollars if not in human satisfaction), but the blight of unemployment has largely passed them by. This calls to mind a shattering sentence from the pen of Mr. Virgil Jordan,

sometime head of the National Industrial Conference Board, and so one of the leaders of American Big Business:

It is probable that the system of small agricultural holdings, and of handicraft manufacturing which existed between the breakdown of feudalism and the advent of the industrial revolution, was the most stable of all the forms of economic organization that have been so far developed—although it did not supply as high a standard of living for parts of the population as has been seen since.

The penalty which an uncontrolled Machine Age exacts is overproduction and loss of economic stability. Mr. Jordan may stand convicted of heresy, but hardly of violence to the truth.

The United States has kept its nose above water until the present depression because of its enormous home market (denied to England), its prodigious natural resources (now beginning to fail), its mounting population curve (which is flattening out), the automobile, which created 4,000,000 jobs (and in the first half of 1930 was turning men away), instalment selling (as a temporary stimulant), and the policy of the economy of high wages (which never went far enough). Overproduction has repeatedly cramped our style, but never really frightened us. As the white-headed boy of the West, the world was our oyster.

We are beginning to be frightened now. The professional optimists are fading from the front pages.

The business temper is increasingly one of an honest facing of facts. Here are a few of them:

The New York State index of factory employment for June, 1930, reached the lowest level ever recorded; it is still falling. Automobile production for 1930 fell by a cool 33 per cent below 1929 and is now functioning at a fraction of its capacity.

American oil wells are capable of producing 5,950,000 barrels a day, against a market demand of 4,000,000 barrels, according to the figures of the Standard Oil Company of New Jersey. This registers an excess capacity of 48 per cent. Better gasoline cracking methods will make it worse. Oil in storage mounts steadily and now stands at over 300,000,000 barrels. In only one year in the last seven has any draft (net) been made on reserve stocks. Meanwhile a California well is merrily shooting into space 75 million cubic feet of gas a day, enough to supply the whole city of San Francisco. Due to overproduction, fuel oil is dumped at low prices, "far below its equivalent value to coal on a thermal basis." This drives out coal, making for overproduction in that unhappy industry, and wastes potential gasoline. According to Sir Henry Deterding, United States oil producers average only 3½ per cent on their investment; in 1927 the return shrank to one per cent. Small wonder that the industry is moving heaven and earth to circumvent the Sherman Law and eliminate free competition, overproduction, and its appalling waste.

In coal there is little overproduction in the sense of mining before selling. Dropping the price, furthermore, does not stimulate sales—as with radios or frocks. Consumers of coal buy what they need and no more. The real problem is excess capacity. The mines of the country can produce at least 750,000,000 tons a year, while the market can absorb but 500,000,000 tons. Full capacity may be used for a week or so, but by and large, the miners average no more than 200 days a year in the pits. Excess capacity is roughly 50 per cent—and getting worse. Fuel oil, electricity derived from water power, natural gas, better technical methods in coal utilization, and mechanization in the mine itself are all factors tending to intensify the disease of overproduction. Finally, there is a nasty little joker in coal not found in manufacturing industries. When a shoe factory is abandoned, the loss is measured by the building and equipment. When a coal mine is abandoned, not only is the equipment lost, but often *all the unmined coal.* It can never be worked again. Here is where overproduction takes a malicious and deadly blow at an irreplaceable natural resource. The intelligent coal men, like the oil men, are trying to eliminate competition. Says one of their leaders, Mr. O. E. Bockus: "It is doubtful whether there is any other industry in which the supposed advantage of unrestricted competition in assuring low prices is offset by so many and so serious social losses."

In textiles the chaos is indescribable. Cotton mills

have duplicated an already overbuilt investment in New England by spreading to the South, largely on the false economy of low wages. They have encumbered their structure, according to Mr. Henry P. Kendall, with mill agents, commission men, brokers, converters, outside bleacheries, and finishing plants. They have been forced constantly to add new equipment for ephemeral style purposes instead of sticking to the economies of standard lines. They have been torpedoed from the depths by the widespread practice of buying up bankrupt mills at ten cents on the dollar, and the consequent flooding of the market with goods bearing no capital costs. They have been enfiladed by the sanguinary competition of rayon and silk. Has this helped the silk industry? Not at all. It boomed for a while after the war, whereupon skilled workmen, bankers, retailers, anybody with money to invest, rushed up little mills by the hundreds. (This industry does not require a large investment.) Style changes made fortunes for a few and reduced the many to nervous prostration. Plum color is the rage. Every mill starts feverishly to work. The rage is comatose before even a dent has been made in the plum-piled shelves. Woven figured silks pass, and thousands of Jacquard looms stand in their stalls, with no purpose in life but to eat their heads off in overhead costs. The shift from plain woven to crêpe scraps millions of investment. Last year, according to Mr. Thomas B. Hill, one company alone was equipped to produce all the taffeta the nation

called for. The Wool Institute reported for 1927 a mill capacity of $1,750,000,000 against actual production of $656,000,000. Woolen mills, like shoe factories, are thrice too many.

An able management engineer, Mr. Wallace Clark, finds his clients normally operating at 40 to 60 per cent of capacity. The printing trades are 50 per cent overequipped, while paper mills are now suffering acutely from overproduction. The machine-tool industry has operated at 65 per cent of capacity for the last ten years. Oil refineries do somewhat better at 76 per cent, according to Mr. J. E. Pogue. Plants manufacturing gas function at 66 per cent. Flour mills, says the Federal Trade Commission, utilize only 40 per cent of their capacity on the average (due partly, of course, to peak demands in grinding cereals).

There is plenty of chance to quibble as to the exact meaning of "capacity" in the above recital, but none at all as to the alarming extent of excessive plant and equipment in industry after industry. The normal definition of capacity is eight hours' operation a day, for 300 days in a year. Obsolescence confuses the issue, particularly in textiles, where many New England mills possess batteries of venerable and completely outmoded looms. Perhaps such plants should be excluded from the capacity computations altogether—though one can hardly exclude the financial troubles and unemployment of their owners and operatives. Certain industries, such as lumbering and

canning, are profoundly affected by the seasons, and under present methods of storage can hope to operate but a few months in the year.

With all due allowance for such factors, the acute presence of overproduction throughout industry, even as we noted it in motor cars and agriculture at the beginning, is only too manifest. It is needless to document it with additional figures. Every other business man you meet on the street is lying awake at night trying to work out a plan to come to terms with his competitors; to formulate an agreement, legal or illegal, whereby price cutting may be mitigated, territories divided, marginal mills closed down, and some sort of order and reasonable security established in what is now a roaring chaos. In the last few months I have happened to be an innocent bystander in the formation of three such agreements. Basically, the whole merger movement is a flight—often with all the earmarks of panic—from overproduction.

V

The dilemma in its simplest terms is that the credit system has not kept step with the technical arts. We cannot buy back what we make. This is good in that we have been estopped—some of us—from choking ourselves with unnecessary luxuries (say two radios per family), but bad in that we have (at an average wage of $1,500 a year) been forced to forego many needed essentials. It is bad because of the wasteful

piling up of half-utilized plants, with the resulting financial spasms—peaks, depressions, unemployment. It all leads back to unlimited freedom of competition, a naïve faith in the automatic benefits of *laissez faire* —eighteenth-century ideas, in the twentieth-century world of a billion horse power.

Is there any way out?

We can always drift with the tide. This may mean years of acute depression, a quite possible lowering of living standards, terrible unemployment, and, one suspects, a retreat to the French formula of self-sufficiency. Or it may mean a temporary boom in the United States, another little ride with the Prosperity Chorus ringing bells and dropping nosegays, and so to a more resounding crash. Mounting overhead and mounting distribution costs are not things which can be permanently overcome by ringing bells and thinking the right thoughts.

Under a policy of drift, all signs point to a situation increasingly critical. Owing to the growing interdependence of industry—what I have called elsewhere technological tenuousness—overproduction in one field automatically calls it forth in other fields. Too much motor-car capacity forces too much steel, rubber, glass, and accessory capacity. Too many oil wells engender too many filling stations and refineries. Too many acres of cotton call forth too many textile mills. Again, much of our capital investment has been erected to meet the demand of a country with a rapidly growing population. Now it appears

that the population curve is flattening out toward perhaps a dead level in another generation, thus tending to make the burden of excess capacity even more pronounced. As virgin customers in new commodities (radios, electric refrigerators) give way to replacement customers, demand is bound to slacken, the time interval of turnover to increase, with the inevitable and lamentable effect on overhead costs. I realize that Jeremiahs, however logical, are frequently undone by the final triumph of the policy of muddling through. But just how we are to muddle through this impasse escapes me altogether—even as I failed to see in the summer of 1929 how the stock market was going to muddle through. Our rise to industrial dominance has been compounded of energy and luck. The luck is running thin, and the energy will but build more needless plants. Only brains can save us.

If we elect not to drift, various constructive suggestions are in order. Can the credit system, like Newcomen's monstrous pumping machine, be modernized by some financial Watt? Messrs. Foster and Catchings have already presented their credentials. Others are in the offing. The details of the several plans lie beyond the scope of this essay, but there is unquestionably much to be said for a deliberate, nation-wide fostering of a high-wage policy, and a more equitable distribution of income. There is always the danger that a rush of new purchasing power would promptly be taken in charge by the

high-pressure fraternity and devoted largely to luxuries and non-essentials, as happened with the little pool accumulated through instalment selling. Furthermore, high wages, while enormously helpful, would furnish no guarantee against overproduction in its upper registers. Wasteful overequipment might still continue. As we have seen, the shoe industry and probably the textile industry are already beyond salvation by increments in purchasing power.

It has been proposed that we sell our surplus abroad. Unfortunately this has also been proposed in all other nations, many with the same kind of exportable surplus. Doubly unfortunately, all follow, or propose shortly to follow, our spirited lead in penalizing imports by a tariff wall as high as the Tower of Babel. If these walls by mutual agreement came tumbling down, the situation would certainly be ameliorated but hardly liquidated. The United States, for example, exports only about 10 per cent of its total output, and even if this were doubled by unlimited free trade, the effect on industries now overequipped by 50 to 300 per cent would not be marked. More powerful medicine is needed.

In my judgment the only final way out lies through planned production. We have to scrap a large fraction of *laissez faire,* and deliberately orient productive capacity to consumption needs.

In Russia they build no more shoe factories than are necessary to supply Russians with shoes. The Kremlin is attempting scientifically to articulate

supply to demand, and the results so far under the Five Year Plan have given the whole world pause. Our ways are not Russian ways, but have we less in the way of brains, human wisdom, and human foresight? I am enough of a patriot to doubt it. But I am cursed with sufficient prophetic sense to be profoundly sure that if we do not embark upon a program of industrial coördination after our own fashion, and that shortly, we shall be driven some day, after God knows what suffering and bloodshed, to the Russian formula. The challenge presented by overproduction in the age of a billion horse power is, to my mind, just as ominous as that.

This essay is an attempt to state a problem. The details of its solution are unknown to me, unknown to any individual. It will require a pooling of the best brains we possess to work out the needed blueprints. My function here is to call for those brains. Some may hold that I have unconsciously darkened the picture to add urgency to the call. Perhaps. But overproduction is a double-edged sword, striking the worker through unemployment, the business man and the farmer through overhead costs, and so cutting its savage way through every social class. It was enormously stimulated by the war, and gathered momentum during the whole "prosperity" period. From many points of view it is fortunate that prosperity has come to an end, shocking us into a realization of our true condition; forcing us to terms with the invader.

For America, industrial coördination must probably take the form of a drastic revision of the anti-trust laws; an alliance between industry, trade association, and government to control investment (*i.e.*, plant capacity) on the one hand, and to guard against unwarranted monopoly prices on the other; a universal system of minimum wages and guaranteed hours of labor to frighten off fly-by-night entrepreneurs and to stimulate purchasing power; and finally, and perhaps most important of all, the setting up of a National Planning Board as a fact gatherer and in turn an adviser to Congress, President, industry, trade union, banker, state government, on every major economic undertaking in accordance with a master blueprint.

Mr. Hoover once made a gesture in that direction. If any President ever does it in earnest his name will go echoing down the aisles of history.

V

PROMETHEUS ENCHAINED

I ONCE wrote a book and ended it with these lines: "Prosperity in any deeper sense awaits the liberation of the engineer. If the owners will not get off his back I, for one, would not be sorry to see him combine with the wayfaring man to lift them off. A complicated technical structure should be run by engineers, not hucksters. But the technician is the modern Prometheus in chains."

I have been asked to be more explicit. It is good to end a book with a round, ringing climax, but not quite so good to be forced to explain all its implications. I recognize, however, my responsibility in the premises. I said flatly enough that I preferred engineers to business men as directors of our economic destinies, and it is clearly my duty to state the reasons.

Since James Watt tinkered with Newcomen's engine, the technician has been increasingly interfering with our food supply, and indeed with the whole economic structure. He has completely undermined the self-supporting village and the economically independent local community, over all of Western civilization, and is in the process of devitalizing it throughout the rest of the world. A few months ago

in Mexico I saw the fresh cuts and fills of motor roads scarring the mountain sides, and cement foundations laid for high-power transmission lines. I wondered if the end of the balanced Aztec economy was near. There has been a great deal of loose talk about "progress," "prosperity," "the torch of science"; but the uprooting of the age-old relation between the wayfaring man and his environment is a serious business; far more serious indeed than the Prosperity Chorus ever stopped to realize in its mad dash toward the bigger and better.

Before Watt, the majority of men and women everywhere were capable of providing their own food, shelter, clothing and entertainment. They grew up in the tradition of wresting their necessities from the soil, the waters, the forests about them. They may have done it with deplorable inefficiency, but they did it. Shipwreck a group of them on an uninhabited but fertile island, and they knew how to carry on.

Year by year, since 1765, the mass of mankind has been losing the ability to carry on. Shipwreck an assorted crew of bookkeepers, truck drivers, machinists and advertising men on an uninhabited but fertile island, and I would not give them two months' survival. The advertising section would hold some splendid conferences and inscribe some spirited programs, but few would know how to do anything useful. Unless by some happy chance one of the bookkeepers was a truck gardener on the side. To-day the millions live in total and sublime ignorance of the forces

which feed, shelter and clothe them. For all they know, switches produce light, and chain stores food. The functioning of the economic process rests in the heads of a few thousand highly trained experts. Is it too much to say that if a hundred key technicians left their posts they could seriously cripple, if not positively terminate, the functioning of a great city like New York? To make matters potentially even more precarious, each expert is so highly specialized that he has little conception of the work of the others. There is no General Staff, understanding the whole process, and correlating the vital nerves of transportation, communication, power, water, food supply, which furnish the economic substratum of the modern community.

Specialization makes for economies, sometimes prodigious economies, as the Progress Boys are tireless in pointing out. But it also makes for a highly complicated nervous system, a certain technological tenuousness, which carries a threat greater than anything we have known before—indeed, a whole series of threats, including:

Technological unemployment
Mechanized warfare—particularly the three-dimensional attack of the bombing airplane
Social standardization
Over-rapid exhaustion of natural resources
The creation of a factory robot class
Secondhand rather than participating recreation forms
The compulsion of speed, with consequent deleterious effects on the human nervous system

I am enough of a Progress Boy myself to admit, somewhat grudgingly to be sure, that I am glad James Watt did his tinkering. (If he had not, another bright young man would have invented a practical steam engine, and that within a decade. The times demanded it, and it would have come.) By and large, we stand to gain more than we lose by the emergence of the technical arts and the economic specialization which they have created. But this should not blind us to the chances taken and the risks involved. Some six million unemployed last winter must have frequently wished to be back in the handicraft age when unemployment was virtually unknown. A million and a half of them actually returned to the farms in 1930, but the agricultural community, alas, is no longer self-supporting. All is far from the best in a moderately uncertain world—with just a chance that another first-class war or another decade of uncorrelated specialization might wipe out the whole credit side of the ledger, and make us all wish to be back in a self-sufficient local economy.

In brief, engineers have been raising considerable mischief, along with their not altogether heavenly technical improvements in economic life. And the point I wish to stress is this: they have been doing the horse work while letting somebody else—chiefly the business man—take the responsibility. It seems to me that the responsibility should be squarely theirs. By the same token, the credit—if credit

there be—should belong to them. Mr. Engineer, you have played the shrinking violet long enough. You have remade Western civilization, and created at the same time certain malignant evils—actual, like technological unemployment; potential, like a smash-up due to overspecialization. You should shoulder the burden of mitigating these evils; which means directing the destinies of the new society that you have built. You are responsible for it; you are the only group in the community capable of understanding its complicated structure. Statesmen, philosophers, generals, poets, may lead self-supporting communities, but only engineers may lead a great, interlocked economic structure, with a score of exposed live arteries throbbing in every metropolitan area.

In a sense the modern world is not led at all. It simply flounders. In the United States, for instance, we have a political government composed chiefly of office seekers and chair warmers, who have no more idea of the complexities they are supposed to direct than the man in the moon. The real action in the Republic is provided by business men affiliated with large corporate enterprises. A few of them, like Mr. Owen D. Young and Mr. Dwight Morrow, may possess some sense of state, to use the phrase of H. G. Wells, but the majority neither know nor care where the body politic is headed.

The pursuit of profit is a stimulating adventure

but an intensely narrow one. Rare is the business man who can look over the top of his own balance sheet; rare even the man who can plan for a balance sheet three years in advance. So far as the Republic moves, however, the man of business provides the driving force, leaving the statesman, the philosopher, the professor, the editor, the general, the parson, to contemplate gloomily the crowns which once they wore.

At the heel of the business man follows the engineer. The former says: Let there be light, and the latter provides it . . . Let there be a thousand oil wells (in a pool where wasteless exploitation requires but a hundred) and they are obediently drilled. . . . Let there be the highest building in the world (to choke an already throttled Grand Central station) and it is built. . . . Let there be an almost ultra-violet lamp (to sell to the millions who believe in advertising) and, brave in nickel and aluminum, it is promptly constructed. . . .

The engineer has built the modern world, but only at the bidding of his master's voice. The master knows not a crank shaft from a piston rod, but he knows what will sell, and is quick to see the profitable possibilities of every advance in pure science. The world is not planned by the business man, for he has no plan. It is not planned by the engineer, for hitherto that has not been his function. He has constructed endless detail, but the whole, whether it be

the nation, an economic region, a city, a railway system, a coal basin, a single industry, a straight line marketing system, has never been relegated to his charge. Technicians are building in suburban New York a little town, ultimately to house 25,000 people, designed specifically for the motor age. So far as I know, this is the biggest single project involving a social-economic goal ever permitted to the engineering mind in the United States. (In Russia to-day, the engineering mind has the disposal of some thirty-three billions of dollars for new construction during the next five years.) It will be the most convenient, comfortable, safe, and perhaps the most sightly suburban town to live in that the nation has known. The business man has stepped aside—taking a modest six per cent—to let the engineer run the show.

It is my conviction that the engineer can run far bigger shows than the town of Radburn to the satisfaction of (1) the people who are to use them or work in them, (2) the investor, (3) himself, (4) the technical requirements of the country's future development. Suppose, for instance, that broad-visioned engineers had had the past century in charge as directors—or co-directors if you will. Would they have permitted:

The depletion of our forest at a rate four times that of the annual growth?
The exhaustion and erosion of soils, and the floods which follow after?

The violation of all the laws of geology in the exploitation of petroleum pools?
The present criss-cross and duplication in the transportation system?
The neglect of cheaper waterways for the profitable exploitation of high cost railways?
The jams, bottle necks and traffic tangles of metropolitan districts?
The building of skyscrapers faster than the means to empty and fill them?
The elephantiasis of New York City at the expense of other ports?
The cross-hauling of raw metals to Connecticut and finished brass back to the West again?
Or, if you please, the desecration (to say nothing of the added accident rate) of every highway in the country with millions of square feet of cigarette, cosmetic, and soap appeals?

That a century of the engineering mind controlling economic forces would have made a wasteless world is, of course, problematical. The rate of obsolescence in the technical arts is so great that nothing can be planned with finality. Mistakes would have been made; loss and leakage taken their toll. But I am inclined to believe that a good half of the manpower which now runs to waste might have been salvaged, with the result that poverty would have been quite finally abolished, unemployment enormously diminished, the accident rate drastically reduced, and a cleaner, safer, more comfortable, more sightly, more integrated nation have been our heritage.

I speak of the *engineering mind.* This is not to be confused, alas, with the average engineer as we know him. At the beck and call of the business man, the poor fellow can hardly be said to have a mind. He is narrow, near-sighted, overspecialized—even as is his master. He has no more sense of state than a rabbit. But before he was yoked to the treadmill, there were moments when he glimpsed the dignity, the responsibility, the supreme challenge of his profession; when for a lucid interval he realized that he belonged to the most important profession in the modern world; that indeed he had the world in his keeping. A few individuals (I will name no names) have kept the realization untarnished; that is what I mean by the engineering mind.

It is a mind that is professional, not commercial; dedicated to building, not to profit-making; that is done with false modesty and has the courage to accept the job of taming the billion wild horses which Watt let loose; that thinks straight and hard; hates waste and confusion, dirt and despair; that never stoops to the shoddy or the adulterated.

Plato once called for philosopher kings. To-day the greatest need in all the bewildered world is for philosopher engineers.

VI

SEVEN SALESMEN AND SIX HUNDRED ENGINEERS

JEREMIAHS of monumental profundity wring their hands and tear their beards lamenting the conversion of men into robots in the age of the machine. They adduce no figures, but the impression given is a wholesale operation, affecting nearly all of us. Elsewhere I have sought to verify, quantitatively, the strength of this indictment. With the Census of Occupations as a base, I found that of 42,000,000 Americans gainfully employed, not more than 10,000,000 spent their working hours in close contact with machinery. Further analysis discloses that only about 5,000,000 can properly be called robots at all in that they surrender their personalities to the machine.

The other 5,000,000 either are handicraft men and other helpers about factories who have little to do with machinery, or—and this is important—they themselves *dominate* the mechanism, and thus let some of its energy into their own veins. Air pilots are not robots by any stretch of the imagination, and neither are operators of motor cars, locomotive engineers, or structural steel workers. Lastly, of those who might be termed robots—some 12 per cent of the gainfully employed—the number is actually de-

clining, and for two reasons. Due to technical improvements in output per man, factory employees, even in periods of prosperity, are growing fewer. Second, the automatic function in industry is steadily gaining ground, displacing machine-feeders and nut-screwers by skilled designers, inspectors, dial-watchers. A large number of so-called robots give way to a small number of workers with reasonably intelligent and independent jobs.

In order that the Jeremiahs may see exactly what I mean, I take pleasure in presenting in some detail the most advanced single exhibit of the automatic function in the world. The honor belongs beyond peradventure to the mill which makes automobile frames practically by itself on the premises of the A. O. Smith Corporation in the city of Milwaukee. And I take pleasure in presenting one or two additional aspects of this extraordinary company which ought to give the machine-age philosophers, both gloomy and cheerio, enough to reflect on for a long time to come. This plant not only threatens to end the scourge of the robot; it threatens to end industry itself—in the form we have hitherto known. There is a mixture brewing here which, if it explodes, will make Milwaukee more famous than ever did its beer.

The company was founded more than half a century ago with the commendable purpose of fabricating baby carriages. In due time, babies were abandoned for bicycle riders. About 1900, Mr. A. O.

Smith, the son of the founder, gave the first recorded example of that policy to which the company now dedicates itself. He had been following the early flounderings of the automobile. Bankers and other sensible folk knew it for what it was—a crazy, impractical contraption. Not so Mr. Smith. He was convinced that the motor car had a future. Some day it would be made in large quantities. It would need a frame on which its engine would rest. That frame might be made of wood, iron, or pressed steel. He pondered over these three alternatives as the one-lungers gurgled, back-fired, and frightened live stock out of its wits. He concluded his ruminations in favor of pressed steel. With a group of men from the bicycle shop, he proceeded to design and erect special machinery for making steel frames, *a full year before there was any call for them, or indeed any evidence that America would take to making automobiles in a determined way at all!* He had thought out his problem, designed and set up his equipment in advance of the world's recognition that there was a problem.

In 1902, the orders—more or less on schedule—began to arrive, the machines were put at productive labor, and the first frames shipped out. They came from the shop at the rate of ten per day, and the firm offered a house and lot to the foreman who could get out twelve. It was hand and machine work, much of it robot work, if you please. The business prospered. The grandson of the founder, Mr. L. R.

Smith, took the helm his father laid down. He looked at the rows of men handling heavy steel side bars, performing a single operation. "This is stupid," he thought, "and wasteful. It costs too much; it's bad for the men. Men have too much innate ability to be condemned to such work as this." He turned to his engineers, a growing corps upon which he came more and more to depend. (He is himself an engineer.) "Could we design a machine to do this whole job automatically, a machine as big as a factory, to pick up the raw steel and throw these things out at four or five thousand a day? I know it is a crazy idea, but can we do it?" His engineers had learned to expect anything from this man. The T squares spanked and the drawing boards groaned. Ten times the plant was built on paper, and the cost of the crazy idea had mounted to $1,500,000.

Finally, after some of the boldest mechanical thinking ever done on this planet, a plan was evolved which looked as though, by the grace of God, it might work. Bankers were called in and their advice asked. The rosy-gilled fraternity was petrified, and advised, whatever it was, not to do it. They were thanked politely, and the metamorphosis of paper into concrete and steel promptly begun. Fortunately, money in the home stocking was still available.

Beyond the technical incredibility of the project was the whole question of the potential market. Suppose the plant could be built, who was to buy frames

in lots of 7,000 each and every day, 2,000,000 frames a year? Competitors were in the field, and in 1916 only 1,500,000 motor cars were manufactured the country over. The blueprints called for more frames than there were engines to mount on them. But even as his father had sensed the beginning of an industry in 1900, the son sensed the post-war automotive boom. "We were aiming at million-lot machinery, million-lot production, and million-lot costs," and lo! the market came to meet this million-lot expectancy. The plant was built in 1920, just in time to supply the roaring twenties, building 3,000,000, 4,000,000, 5,000,000 motor cars a year.

By the time the mill was finished, $6,000,000 had been sunk in it, including the drawing paper. Would it work? The blueprints were optimistic, but how about Madam Nature? Here were 552 separate operations to be performed on every frame. If one of them went wrong, the whole gigantic mechanism might jam.

> I will never forget that moment when it became necessary for me or an associate to throw on the power. Both of us were stalling, one waiting for the other. Neither can remember clearly which one threw the switch. But for an hour and fifty-seven minutes, the unit functioned without a hitch. Then it shut down for want of raw material!

It was no miracle, nor are the subsequent achievements miracles, spectacular as they appear. It is the

sort of thing to be expected when engineering takes the place of rule of thumb, and its possibilities are developed *to the limit*. In due time production was stepped up from 7,000 frames a day to 10,000.

One goes through a guarded gate into the great enclosure upon which the company's property stands: a company which sells $60,000,000 of tonnage products a year, moving out on 30,000 freight cars. The buildings are not huge but squat and grim, full of noise and full of power. There is an air of spaciousness and cleanliness, but no hint of lawns, flowers, and the tra la la la school of mill design. Clean, muscled, and stripped to the waist is the dominant note. But one structure with black granite base and walls of fluted aluminum and glass strikes a different —almost an esthetic—note. It is the new Research Building, equipped to house 1,000 engineers. It could have been built for $400,000 but is costing $1,500,000. And why, pray, the extra million? It is expended to make as just and lovely a temple to the god of science as devoted hands have reared to other gods in other ages. *Engineering research is the chief business of this company*. Frames for motor cars, pipes for oil fields, pressure vessels—these are by-products.

We enter a door in one of the squat mills and are suddenly drowned in sound. We are in a room perhaps 300 feet long and 200 wide, with walls of glass. Its floor is one solid mass of glittering steel, a thou-

sand shapes which rush and stop, rise and fall, advance and retreat, dancing to some gigantic rhythm, yet to a counterpoint which sets up no vibration. One quadrille offsets the other, leaving the building without a tremor. The multiplicity of moving shapes confuses us, but as we mount a platform, a sense of discipline, of patterned harmony, becomes apparent. Wide, clean aisles separate the moving groups. There are no towering mechanisms, no belts; the whole upper part of the building is clear. The largest single shape is near the door by which we entered. It is also the noisiest. With drum-shattering gasps it is solemnly picking up pieces of steel, fitting them to a pattern, dropping the unit down for some attention, raising it, placing it on a little carriage of delicate steel rods . . . carriage after carriage, which rush and stop, rush and stop, rush and stop.

Comprehension dawns. Upon each carriage is obviously a motor-car frame; the hissing mechanism has assembled the various side bars and cross bars which compose it, and the dropping motion—our guide assists us here—is the automatic insertion of 100 rivets into their waiting holes. The assembled frame moves toward us for the job of heading the rivets and so locking the parts together.

As the frames advance and stop, two batteries of steel dragons, with jaws like stone Aztec serpents, move forward upon them, one from either side. Their round metal eyes glitter, their jaws are distended to cavernous proportions, they nuzzle into

their victim's vitals, select each a rivet; then slowly, relentlessly, even softly, the great jaws close. The final crunch of 40,000 pounds upon the rivet head is effortless. Gently the jaw opens; gently and solemnly both batteries retreat. The frame moves on to another group of monsters, where the process is repeated with a second set of rivets. One hundred rivets require about 100 dragons, and only six can operate comfortably at one "station."

There are nine units in the total process. In each unit are a number of stations, performing a single operation. What I have described is the operation of several stations on unit No. 6, the general assembly line. As we walk along our platform which runs the length of the building, each unit is identified between its dividing aisles, and its general function, if not its bewildering detail, made plain. A little table tells the story:

UNIT	FUNCTION
No. 1.	—Picks up the raw steel strips, examines them, throws out those which do not meet the required standards of length, breadth, and thickness.
No. 2.	—Douses the admitted strips in baths of pickle for cleaning.
No. 3.	—Fabricates the longer strips into right and left side bars—bending them, turning up their edges, punching holes for future rivets.
No. 4.	—Fabricates the shorter strips into cross bars.
No. 5.	—Assembles the various attachments for the side bars.

No. 6.—Assembles the whole frame, inserts and drives home the rivets—employing monsters altogether fabulous, as we have seen.

No. 7.—General inspection of the assembled frame, partly a human job.

No. 8.—Automatic washing, painting, and drying.

No. 9.—The snatching of the painted, dried, completed frame by the left hindleg, as it were, and bearing it, like a hog in a packing house, to a vast overhead storage space. There it hangs, in carload lots, until a man in a little underslung crane, which crawls like a busy beetle among these towering heights, detaches and drops it into a waiting freight car.

One hour and a half from raw steel to suspension by the hindleg, and a minute or two more to freight car if there is any rush. Every eight seconds, a completed frame goes swinging into storage, 420 an hour, 10,000 a day. Frames for Pontiac, Chrysler, Chevrolet, Buick. For a change in type, the great dance stops for a few hours. Skilled mechanics swarm out from the tool shop at the end of the building and reset the dragons' jaws and the other mechanisms to take care of the new size. Given an overall length and width, any variety—past, present, or future—of frame can be made. About thirty different styles are now fabricated, but the total variety is virtually limitless. The goal of standardization with *flexibility* has been won. In nine years of operation no automobile maker has ever had to shut down his assembly line for lack of frames, this in

spite of eleventh-hour increases in orders on the part of customers.

Are the Jeremiahs answered? Academically no. Practically yes, if this sort of thing is to expand. The owner admits this mill to be an engineering failure though a huge commercial success. He set out to build a machine that would make frames *without men*. He did not quite succeed. At one or two stations, men touch the frame with their hands, thus breaking 100 per cent performance, though this is still the goal. The Jeremiahs, I among them, find other objections in the thought of ex-robots walking the streets. As technological unemployment advances, a technological solution must be found. I was glad to hear Mr. Smith say that shorter hours offered one remedy from the long swing point of view.

Not a stone's throw away is the old "hand" mill. I went through it, and the contrast was staggering. Here are 2,000 men in long assembly lines, drilling holes, driving bolts, twisting shapes, conveying the growing frame by hand from process to process. Yet work as they may, they can make no more frames a day than can the automatic mill with a scant 200 men, not more than fifty of whom actually touch the product. Two thousand dreary jobs against 200 stimulating ones, for an identical output! The cost of the automatic frame to the hand frames is as two to three (and rather less in total than a good pair of shoes), and with a very large proportion of development overhead. Some day when this overhead cost

is all absorbed, the automatic cost will fall into the subcellar . . .

Few men ever voluntarily leave the automatic mill. There is a long waiting list. They appreciate its novelty; they appreciate the boldness of the boss in designing it; their jobs are certainly more independent and interesting than those in the hand mill. One man sits in a little tower, the control switches of a whole unit under his hand; another resets the gape of the dragons' jaws; another adjusts the "nailing machine," the automatic riveter which shoots by compressed air a hundred tiny bars of steel at once. (To skilled technicians this is the supreme mechanical achievement of the mill.) Skill varies; some jobs can be taught in a few days, others require months and months of intensive training, while in design, erection, and repair we have as skilled a group of craftsmen as this, or any other age, has produced. The whole building is one vast integrated machine. Another major task remains, however, before the Jeremiahs are completely routed. There is, I believe, too much noise in that place for human ears to stand indefinitely without injury.

I asked Mr. Smith if the process were applicable to other industries. "Yes," he said, "almost everywhere when the demand is great enough to warrant million lots. Even automobiles could be assembled automatically if we were sure of their general style long enough to spend the time and money."

All the eggs of the A. O. Smith Corporation are

not in one basket. Far from it. Frame-making is depressed at the present time due to the slump in motor cars (90 per cent of frame makers retain their jobs at shorter hours), but the pipe business is soaring as never before. Nor is the demand for pressure vessels in the doldrums, due to its close association with the developing chemical industry.

This leads us back to the war. The company was conscripted to make aërial bombs. It devoted all its time to the art—dust even gathered on the frame mill blueprints in 1918. It made a lot of bombs, but technically more important, it worked out an electric arc-welding process with which to seal up the bombs. Why not bigger and thicker couplings, to use for stills in which to crack gasoline? Why not make all sorts of vessels capable of withstanding great pressures and high temperatures? One walks through the pressure vessel building as through some Mesozoic zoo. It is a custom department; each Megatherium is built to order. Here they are in all stages of construction: a round bellied monster sixty feet long, eight feet high, with a hide four inches thick; a vertical specimen twenty feet high, with a bloated stomach and amazing protuberances; another with the tapering head of an anteater—except that it is thirty feet in circumference. About these monsters play skilled men in goggles and gloves, roweling their vitals with blinding flares. The fumes are borne away in boa-constrictor conductors which writhe about every job, and the air is clear. The steel bubbles,

fluid as water when the arc comes down, and when it cools, the healed breach is as strong as any part of the vessel.

Perhaps you do not believe the latter statement. Indeed the local engineers were not absolutely sure of the strength of the early vessels. There was nothing to do but to put them under pressure until they cracked, and find out where they cracked, and why. Vessel after vessel was taken out in an open field and pumped full of water until—at 20,000 pounds or more to the square inch—it exploded, with instruments to determine the yielding point.

This was unheard of. The Smith engineers not only found that when their welded vessels exploded the break was never at the point of welding, but they found out so many new things about "factors of safety" hitherto assumed by other vessel builders, that they were forced to change the term to "factors of ignorance." They found that the behavior of steel at high temperatures under a long-continued stress is far weaker than its behavior in a short test. They found out how openings and ends affected the strength of vessels. They made exhaustive studies of fatigue in steel. They made their pressure vessels impregnable (not one has ever failed) and at the same time added certain important laws to general science.

As a result of this research, the company is building the largest high-pressure vessels ever known—one of them seventy feet long. Observe, too, that

this process is yoked firmly to the almost unlimited future of the dawning chemical industry—ready to fabricate its stills, towers, digesters, and autoclaves, strengthened for unprecedented temperatures and pressures.

We go back to aërial bombs for the last major commercial product of the company. Lying in the Florida sun a few winters ago, Mr. Smith had a pipe dream. Why not fold up long sheets of steel and arc-weld them where the edges joined? Why not teach the pipe industry, which had scarcely moved for thirty years, a lesson? Within four months of his return, a new mill had been designed and built, and the pipe was coming through. Soon it was emerging to the tune of eight miles a day. Now it emerges at thirty-two miles a day. Presently . . .

It is a process noisy but simple to follow. Here come the big sheets of raw steel, sliding along on rollers. Three great bending machines force them into circles. The open seam is then welded by men in what look like gas masks, plying their flares high up in the middle of the shop—a Dantesque row of figures—while the pipe slowly moves beneath them. Each section is then subjected to terrific pressure, with milky water to show possible pin-hole leaks. The exhibit then turns completely automatic and the thirty-foot pieces are washed, painted, dried, and rolled up a causeway into a storage bin even more fabulous than that designed for motor-car frames. It is a steel skeleton, 100 feet high, packed solidly

with packages of pipe, one package to a carload. The cars roll under the great crane, and a package, specially designed to meet the shocks of traveling, drops neatly in.

The American oil industry—and its bankers—were shown how they could, with this particular kind of pipe, build transcontinental lines for gas and gasoline at a cost lower than had ever been thought possible. Skeptics were turned into believers when they saw this pipe standing up under the hands of great torturing machines which tested its strength by crushing, twisting, and accordion-pleating; when they saw it required 134 less joints to the mile than the old twenty-foot pipe required; when they saw gangs of specially trained Smith Corporation men sinking it into the ground at unbelievably low costs per mile. In brief, the engineers demonstrated to the oil men how to make money in their own business, and the great pipe-line boom was on. Four thousand miles of pipe were ordered in May and June of 1930 alone. Gas is coming to Chicago from Texas, 1,250 miles away; gasoline is to be pumped over an 800-mile line.

What particularly pleases me, as a fanatic on economic waste, is that by virtue of these pipe lines, gas hitherto blown off into the atmosphere is to be collected and salvaged. It is more valuable than any manufactured gas known. Yet one well in California recently discharged into the air enough gas to meet the daily requirements of San Francisco!

No competing steel company has broken A. O.

Smith's hold on the big electrically welded pipe market. Two years ago the owner called on his engineers to develop a way of making pipe which would antiquate his competitors' methods before they got fairly started. Behind one high wall in the plant I was not permitted to go. Have the hounds run down the quarry? I strongly suspect that they have.

One last field observation before we move to general principles. In a rambling wing I found the very efficient safety department and the department of preventive medicine equipped for as complete a physical examination as the best hospital can give. This is said to be the most thorough-going medical study of *normal* persons ever conducted. As the records grow and the years go by, it will be profoundly helpful in telling the well person what he must do to keep well. . . . There are scientists of steel in this company and scientists of flesh and blood.

The Smith dynasty has a guiding star. It employs seven salesmen—I counted them—and not far from 600 engineers. Presently the new research building will house 1,000 engineers in quarters equipped with facilities beyond their wildest dreams. Their work is not primarily to keep the present output increasingly efficient, but to develop new varieties of output, and new processes for fabricating them—a program of industrial depth bombs, geared to three basic principles:

I. The product must lie in the field of mass production, with an established market, or one which the economic research staff knows can be established.
II. A product to be made so much better and cheaper than anything else in the field that it will sell itself on its engineering merits alone, with no outlays for high-pressure salesmanship or advertising.
III. A product profitable enough to liquidate its fixed investment in two years at most.

The product having been determined according to these principles, it is put through three stages, or stations as Mr. Smith calls them. First comes the "pencil sketch" station. It may die there. But if the figures look sound, it goes to the "test tube" station, of laboratory analysis. If it survives this manhandling, it goes to the "pilot plant" station—a miniature factory where it is actually produced under normal operating conditions, and its performance, and particularly its costs per unit, accurately determined. The pilot plant answers the question: can it be made in the expected quantities at the calculated costs and how big must the real operating plant be? This delimits the design of the proposed plant and makes its construction practically automatic, with everything accounted for in advance. If the answer is in the negative, whatever the time and money spent upon the idea, it goes down the trap door. "I can get out of a business faster than anyone in the country," says Mr. Smith.

Certain by-products of profound industrial significance arise from this program. The production of a given article under the principles of engineering research, automatic fabrication, low costs, tends to insure high quality. If the mill is not to jam, every incoming piece of raw material—as we saw in the frame plant—must pass rigid tests of inspection. The delicate controls demand an absolutely uniform product, without flaw or break. Engineering and its handmaiden, mathematics, are sciences to which the word "elegance" has been frequently applied. In full control of the job, other things being equal, the output will share that perfection and that elegance. Lewis Mumford has been hinting at this principle for a long time. I am glad to supply him with concrete evidence of its soundness.

A second philosophical by-product—and not exclusively philosophical either—is the rate of obsolescence. The company's policy is ruthlessly to scrap anything which is not a jump or two ahead of the rest of the world; to scrap indeed when it *is* ahead, if the research staff has developed a better process. Certain great corporations buy up, or develop, improvements and file them in their safes. Here they are put to work instanter; ground for the new plant is broken before the signature of the patent office is dry. "I grant it is wasteful, I grant the overhead cost is enormous, but it is far more wasteful to burn up men and materials in the old way when a better way has been found."

It all boils down, of course, to the margin of economy in the new way. If the margin is demonstrably greater than the cost of installing the method, it is cheaper to the company and to society to scrap the old; aye, to throw uncounted millions of investment on the dump heap. The only trouble is in locating the marginal point. Aging boards of corporate directors have some difficulty in fixing it, but to a stripped, flexible organization with 1,000 engineers supplying the facts, the point is easier to determine. Nine times out of ten an organization like this will succeed, where the ordinary manufacturer, regarding engineers as so many expensive plumbers, will fail if he attempts to flirt with the ballistics of obsolescence. "How can you afford to spend so much for engineers?" these gentlemen ask our hero. "I can't afford not to," says a lean, brown man in the upper forties, with a face like a Yankee skipper's.

I regard Milwaukee as the most dangerous area in the United States. It promises, in the persons of the Smith dynasty, to deal American industry a wallop beside which the late stock market crash was a chuck under the chin. Adoption of its principles on a grand scale will turn the economic structure upside down and inside out, scrap billions of dollars of investment, shatter the nerves of untold bankers, and set the exalted profession of high-pressure salesmanship in a roadside ditch.

But when the hurricane is over, we may find a world where poverty has disappeared, where robots

are unheard of, where working hours have been cut in two, where waste is at a minimum, and where the era of the salesman has given way to the era of the engineer.

VII

FIRED AT FORTY

A WORKMAN enters a New Haven barber shop. He is dressed neatly in a newly pressed suit. He stoops a little; his eyes are tired; his hair is grizzled at the sides, but he moves briskly enough to a chair. "Shoot the works, George," he says. "Gimme everything you've got—haircut, shave, shampoo, massage, violet light. And George, just touch up this gray hair a little." George tucks in the napkins and sets to work. He works an hour; the five-dollar bill he receives is barely enough to cover his services and the tip. The man leaves the chair, squares his shoulders, and heads confidently for the door. When he has gone George shakes his head. "He'll never fool that woman," he says. "What woman?" asks the interlocutor, scenting a romance. "That blamed personnel manager over at the National Brass Industries. He'll lie about his age, but she won't let him by. The poor devil has been out of work for God knows how long. Good machinist too. The people he was with pulled off a merger. Let the older men out. Lord, I hated to take that five dollars—it was just thrown away. He'll never fool that woman, never in the world."

Whether he did or not, I never learned. But the

story the barber told, and it is a true one, is perhaps as good an introduction as any other to the increasing difficulty with which men over forty retain their jobs, and the even greater difficulty with which they find a new job once they have lost an old one. I am speaking, furthermore, not only of eras of depression but of prosperity as well.

Mr. Davis, late Secretary of Labor, tells of the days when he worked in the steel mills. The dead line was then fifty. When a man reached that age he was given, if he was lucky, a gold watch, a set of resolutions, and a discharge. Making steel was desperate business a generation ago. Many men had burned themselves out at fifty and were physically unable to continue. Many never reached the retiring age at all. "During my day in the mills a neighbor of mine was one of those caught when a ladle of white-hot metal spilled its contents over a group of men about it. There followed one of the strangest of burials. A huge hole was dug in the ground to receive that hideous octopus of metal, and a clergyman spoke his parting words to the ashes of half a dozen men invisibly caught within its folds. . . . In my time it was no uncommon thing for living men, as well as red-hot iron, to be drawn through the rolls." Some had the stamina to continue after fifty. They would lie about their age; "darken their hair with soot from the furnace," and now and then find a foreman, who had himself risen from the ranks, to second their deception.

Outside the steel industry, in the lighter trades, Mr. Davis never heard of a dead line in those years. It was reserved, and with some show of reason, to the gruelling processes of making steel. To-day he finds that "the discharge of the worker, regardless of his fitness, at an age arbitrarily fixed, is becoming a general policy." It is, he says, spreading through executive offices and the clerical trades as well as in the mill and shop. The limit furthermore is creeping downwards—from fifty to forty-five to forty, and even lower.

Here is Mr. White, a man of fifty-five, supporting a wife and four children. For twenty-five years he has been in charge of a designing room in a factory manufacturing textiles. About three years ago his department was obliterated in a reorganization, and he was discharged. For months he looked for work in his particular field. All he could find was a little part-time instruction in drawing. "Recently he committed suicide, feeling there was no place in the world for him, and that his family would be better off without him."

Here is "Middletown," a city of 40,000 population in Indiana, which Mr. and Mrs. Lynd and a staff of investigators have recently studied over a two-year period. Their findings have been published in the most authoritative book ever written on an American industrial community. Factory managers were interviewed in respect to age and efficiency. Among the many replies the following were typical:

A MACHINE SHOP

I think there's less opportunity for older men in industry now than there used to be. The principal change I've seen in the plant here has been the speeding up of machines and the eliminating of the human factor by machinery. In general we find that when a man reaches fifty he is slipping down in production. The company has no definite policy of firing men when they reach a certain age.

ANOTHER MACHINE SHOP

Only about 25 per cent of our workers are over forty. Speed and specialization tend to bring us younger men. We do not have an age line when we fire men.

A FOUNDRY

Molders are working up to sixty-five in Middletown. After a man reaches forty to forty-five he begins to slow down, but these older men are often valuable about the shop. But that's not true in machine shops. There a man is harnessed to a machine, and he *can't* slow down. If he does, his machine runs away with him.

THE WIFE OF A PATTERN MAKER

He is forty and in about ten years from now will be on the shelf. A pattern maker isn't much wanted after forty-five. They always put in the young men. What will we do? Well, that is just what I don't know. We are not saving a penny.

Mr. William M. Leiserson tells us of a large plant in the Middle West where for the last two years not a single permanent employee over forty-five has been

hired. The discharge records which he examined read:

Discharged. Age 53. 10 years in plant. "Unreliable."
Laid off. Age 60. 8 years in plant. "Change in process."
Laid off. Age 50. 5 years in plant. "Reduction in force."
Dropped. Age 41. 3 years in plant. "Physically unadapted."
Discharged. Age 49. 15 years in plant. "Careless."
Laid off. Age 43. 12 years in plant. "Slow."

And so on. It apparently takes ten years to find out that one man is "unreliable," and fifteen years to find another is "careless." Both answers undoubtedly hide the real reason—"too old."

The Delaware and Hudson Railroad, according to the recent testimony of its president before the Senate, hires no man over forty; the Bethlehem Steel Company testifies to forty-five. Mr. Secretary Davis urges us to enter an industrial district and talk to the workers in a labor agency. Again and again the reply will come: "I have not been able to find steady work for two years; the mills won't take anyone over forty." A Massachusetts manufacturer of jewelry tells me that increasingly the older salesmen are being laid off. They have never learned, and cannot now be taught, the newer principles of selling merchandise to the retail stores. They can sell silverware but cannot sell "service." It takes the youngsters to

show the retail jeweler how to increase his volume by holding exhibitions, redecorating his store, joining the National Silver Week drive, and then, afterwards, to restock him with forks and teapots. The older men can only push the teapots; the indirect attack of the higher salesmanship is beyond them.

II

One may, of course—particularly if he is sure of his job for life—dismiss the above evidence as dealing only with isolated cases. But I advise no man who is drawing a salary to treat the situation cavalierly. With mergers daily cracking about us like sky bombs, who is sure that his job is not one of the overhead costs which the merger is so often inaugurated to reduce? What we may be reasonably sure of is that the older man will be the chief sufferer when the selective process sets in.

The merger landslide has hit the banks with resounding force. Inevitably, many able executives must lose their jobs, and as they go, the mark of failure goes with them. Whatever the facts, the general impression must henceforth be that they have been tried and found wanting. If they are not discharged outright, the deskroom and restricted work which is assigned to them force any man of spirit to resign. When Munsey merged the New York dailies the same situation arose. Indeed, it must always arise when a single central office takes the place of two, or five, or a score.

The evidence, furthermore, is not confined to case work. The National Association of Manufacturers, as the result of a recent survey among its members, finds that 30 per cent of them have maximum hiring limits, the ages running from twenty-five to seventy years. The most frequent limit for the skilled worker is fifty, and for the unskilled forty-five. The reasons given for such limitations are, in order of the number of replies received:

1. Poor physical condition.
2. Pension plans already in operation.
3. The slowing up of worker with age.
4. The liability to greater injury on the part of the older worker.
5. Group insurance plans.

Remember these reasons, for we shall examine their relative importance at a later point. Meanwhile an investigation conducted by the Brooklyn Chamber of Commerce (May, 1929), shows 121 out of 400 firms with a dead-line policy. The ratio, 30 per cent, checks with the nation-wide total.

Thirty per cent of industrial establishments have a definite discrimination rule. This is a significant fact in itself, particularly when we remember (as we found it in the Middletown cases), that the rule may be unwritten as well as written. The management may act upon it without formulating it officially. Even more significant is the fact which neither the Manufacturers Association nor the Brooklyn Chamber of Commerce brings out. We are given the

number of establishments, but *not* the number of workers comprehended therein. There is reason to believe that the concerns which have an announced policy are normally the larger ones. In the opinion of so competent an authority as Mr. Abraham Epstein, the 30 per cent of plants covers probably 90 per cent of workers. In other words, the overwhelming majority of employees in manufacturing establishments are to-day subject to arbitrary age discrimination.

Mr. Epstein found that the Labor Department of Pennsylvania when proudly presenting the names of 1600 "firms and industries" which had no announced dead line, included neither the great Pennsylvania Railroad with its 200,000 workers, nor the United States Steel Company with its 250,000, but did include 513 banks, among them the treasure-houses of the towns of Schnecksville, Paradise, Swineford, Plumville, and Slipesville, only one of which he could find on the map. Small concerns, where the relationship between manager and men is close, do not tend to set up age bars. It is in the great impersonal corporation that the lines are drawn.

The fact that older workers actually do not function in factory and clerical positions is beautifully shown by the last Census of Occupations. Of all active farmers in the country, 8.8 per cent were over sixty-five years of age. Of all active bankers and brokers, 5.4 per cent were over sixty-five. But of all active bookkeepers, only 1.2 per cent were over

sixty-five; of all active machinists, only 1.7 per cent; coal miners, 1.6 per cent; clothing workers, 1.2 per cent; iron workers, 1.5 per cent; printers, 1.3 per cent—and so on, in trade after trade. Nothing could better illustrate the change which the machine has wrought. In an agricultural economy a man can go on working until late in life. In a mechanical economy people stop working at a far earlier age. Do they stop because they have saved a competence upon which to retire? They do not; the great majority are fortunate if they have saved enough to pay the undertaker. Do they stop because they no longer want to work? They do not; they go on their knees for a chance to continue. Do they stop because they have no strength with which to go on? Frequently. But perhaps even more frequently they stop because they have reached the dead line whose black shadow lies athwart all industry to-day.

Unemployment has occurred now and again throughout the history of civilization. Whenever men engage in specialized tasks unemployment is always imminent. Since Watt, the condition has been chronic—with less suffering in the boom years; with unbelievable ferocity in the panic years. The old have been let out, probably as often on the average as the young, possibly more often. But never until the last few years, and in no other country save America, have age limits been set up—written or unwritten—in quantity lots; never have older men, often skilled and competent, had so much

trouble in finding new work; never has the threat of old-age dependency for both manual and white-collar jobs assumed an uglier aspect. This is not the same century-old unemployment problem (which is bad enough, Heaven knows)—this is something new; a cancer which has fastened upon the industrial order almost without our knowing it.

III

It comes in part, and strangely enough, from an excess of philanthropy. Well, not quite philanthropy, but as near a human gesture as business ever makes. The first group insurance policy was written in 1913. It provided that the lives of an unnamed body of workers should be collectively insured, and if one of them died at his work, or from other specified diseases, his family would receive $1,000. The employer paid the premiums. His workers secured the benefit of the policy. But the up-and-coming insurance agents did not fail to point out that the employer's cash benefits would be even greater—by virtue of a lessened labor turnover, more steadiness, more coöperation, more efficiency, more loyalty to the firm and less to the labor agitator. Not until after the war—say 1920—did these honeyed words really begin to take effect. From that day to this the growth of group insurance has been phenomenal, until now some eight billions in policies covering about six million workers are comprehended in the plan; there is hardly a firm in the

land larger than a peanut stand which has not been exposed to the blandishments of the agents of the insurer. Many have succumbed. And year by year as group insurance has grown, the position of the older employee has become more tenuous.

Why? *Because, the older the average age of the factory or office force, the higher the premiums under the group insurance schedules.* No employer, it is safe to say, would discharge a good man on this account, whatever his age; but that is not the point. The point is that when he *hires* a new man, other things being equal, he picks a young one. Other things being equal, he is just as satisfied to see the average age of his shop coming down—certainly it is not to his economic advantage to see it going up. And thus what began as, shall we say, painless philanthropy, seems to be working out in terms of human tragedy as bitter as it was unforeseen. Mr. Epstein believes that group insurance is the greatest single reason for age discrimination in America today. Even if we cannot agree with him, we must admit with the National Manufacturer's Association that it is among the major reasons.

Closely allied is another paradox—the old-age pension systems of private plants. Some 4,000,000 workers now come under such provisions. No one can doubt that if the employee remains faithfully at work he benefits thereby. But if a jobless man—and here is the irony—comes seeking work in a plant which has a pension plan, there is a strong economic

motive to discriminate against him if he is past his prime. The older he is the nearer he will be to the pension provision, hence the more costly to the company. The younger man, nine times out of ten, will get the job. If the pension system provides a long term of service before receiving the benefit, here again the company is forced to discriminate. Let us say the system calls for 25 years of service. A man of fifty is taken on. He serves the company faithfully for 15 or 20 years, and is finally forced to retire because of ill health. He receives nothing, as he started too late to come under the provisions of the system. "Poor Jim," say his fellow employees, "poor old fellow, it's a dirty shame." The men grumble and gather in groups to talk it over, the foreman is uneasy, the company receives a black eye. Better save this trouble, and employ only men who can work into the pension system—which means men below forty.

Other nations, particularly in Europe, have old-age pensions financed by the government. With the state bearing the cost, the employer has no incentive to discriminate on the score of age alone, apart from skill or physical strength. Other nations know little, if anything, of group insurance. The dead line in so far as it springs from these two causes—in the opinion of competent authorities they are major causes—is peculiarly American. And the sad paradox is that what we hoped would heal has, in the last analysis, only made a deeper social wound.

IV

The story, however, does not stop here. Economic stories have a habit of never stopping until they have entangled themselves in the whole social fabric. There are other reasonably clear causes for the plight of the older worker, and undoubtedly still others too complicated to unravel. As already indicated, the problem is twofold: the dead line as a firing device and as a hiring one. The steel industry in the old days arbitrarily discharged men when they reached the age of fifty. I have found little evidence of this sort of thing to-day except when the company in question has a pension system. Then men on reaching a given age may be automatically laid off and commence to draw their pension. Mr. Davis, however, insists that the firing dead line is a growing phenomenon. In respect to hiring, the evidence is overwhelming. Workers are being forced out of industry by mergers, the encroachments of the machine, and other causes. They start to look for new positions. Then the dead line begins to operate. The younger men are taken on; the older men are left to walk the streets.

If men and women were not displaced in such great numbers, the selective process could not function so disastrously. The mobility of our labor force is very high. Many plants have a turnover rate of 100 per cent or more, which means as many persons hired during the year as were in the shop at the be-

ginning. To make matters worse, a new factor has entered American industry in the last decade—"technological unemployment" as it is beginning to be called. It implies a total firing rate *greater* than the total hiring rate; a displacement of labor by machinery faster than other trades can absorb the surplus.

Thus technological changes and mergers have accelerated the rate at which men and women are being displaced, quite apart from any policy of dismissal at a given age. But as these millions swarm upon the streets and into the agencies seeking new work, they immediately encounter the *hiring* dead line. The whole situation is rendered the more acute by two additional phenomena, less recent and dramatic than technological unemployment, but still powerful. The drift from the farms to the cities has pitted raw strong blood against the older urban worker, particularly in processes requiring strength rather than skill. Second, the lengthening life-span has given us a greater percentage of older people than the world has ever known before.

The dead line has perhaps been chiefly influenced in the last decade by group insurance and pension systems, but other reasonably strong factors are also at work, as intimated earlier. A recent survey by the Y. M. C. A. notes that promotion from the ranks is becoming an almost universal procedure. "This explains why even the well-trained man or specialist over thirty-five finds it so hard to break into a new

organization, while at forty or fifty he is 'too old to fit into our retirement and insurance plan and to learn our ways.' " Again the speed and strain of much modern work in offices as well as mills demand the strong muscles and steady nerves of the younger man. As the automatic process gains ground, requiring less machine tending and more inspecting and dial watching, this situation will be modified, but one cannot deny that for the moment, particularly in such processes as building motor cars, the mechanical pace is too swift for ready adjustment by the older worker. In the building of motor car frames in a plant like the A. O. Smith Corporation, where the process is automatic, the older man has a far better chance.

Finally, there is the question of skill. Before Watt, the longer a craftsman worked, the more expert and economically valuable he became. He reached the height of his earning power in his later years. In the steel industry to-day, the Pennsylvania Commission on Old Age Pensions finds that at age sixty only 13.2 per cent of employees were earning as much as they did at an earlier age. In the building trades, on the other hand, where something of the old craft attitude still obtains, no less than 55.1 per cent of men sixty years old were earning as much or more than ever they did. This furnishes a striking contrast between the old conditions of work and the new. In the mechanical industries it is often the raw boys who are now earning more than they can

ever hope to earn again. The peak of income-producing possibilities comes in their early twenties. Even in the skilled categories—and there are many of them—the period of training is not so long as it used to be. Instruments of precision are taking the place of the hand-and-eye measurements of the old craftsman.

When I was a cub accountant I used to marvel at the phenomenal speed with which one of the older men on the staff used to foot columns of figures. For years he had been invaluable, particularly in bank auditing. Suddenly we introduced an electrical adding machine into the office, and after a month of practice I could readily outdistance the veteran computer who had spent his life in acquiring the art.

V

We have gone far enough to see that "fired at forty" is not a phrase to be treated lightly. Group insurance, private pension systems, promotion from the ranks, the implications of skill and speed, all militate against the older worker, particularly when he is seeking a new job. Meanwhile technological unemployment, the drift to the cities, and the lengthening life-span have tended to increase the total impact of unemployment, and make the process of discrimination more frequent and more acute.

In brief, if things continue as they are going, we are headed for ever greater technical efficiency at an ever greater human cost. The most mournful

eyes in the world are those of the displaced accountants and bookkeepers who, having given the best of their lives to one concern, wander into my office looking for work—any kind of work, at any wage. You can shake your head at a youngster, and he will exit whistling; but these men—they break your heart as they stumble toward the door. If discrimination proceeds at its present pace soon it will be the young and strong who are at work, leaving the men over forty in accelerating numbers to walk the streets.

Discrimination against the older worker can be drastically modified by a state system of old-age pensions, a system which takes away the need of the employer to establish dead lines because of his own pension or group insurance costs. Twelve states already have pension plans, thus joining nearly every other civilized nation on the planet. A machine age without adequate protection for the workers scrapped by the machine is tearing down its social fabric as fast as it builds up its shell of concrete and steel.

Secondly, we need a careful, nation-wide study of jobs in the modern world, conducted primarily to determine what positions the older man is capable of filling as well as or better than the younger man. I am convinced that there are millions of such jobs, particularly in the growing automatic processes. Much of the present discrimination is arbitrary, stupid, and criminally foolish. Instead of depending

upon the biological fitness of a given individual for a given piece of work, it depends upon an Arabic symbol—of which 40 is the favorite to-day. To-morrow, if we let matters drift, it may be 35.

VIII

THE MAD HATTER'S DIRTY TEACUP

A SUBWAY express roars into the Times Square station. A portly gentleman, reasonably well dressed, arises from his seat near the middle door of one of the cars, and proceeds in a more or less routine manner to deposit the morning *Times,* the whole forty-eight pages of it, well fluffed up, upon the floor. By the time the last outgoing passenger has made his exit, the space about the door is three feet deep in boiling wood pulp, through which one wades as through a Siberian snowdrift. The portly gentleman is not apprehended; the passengers take the entanglement as part of the day's work, one or two adding their tabloids to the mêlée as they flounder out; the guards are mute. It is all part of the accredited folkways, messy but entirely permissible.

Do you ever look at your America? Do you ever really use your eyes? Of course we have all oh-ed and ah-ed at Niagara Falls, the Grand Canyon, and the Old Man of the Mountains; but how many of us have consciously and consecutively examined the lines, contours, outcroppings, surface coverings of this nation which we have built, in the line of march from home to job—or even in the line of the Buick's march (Packard, if you like) on Sunday? There are

the house, the three traffic lights to Main Street, the station, the 8.17, the headlines (one never looks out of the window), the subway, the office—and eyes turned inward. We try to see enough to avoid mutilation at the hands of the traffic, but do we know what our immediate world looks like, whether it be lovely or hideous, inspiring or depressing? Here it is. We get our living from it. That is about all we know. One is supposed to use one's eyes in foreign parts. Home is for sterner matters.

This little essay is a plea—and a reasonably bad-tempered one—for optical exercise in the everyday world. It contains, furthermore, a morsel of propaganda which might as well be confessed at once. If more of us looked at our country it might be a better country to look at. If more of us felt an urge to lynch portly gentlemen making dirty snowdrifts in subway stations, portly gentlemen might see the handwriting on the wall and hold everything until the next waste barrel was reached.

Lately I have been trying to look at the native land which fundamentally I love. Its harmonies thrill me more than those of other lands; its cacophonies hurt me more. Great as are the triumphs of skyscraper architecture in New York, when I journey about the city I am aware how isolated they are and what vast and gloomy stretches of jerry-built ugliness lie between them. On Sixth Avenue, with its elevated railroad, it is difficult to find a single building with which to gladden a weary eye.

Other cities I have looked at—Boston, Springfield, Lowell, Fall River, New Haven, Baltimore, Washington, Charleston, St. Louis, Tampa, Chicago, Albany—and of them all only Washington gives consistently more pleasant than unpleasant vistas, and there in the northwest section only. All have their oases of the quaint or of the uplifting, but oases they remain in a desert of the glum and unprepossessing. Towns I have looked at, and the open country. For every Topsfield or Old Lyme, there are a thousand Crotons, Sufferns, Naticks, Somervilles—sprawling and hideous. For some strange reason much of the outlying region around Philadelphia is neat and comely, while Westchester County near New York, with a far superior natural setting, reeks with monstrosities.

With watch and notebook I tried to analyze a hundred miles of rural scenery from a car window on the New York to Boston run. My standards were hasty if you please, but hasty was the Merchants Limited. I sought to subdivide the route into "pleasing," "passable," and "depressing." The last took at least fifty miles of the hundred. The outstanding defacements were rickety cottages, littered yards and enclosures, tobacco barns, abandoned motor cars, signboards and advertisements on structures, filling stations and roadside eruptions generally, cut-over woodlands, factory sidings, coal and wood yards, dumps. "Pleasing" and "passable" divided the other fifty miles in rough equality. This,

remember, is rural New England—no notes were taken as we passed the larger towns—the region whose embattled Chambers of Commerce advertise as the vacation land of the nation. Heaven knows what such a record would show in Ohio or Georgia. Yet nature unmolested was almost always pleasing, while white spires, old farmhouses and barns, a village green, a gentleman's estate, and even here and there a modern villa, were just and seemly. One strange point was the utterly irrelevant shifts from plus to minus. They came without rhyme or reason: a series of charming old houses, and then, suddenly, a blinding monstrosity—rows of signboards, a chaos of litter—followed by more fine old houses. Cheek by jowl beauty and desolation lived, apparently on the best of terms. These people had never looked at their world. If ever they do, torches will flame by night, and directors of insurance companies huddle into their chairs. . . .

Two sorts of things distress the observant native son—fixed properties and movables. The architecture of our structures is sufficiently upsetting—as Lewis Mumford can inexhaustibly expound—but why do we gild the lily (a metaphor in reverse) by covering the country, urban and rural, with doubtless the most sublime exhibit of offscourings and litter upon which the sun has ever shone? I refer specifically to abandoned newspapers, magazines, motor cars, tin cans, go-carts, kerosene stoves, pasteboard boxes, spring beds, picnic mementos, banana peels,

ice boxes, glass bottles, baby carriages, mattresses, farm machinery, rags, iron barrel hoops, chicken wire, steam shovels, portable sawmills, crockery, tar barrels, cigarette containers, tires, corrugated iron, and rubber boots. I refer further to these commodities—the unsinkable varieties—on water as well as land. No inhabitant of Long Beach can fail to recognize what New York had for dinner yesterday by the deposit on the strand to-day.

Architecture we shall leave to Mr. Mumford, and pray for the best. It is better at least than in the dreadful eighties. But I propose to yield to no authority in the matter of movables and semi-movables. Here above all else we have blackened the eyes and bloodied the nose of our motherland.

II

In a nation of eighteen million bathtubs we find the dirtiest streets and parks on the planet. Dr. Bernard Sachs in a four months' survey of municipal cleanliness in France, England, Germany, Austria, and Switzerland could locate nothing to approach the gorgeous litter of New York. Garbage wagons are chronically uncovered—and reeking—here, but except for one case in London, he did not see a single uncovered garbage wagon abroad. Dawn of a summer Monday morning finds Central Park a shambles, defaced and desolate. "In Hyde Park, London, signs are displayed that it is forbidden to throw paper on the lawns and roads and that a fine

of £5 will be imposed for violation. This ordinance is enforced and as a result this park, like other London parks, is clean." Better than ordinances and fines, however, is the civic spirit which one normally finds on the Continent. Citizens tend to have the same respect for their city and its appearance as they have for their own homes. They would no more make a mess in their parks than they would throw table refuse on the floor of the dining room. Even in Russia, where bathtubs take on the rarity of museum pieces, I found parks, streets, roadsides, amusement centers infinitely cleaner than at home. The Russians furthermore read newspapers almost as omnivorously as do we.

Dr. William Schroeder, Jr., Sanitation Commissioner for New York, has recently completed a tour of South Brooklyn, including the Red Hook section and parts of Flatbush. With a nice sense of grading he finds the condition of the streets "ranging from dirty to filthy."

Meanwhile, the Borough President of Queens, Mr. George U. Harvey, is in danger of disappearing forever beneath a mountain of abandoned motor cars. A photograph of his dilemma is on the desk before me as I write, and its bulk, if not its lines, resembles the pyramid of Cheops. Fighting for life and air, Mr. Harvey has sent out an appeal to Henry Ford. This is entirely reasonable. Most of the pyramid is composed of model T's, and why should not Henry put death on a mass production basis as well

as birth? There are more than five thousand wrecks in the mountain, but veterans are expiring along the roadsides of Queens faster than they can be hauled to the central graveyard. "Every morning additional scores litter the highways. People drive them from Manhattan and leave them under the Queensboro Bridge. They drive them from Brooklyn and drop them in the Ridgewood section. They tow them and cart them. Garages and repair shops in Queens are also offenders. They usually don't haul the wrecks farther than around the corner." . . . Commissioner Grover A. Whalen assigned two police squads to track down owners of vacated automobiles. . . . "Why, somebody even abandoned a lunch car right on the street the other day. . . . Once we had to cast away an abandoned steam roller. . . . And during the cleaning campaign a whole house was left on city property!"

Nor is the problem of the abandoned motor car localized in Queens. In Croton-on-Hudson, thirty-five miles from New York, there is no single county road in any direction which is not defiled with rotting iron corpses. In half a mile of what was once a wild, primitive back lane, lovely with cliffs, hemlock and birch, I counted twenty-six abandoned cars, each with its encircling spawn of tires, torn curtains, shattered glass, wrenched-off hood covers. They lie and leer at the hemlocks and birches, while the pedestrian has nowhere to look save straight into the sky.

Consider the magnitude of the desecration. Out

upon the highways of the Republic come snorting some five million new motor cars a year. According to the terms of the annual model racket, at least half of them must presently be abandoned. This means an annual deposit of at least two million wrecks—say eight billion pounds of metal—at the present time, and soon, when the majestic systole and diastole is complete, five million wrecks—twenty billion pounds of metal—each and every year. The current system of disposition seems to be that owner A, loath to pollute his own land, dumps his car on the estate of owner B, while owner B, similarly sensitive, presents his contribution to the estate of owner A. As a happy alternative, where possible, both A and B will combine to dump on public property—say a park, a highway easement, a stream bed, or a recreation development.

In February, 1931, the New York Park Commission finally succeeded in clearing "the revolting mass of rubbish which during the past summer protruded from the surface of the lagoon in Central Park. . . . The slow recession of the waters left for many months a panorama of soggy cardboard lunch boxes, tin cans, smashed bottles, pie plates, broken park benches and rotting automobile tires to assail the indignant eyes of residents of the neighborhood." Not only were their eyes assailed, but their children, playing about the lagoon turned dump, were severely cut by broken glass. This in the finest park of the wealthiest city in the world.

Slums and slum behavior are to be expected in American cities, for a long tradition lies back of them. Similarly for generations we have regarded as normal the defilement of the city's outskirts. In such a book as *Mrs. Wiggs of the Cabbage Patch,* we have even sought to wring what humor and philosophy may lie in the wilderness of shanties, can-eating goats, junk yards and smoldering dumps which stretch from the gas tanks to the mud flats or the river bank. In New York, indeed, we have a dump so vast that locomotives climb its sides, drawing cars of reeking refuse, great fire lines play streams of water on its unquenchable flames, and when the wind is in any quarter, one or another of the city's boroughs is buried under a murky stench which would stupefy Lucifer.

All this may be classified as business as usual. What is new, hardly a scant decade old—what has grown hand in hand with prosperity—is the *extension* of the metropolitan slum over most of rural America. Where highways run, where the motor car goes—which is practically everywhere save the tops of mountains and the middle of lakes—there deploys a vast army of junk flingers, blood brothers to the portly man in the subway. The whole country is crossed and double-crossed with their scabrous trails. They may either squat along the highway and set up shop in an acneous eruption of filling stations, hot-dog stands, Tumble Inns, garages, vegetable booths, scarifying field and forest for rods around;

or they may be sojourners only, content to befoul whatever roadside pleasantness remains between the encroaching filling stations. I have hunted for hours on end, growing hungrier and more indignant every moment, to find one clean and decent spot where one might stop and eat luncheon by the roadside. The banks of every bisecting brook, every inviting patch of meadow, every bed of soft pine needles, every lookout point are stale and noisome with wet newspapers, soggy pasteboard boxes, rusting tin cans, broken bottles, flyblown magazines. Time after time I have eaten my luncheon in the car as the lesser of two evils. Swine, if given half a chance and open country in which to roam, keep reasonably clean. The troglodytes who have laid waste fifty thousand linear miles of roadside are, it is safe to assume, somewhat farther down the evolutionary ladder. What hobo would leave his "jungle" in the condition the average motorist leaves his picnic place? The blanket stiff's sense of decency would not permit it, to say nothing of the retribution at the hands of his fellow craftsmen if he did bemire a "jungle."

A secure niche has been won in the category of derelicts by chewing gum. America spends upwards of $50,000,000 a year for this delicacy, the equivalent of 5,000,000,000 sticks or 250,000 miles of sweetened chicle—enough to send a ribbon around the moon. Save in the case of tender infants, not much of it is swallowed. The great bulk finds its

place somewhere under foot or hand; by preference under chairs in movie theaters, on the decks of excursion steamers, hiding coyly beneath the edges of tables in lunch rooms. I once lost a substantial section of a new Scotch tweed overcoat by virtue of a little remembrance on the straw seat of a subway train. Another favorite temporary resting place is the floor of a dance hall. I say temporary advisedly; the five billion sticks are ever on the march. They know not what it means to die.

No self-respecting shad dares enter the mouth of any American river. If he has no self-respect and pushes on through the murk and chemicals and gloom, a dreadful death awaits him. No shellfish—oyster, lobster, or clam—can hope to retain his health along the bays and estuaries where these rivers empty. But he can take a just revenge. He can poison the population which has poisoned him. In ten years the crab fisheries of the Chesapeake and Delaware rivers have been cut in half, and the lobster catch is a third of what it was a generation ago. Not only the open sewers of rivers, but oil-burning ships void their refuse in a manner increasingly deadly to all forms of marine life.

Every day in the year a great fleet of scows, dripping with refuse, is towed past the Statue of Liberty in New York Harbor. Somewhere on the line between Atlantic Highlands Light and Fire Island Light the fleet disgorges its burden. The ocean's bosom is broad, but hardly broad enough to cherish inviolate

this array of orphans. Not much strays back through the Narrows (the inner harbor possesses its own unfailing sources of supply), but for fifty miles along the south shore of Long Island—one of the loveliest strips of beach in the world—the joyous bather must make his way through decayed cabbages, onions, carrots, oranges, grapefruit, cauliflower, bananas; through tomato cans, sardine cans, oil cans, tin canisters of every shape and size; through whisky bottles, bromo seltzer bottles, Ed Pinaud bottles, Father John's Medicine bottles (soon to be broken as his happy children play); through chicken coops, shingles, two by fours, barrels, casks, piano cases, fragments of wooden boxes all studded with nails and always business side up (evidently a law subsidiary to the physics of wave motion); and lastly—and increasingly by virtue of oil-burning vessels—through a universal stratum of tar which coats not only the vegetables, the cans, the bottles, the woodwork and the fragments of overstuffed davenports, but etches in slimy black the farthest run of every wave which breaks upon the beach. Each happy bather, if he is wise, keeps a can of gasoline back of his bungalow. After bathing he repairs to the said can, douses a rag in its spout, and spends anywhere from ten minutes to an hour cleaning the tar from his anatomy in general, and his feet in particular. Incidentally, tar, says Mr. J. B. S. Haldane, is a substantial agent in propagating cancer. . . . To such items as cannot find lodgment on Long Island, due to the conges-

tion of the traffic, the beaches of New Jersey beckon —and receive.

III

Closing my eyes, I can see stark and splendid the rocky cone of Chocorua rising from its heart-shaped lake, fringed with pines. It is a mountain which I love more than almost any human being. But alas, having begun to look at America, I can also see the fearful messes which gay excursionists have spread beneath those selfsame pines. I can see a woman driving down the main street of Scarsdale in a Lincoln, tearing up her morning's mail and scattering it in open-handed generosity to right and left. I can see a lovely meadow thick with daisies in the summer, not two hundred yards from where I write, where a neighbor in his neighborly way has deposited a truckload of tin cans, garnished with a folding bed. I can see the decks of the Albany day boat as the Sunday excursion crowd leaves it and heads for the subway, and the smoking car of the Croton local as it grinds into the Grand Central station. I can see the ocean, framed between high dunes, and a man with a shack on top of one of the dunes flinging hundreds—literally hundreds—of bottles down the side, presently followed by a decayed refrigerator. (When I spent an afternoon digging a pit in which to bury the ice chest and the bottles, he was insulted, and in a sort of frenzy began hurling apparently everything movable in his house athwart my ocean

view.) I can see ninety-six houses on the outskirts of Babylon, all precisely alike, all in geometrical rows, all dreadful, all falling into ruin as the realtor's dream of Manor Meadows collapses. I can see the Mohawk Trail made hideous with signboards; and a rusting Ford in the middle of what was once my favorite swimming pool. I can see . . . but why go on? It takes a strong man to look at his world.

The roots of the devastation are reasonably plain. The pioneer tradition is of course to-day a cultural relic, but still sufficiently powerful to make us behave as though our land and resources were inexhaustible. Waste has ever been a national watchword. We have slashed our forests, gushed our oil, depleted and betrayed our soil on the theory that when one site was exhausted we could always move on to the next. Now, alas, like Alice, we have to move into the Mad Hatter's dirty teacup, but the realization has yet to come. We act like an exploring party in a trackless wilderness, confident that no other white man will visit our last camping place. The European has learned that others will lie where he has lain; the American has not.

Allied to the pioneer tradition and its philosophy of waste, is the modern development of mass production. Under the canons of high-pressure selling and volume turnover we are enjoined directly and indirectly, by something in the nature of a billion dollars' worth of advertising and publicity a year, to throw

things away before they are worn out, and buy a new model. The dump thus becomes the barometer of American business enterprise. The bigger it is, the better for commerce. It is a duty partaking of the sacred to keep millions of tons of motor cars, radios, phonographs, furniture, clothing, toys, printed matter moving briskly toward the junk pile with a minimum of stopover in the hands of the user. One might say that the function of the buyer in the premises is casually to *inspect* the article as it moves, as steadily as may be, from the Mesaba iron range to Mr. Harvey's pyramid in Queens. . . . Run along beside it and twiddle it a little. This certainly is the goal of the turnover boys, and year by year they draw nearer to its consummation. The container racket, whereby the astute merchant sells the package rather than what the package contains (a technic which reaches its sublimest levels in the field of cosmetics) also contributes its quota of abandoned glass, metal, and pasteboard; while the decline of the housewife in the face of the tin can has long complicated the American problem. The rubbish heaps of our forefathers were largely tinless, even as European rubbish heaps are to-day.

The wayfaring man is thus, it must be admitted, caught in something of a paradox. His cultural tradition is waste; he is urged by all the magnificoes of industry to waste. Against these two powerful forces he has but a feeble sense of decency and order, and an æsthetic sense to be located only by the most

subtle chemical reagents—indeed a laboratory job. He has conditioned himself not to look at his country.

IV

The time draws near for constructive suggestions —that solemn rite demanded of the critic. Unfailingly polite as always, I bow to the exigencies of that demand. I have two proposals to offer, one economic and one personal.

I think the Higher Salesmanship is over-reaching itself by stimulating the dumping complex without making any provisions for the care of dumps. Indirectly if not directly, it is costing them money. The issue thus moves out of the realms of æsthetics—suspect to all good Americans—and comes solidly to earth in the realm of profit, of the utmost importance to all good Americans. The littered scene is not so attractive for profitable building sites, or profitable excursion points, as the unlittered. The project of the Bronx River Parkway, which converted a sleazy, tin-embroidered creek into a soundly landscaped park, created huge real estate values in the abutting property. Æsthetic improvement paid cash dividends. With winter resorts and summer resorts competing for vacationists, and with practically every town and city in the land competing for population (via the Boosters Club), the idea should presently penetrate—and indeed here and there already has—that a clean and attractive region has a competitive advantage over a dirty one. The far-sighted

business man is beginning to realize that the time is coming when a well-swept town without reeking dumps and horrendous approaches will pay. The various "clean-up campaigns" are harbingers of this awakening. (Incidentally here is a vast and useful task for the unemployed in periods of business depression.) One can only pray for more commercial vision along this line. It will not help Mr. Mumford's architectural problem much, but it should certainly assist in a more seemly disposition of movables. Thus I refuse to be classed as one of those æsthetes who would send us all to beautiful bankruptcy.

My second proposal, I repeat, is personal. It is also criminal. On three separate occasions I have deliberately, even joyously, committed arson. I have burned to the ground (1) a boathouse, (2) a barn, (3) a beach bungalow. All three were collapsed, worthless eyesores, and in each case they utterly desecrated an otherwise charming vista. Day by day the irritation of looking at them grew, until ultimately I destroyed them. My plans were carefully laid. I waited until after a soaking rain so that the flames might not spread. I chose broad daylight and, after applying the torch, was first upon the scene to sound the alarm, thus escaping all possibility of suspicion. I stood and gloried in the flames, apparently as surprised as the next man, while the neighbors developed first the mouse-and-match theory, second the tramp theory, and finally the spontaneous combustion theory.

IX

THE END OF AN EPOCH

I WAS dining recently with one of the most intelligent journalists in America. He regarded his soup with profound gloom. "We have come," he said, "to the end of an epoch. This depression is not the usual downward swing of the business cycle, it is the cracking up of the whole American formula of prosperity, mass production, high wages, high-pressure selling, instalments, service, bigger and betterism. The bally thing won't work; it's gone into a nose dive; it's crashed, and God knows if we can ever get into the air again. We can't with that ship; it's a hopeless wreck. And there is no other in sight . . . anywhere. Mark my words, when the history of this century is written, October 29, 1929, the day that thirty billions went whistling out of Wall Street, will mark the end of an epoch."

I rallied to the defense of my country—in general, if not in particular—but his words have haunted me ever since. Is the current period just one of the ups and downs of that revolving cycle which James Watt let loose with the steam from his first engine, or is it a major date in history, perhaps as significant as 1914? Has the American formula of onward and upward really been sunk beneath us, leaving one

hundred and twenty millions of people adrift in open boats on a cold, salt sea?

The mind of even such a hardened critic as myself shrinks from such a picture. It does not make sense. It cannot be true. Then one remembers that the month of August, 1914, did not make sense, and could not be true. Those of us who felt our reason slipping as we caught the import of those fantastic days, are ready for anything. Nothing in affairs human or divine can longer surprise us. If incredible wars can begin, epochs can incredibly end. Perhaps my friend is right. But I shall not admit it without a struggle. (For one thing he lost money on the market and I had none to lose, a personal equation which cannot fail to color one's philosophy.) This little essay may be regarded as a spirited attempt to still the haunting echo of his words, while admitting all the relevant facts pro and con which I can call to mind. In brief, let us take an inventory of American industrial civilization to-day, and see if there is any warrant for brilliant journalists staring into bowls of soup and prophesying interminable woe.

The eight years from 1922 to 1929 constituted the fifth great period of American prosperity. Toward the close it struck a gait of such magnificent acceleration, statistically if not humanly, that nearly everybody, save a few congenital socialists, was convinced that the millennium was just around the corner; that the problem of poverty was all but solved; that

the Republic, as the white-headed boy of the Western World, was laying the foundations for a civilization which would eclipse everything that had gone before. One talked of "new levels of value," of wages going forever up and prices going forever down. Depending on the point of view, one saw a radio in every room and a bathtub in every closet, or an art museum in every township and a Little Theater on every village green. Nor did we propose to keep our secret jealously at home; we would show Europe how to use it; we would show benighted Asia; we would show the last corner of the world. We did not doubt that even Russia, when the fiery juices of revolution had cooled, would embrace it eagerly. Men talked of rocket ships to Mars, and beyond peradventure the first document to be presented to the Committee of Welcome—had the ship been discharged through Einsteinian space—would have been the American formula of mass production and mass consumption.

The naked facts, of course, were not quite so grandiloquent as the banquet orations. Some pointed up, some pointed down, some held their levels during those eight exciting years. We could take pardonable pride in our beautiful technic of industrial management, our mounting wage levels, our declining hours of labor, our increasing life-span, our great engineering projects, our liquidation of grinding poverty across a reasonably wide front. But with an average annual wage of well below $1,500 in 1929, with the

majority of all farmers operating at a net loss, with the slums of Megalopolis reeking as heretofore, with a million children in the mines and mills, with technological unemployment gaining slowly but probably steadily throughout the period, with industrial accidents on the increase, and 30,000 citizens slaughtered on the highways every year—we should hardly be justified in claiming that we had entered even the ante-room of Utopia. Statistically our progress was sublime. Humanly, it not only left much to be desired, but in such departments as agriculture, employment, and mass recreation, it seemed to be actually losing ground. To-day, in the bleak light of the morning after, with business a good twenty-five per cent below normal, all the commercial indices sinking, and a stock market apparently burrowing its way to the center of the earth, we had, if I may say so, a swell nerve in our missionary zeal to transport this particular brand of prosperity to the four corners of the earth! It puts me in mind of the ultra-violet window-glass companies which rushed on the market with full page spreads before they knew that photochemical deterioration rendered their commodity practically opaque to ultra-violet rays after a few months of use. Prosperity, like window glass, needed an appreciably greater period in the laboratory.

On a bright fall day it suddenly ceased to function. The rays would not come through. The formula went sour.

One equation in the formula was certainly the

Stock Exchange. No profaning hands, it was said, must interfere with a free speculative market in Wall Street. The merest hint of regulation was met with the embattled resistance of practically the entire nation from Mr. Hoover down. That equation now stands hopelessly discredited. Few refuse to admit that a restraining hand on the wild bull market of 1929 would have been an excellent thing. But, and here is the point, nobody knows with certainty whether if the hand had been laid, a serious business depression would have followed—perhaps a little later, but still inevitably. In other words, is the whole formula suspect, or only that segment thereof which deals with runaway stock exchanges? If the market was solely responsible for the collapse, we have little to disturb us in any broad sense. We simply bide our time until consumption overtakes production, business activity swings upward, normalcy returns, and then, by suitable regulation, prevent another speculative boom in stocks. With this leak plugged, mass production and consumption take their appointed upward curve again, and climb to the stars unhindered.

Many hold, and I think with far more reason, that along about the summer of 1929 a saturation point was reached in the capacity of the American public to engulf motor cars. The industry upon which 4,000,000 jobs depend was geared to expanding production, while the consumer developed a sudden stomach ache. This distorted the prosperity for-

mula completely. Nobody paid much attention to it at the time, it seemed only a little matter, but really it was of the utmost seriousness. The motor car had nourished the whole period. On the one hand, people wanted it as they had never wanted any other commodity. In "Middletown" we read case after case of families who scrimped on food, denied themselves decent living quarters, to buy gasoline. On the other hand, collateral industries were immensely stimulated by the motor car—steel, glass, rubber, petroleum, copper, leather, textiles, road building, cement, asphalt, railroads, to say nothing of the manufacturers of gaudy uniforms and traffic lights.

As I write, the *New York Times* index of motor-car production stands at 50, just one-half of normal. A year ago it measured 120, a fifth above par. The index has fallen down a very steep place in the last twelve months, and there are those who doubt, myself included, if Humpty Dumpty can ever be set on his wall again. A market for *new* customers has given way to a market for *replacement* customers, and failing some drastic engineering revision and betterment of the automobile, it is improbable that the good old days of 5,000,000 cars and upward a year will come again. . . .

It is for this reason that economists and industrialists have been looking under every bushel for a commodity to take the place of the motor car, capture the public interest, stimulate allied industries, create new purchasing power, and so start a general offen-

sive again along the whole prosperity front. Foolproof airplanes, vast new housing projects, even Tom Thumb golf courses, have been hailed as redeemers. But as a matter of cold fact, there is no practical substitute in sight. The mainspring of the last eight years is broken, and a new set of works has, to date, not been designed.

What have we left; what have we still to go on? We have a great deal to go on. A schedule of our major assets to-day may leave something to be desired in respect to ready liquidability, but from the long range point of view it is sufficiently impressive.

1. We possess in the United States an unimpaired physical plant of vast potential productivity, including factories, power lines, transportation facilities, retail outlets. Indeed the only difficulty with this majestic asset is that we possess too much of it. In certain departments—shoe factories and oil wells for instance—we have capital investment in excess of any conceivable demand for years to come.

2. Our natural resources, the greatest of any nation save Russia, despite hideous inroads in the last generation, are still manfully holding out, and will hold, even under the present wasteful methods of exploitation, for at least a decade—most of them far longer than that.

3. We have a population which is steadily gaining in health and longevity. Modern mothers are taller, heavier, better muscled, and larger footed, than those of any preceding generation. Never has

any great nation known such buxom children, or such a therapy to guard them. It is a population restless, confused, slightly demented with false values, but abounding with vitality, and of an incurable optimism. It may not know where it is going, but it is certainly on the way. We rest, even as does Russia, on a sound biological foundation.

4. As one aspect of our vitality we have a new science of industrial management which is pledged to the doctrine of low prices, high wages, short hours, and which is beginning to cope magnificently with such machine-age problems as the human robot, the threat to skill, monotony and fatigue. Its output per man-hour grows by leaps and bounds; its methods for the transformation and transportation of matter increase daily in dexterity.

5. Finally, from the world point of view, Russia is conducting one of the most stimulating experiments which the planet has ever witnessed, on a stage 6,000 miles long. Whenever I become depressed as to the West, I have only to lift my imagination to the Moscow I saw not so many months ago, to realize that *homo sapiens* is a creature of eternal youth and eternal daring. While Russian ways are not our ways, I know that out of this gigantic laboratory will come many methods, many technics, particularly in the field of industrial coördination, by which we cannot fail to profit.

So. Four positive assets we possess (and more could readily be named), and a fifth by virtue of the

common humanity we share with Slavs. The liabilities, however, are not to be gainsaid. We have already touched on some of them. Let us briefly list the major accounts.

1. A back-firing credit system, which stalls and jams the more as engineering and the technical arts advance. Instalment selling pumped six billions of new life into it during the period just passed, but that pulmotor has now exhausted itself.

2. Unemployment, particularly technological.

3. Overproduction in the capital investment of many major industries.

4. A top-heavy industrial structure with luxuries tending to crowd out essentials, and the farmer flat on his economic back.

5. An inadequate distribution of income as between investor and worker, accelerating overproduction, and seriously restricting purchasing power.

6. A tax on foreign trade that prevents a free flow of goods to and from other countries.

7. A fantastic system of distributing goods, with the high-pressure fraternity canceling out one another's spirited efforts with incredible efficiency. The cost of this expensive *reductio ad absurdum* is saddled upon everything we buy. The effect on our mental processes has been well termed "the new illiteracy."

8. A growing technic of almost equally expensive racketeering, of which the Eighteenth Amendment seems to be the schoolmaster, if not the father.

9. An alarming absence of any genuine industrial or political leadership. Can you name ten men or women competent to cope with the problems of 1931? I cannot. There may be hundreds in embryo, but how shall we find them?

These liabilities give us genuine pause, but with all due allowance, why must they connote the end of an epoch? As we look around the world to-day we see no sign of those Acts of God which have disrupted other epochs—no famine, barbarian invasion, black death, degeneration of racial vitality. On the contrary. What we do see, when all is said and done, is a stupendous jam in the method of getting goods, which we can readily fabricate, to people eager to consume them. The physical structure was never more sound. The basic difficulty seems to be a paper one—greenbacks, stock certificates, notes, foreign drafts, ledger folios. The engineer is a century ahead of the banker. We have an eighty horse-power engine in a flimsy row boat. In Russia, money follows the physical structure, like oil in a tube. Elsewhere the basic plant grunts and stops unless an adequately engraved supply of wood pulp and rags are displayed in the premises.

The immediate question, then, is whether pulp and rags can end an epoch of healthy people and marvelous mechanisms. It seems ridiculous to admit it, but I am afraid that they can. For the jam in the credit system is not only a matter of paper documents, but also a matter of psychology. Money has

stamped us with habit patterns almost as difficult to throw off as patterns ground in by physical environment. Our behavior is rigidly delimited by considerations of individual bank balances, rent payments, mortgages, profit and loss accounts, cash in hand. If these things suddenly fade we know not where to turn. Whatever the strength of our bodies, and the strength of the physical plant which we have built, there is no code of behavior which permits us to bridge the gap from paper insolvency to the abounding physical solvency of the real world about us. For better or worse we are locked into the super-specialization of our age. If the papers fall wrongly, we cannot get back to the field and the bench and take the living which God provides. We may look at the Promised Land, but into it we cannot enter.

An epoch ends when this gap grows so wide that the normal process of muddling through can no longer be depended upon to close it. It may be that we are faced in the West with years of strikes, riots, insurrections, dictatorships, and a wholesale retreat from specialization to local self-sufficiency. Such a situation would constitute complete admission that we had been routed by the machine.

Perhaps the tension is not so great but that it will automatically relax, if not in the Western World, at least in the United States. Our credit system has jammed before—in 1893 and 1907 for instance—and we have wriggled out of it. We are a lucky nation. We may, by the grace of God, wriggle out

again. But not indefinitely. Not with the technical arts growing at the breakneck pace they have now attained. (Recently I looked at a machine filling a whole building, which replaced 2,000 robots with 200 skilled men for an identical output). Sooner or later we shall come to the end of our luck, and unless the wheels have been geared by deliberate foresight, the epoch ends then, if not now.

My guess is that the gods are to vouchsafe us a little more leeway. With our usual masterly inactivity in such matters, we may still secure a modest business revival in the next twelve months. But only to postpone the final reckoning. We cannot indefinitely continue with a twentieth-century motor in an eighteenth-century hulk. If the problem is to be met, the credit structure must be brought level with the technical arts. Great sections of *laissez faire* must be scrapped. Economic habit patterns must be drastically revised.

How? I do not know. Nobody knows. It is the outstanding challenge of our age. It calls for the sort of thinking, only more of it, which now goes into the design of a thousand-foot skyscraper, an automatic steel mill, or an electrically controlled metropolitan switchyard. We can think, great Heaven, how magnificently we can think in such matters! The problem calls for the best brains we possess; brains which have not functioned on problems of this nature since the time of Jefferson. (I wish we had that engineer-statesman to-day.)

With all due modesty I am prepared to advance one or two tentative suggestions for the prevention of shattered epochs.

First. Let us follow up Mr. Bush's suggestion for the calling of an immediate international conference on *Economic* Disarmament. This is to-day a far more pressing matter than scrapping battleships.

Second. Give the Stable Money Association every encouragement to prepare a bold program for the revision of the credit structure. Then call a special session of Congress to enact the program into law. The publicity should be essentially that of the war-footing drives of 1917.

Third. Set up a National Planning Board along the lines of the old War Industries Board, with dollar-a-year men complete. This Council should be compounded of government, trade association, organized labor, organized farmers, and representatives of the consumer—if any can be found. Its job would be to prepare a Ten Year Plan for the coördinated economic development of the United States of America. Its chief activity would lie in the allocation of new investment to the end that supply should not too outrageously exceed demand.

Fourth. Amend the Sherman Anti-Trust Law, and permit the regularization of production and the allocation of markets, but only when consistent with a proper regard for the conservation of natural resources, and with due protection, through public regulation, for the consumer against monopoly prices.

Fifth. Actively follow up the plan proposed by the *New Republic* and others to substitute a vast slum-razing and home-building program for the declining motor-car industry—thus giving prosperity a new backbone, and, if I may say so, a stronger one.

Sixth. Abolish stock-exchange gambling. Secure the advice of Professor William Z. Ripley as to how to do it. Margineering is good fun, but so is throwing rocks through plate-glass windows. Both are too costly for modern society to tolerate.

Seventh. A determined resistance by all and sundry against wage reductions, and an active movement for progressive shortening of working hours. Until this program takes up the slack of technological joblessness, unemployment insurance on a nation-wide scale is the only civilized way to meet the immediate crisis. Charity is an insult; making needless work is wasteful and demoralizing.

All the above proposals need months of study, but they indicate the drastic nature of the measures which must be inaugurated, if brooding journalists are to be permanently answered, and epochs are not to end.

X

A PRIVATE UTOPIA

LEWIS MUMFORD in the *Golden Day* has given us a brilliant review of American culture as reflected in American literature from Jonathan Edwards to John Dewey. It is on the whole an exceedingly critical review. He tells us frequently, passionately, and beautifully, what he is against, but only rarely what he is for. Modern industrial civilization has nourished a great array of critics. Few of them are as competent or as penetrating as Mr. Mumford, but all of them—save possibly the Utopians—follow his general method. They are indefatigable in pointing out the shortcomings of society, but they are vague as to the precise nature of available substitutes. They seldom define their standards. Yet standards they must have, otherwise it would be impossible to criticize. They either take it for granted that the reader shares their inward knowledge, or else, and more probably, the standards have never been formulated in the critic's conscious processes at all. They have grown in the back of his mind, darkly.

From the artists, the dramatists, the socialists, the poets, the uplifters of all varieties, has poured forth in never-ending flood the challenge that *homo sapiens* is only half alive.

What does he look like when he is alive?

The question would seem to be a fair one, but it is seldom answered. The writers of Utopia have struggled with it, but their canvases are so great that we are seldom able to see ourselves or our neighbors living or behaving in that world. There is a chill about all Utopias; they are inhabited by gods, not men. Even when a critical play of modern manners, the *Beggar on Horseback,* forsook its rôle of satire for a moment and gave us a picture of happiness about a sun-drenched breakfast table, we stared unconvinced at such very yellow bliss. The negatives stretch to the horizon, but the positives either are lacking entirely or, when focused before us, appear cold or a little absurd. Indeed to seek to describe with clearness and precision the specific target at which programs for the good life should aim can only be an adventure tinged with absurdity. But a possible approach may be to delimit the kind of life one personally would like to live.

I have thrown my arrows with the rest at the sweating corpus of the world as it is. I have called it ugly, machine-minded, dull, ignorant, and cruel. I have said that the few live, and they precariously, while the many exist, half dead in their frustrations and blind alleys. Before hurling another quiver it would seem only fair to define rather specifically what I mean, or think I mean, when I mark off the quick from the dead.

The hours roll into days, the days into years.

Down this funnel of time one drifts, now easily, now painfully. One is happy, one is miserable. There are days of the most intense blue; days of a terrible black; with perhaps the majority of days an all-pervading mauve-gray. The causes for the color of these days are far from clear; one takes life as it comes. Modern psychology is groping for causes, but it has not as yet brought much that is genuinely helpful into the light. It cannot tell you where the good life has been competently analyzed or even adequately described. Science has perhaps even less to report than the poets and the critics. And so about all the data one has to work on is one's self.

I note that the following things or conditions do, by and large, kill the juices of zestful living, and reduce me to mere existing. I state the negative first, the positive to follow shortly:

Ill health.

Monotonous work with no discernible goal—such as auditing, indexing, dishwashing.

Eating poor food; eating in ugly places.

The sensation of living in ugly or uncomfortable houses.

All transit, whether by foot or on wheels, about New York City.

Being looked down upon, or laughed at (save for very minor foibles).

The bulk of all business interviews, conferences, talks—the juicelessness of the personal contact.

The defacement of natural beauty with bill-

boards, pop stands, suburban lots, gas tanks, shacks, factories. (A factory can be made to respond to architecture as well as a skyscraper.)

Reading newspapers—save perhaps one one-hundredth of the surface of not more than three of them.

Going to formal entertainments—particularly dinners devoted to the raising of funds for worthy causes.

Treating relatives as preferred creditors.

Wearing ugly or uncomfortable clothes as decreed by the *mores;* e.g., coats and hats for men in summer.

Shopping—with rare exceptions.

Worrying about money.

Being bored with bad plays, concerts, lectures, radios, meetings, conversation—especially the last.

Being everlastingly hustled around.

Seeing other people bored, unhappy, or in pain.

Looking down mean streets and into frowsy windows.

My notebooks show scores of other conditions which take the joy out of life, but the above are the chief ones in the daily run of my activity. They consume, on the basis of a rough estimate, upward of two-thirds of my waking hours, though the ratio shifts with the seasons, being noticeably worse in winter. The average annual ratio, furthermore, is better when living in the country the year around than in the city. I am dead, I conclude, about two-thirds of the time.

I am alive, by and large, under the following conditions:

On encountering a vivid awareness of health.
In pursuing creative work, intellectual or manual. There are definite time limits to both.
Eating good food, drinking good wine, in comfortable places.
The sensation of living in well-designed and sunny houses.
Being looked up to and praised—but the butter must not be spread too thick.
Being with my friends.
Looking at beautiful scenery, beautiful pictures, beautiful things.
Reading great books; reading of new and stimulating ideas.
Swimming, diving, playing tennis, skating, dancing, skiing, mountain climbing. Watching good sport at not too frequent intervals.
Daydreaming.
Going on spontaneous and amusing parties.
Making love spontaneously.
Wearing beautiful—not fashionable—clothes.
Collecting things. For me, certain sorts of information.
Listening to good music—especially Russian gipsy songs.
The sensation of being some paces in front of the wolf.
Kindly casual contacts with strangers.
Travel, other than for business reasons.
Keen discussion.
A good fight, not necessarily sanguinary, in what seems to be a decent cause.
The sense of being in bodily danger.

So runs the major classification of what seems to constitute the good life for me. To hold that the list is applicable to all is of course ridiculous. Yet it must serve as a starting point for what we have set ourselves to define. I do not know how other people feel. Logic declares that, conditioned by the same forces that have conditioned me, other people would feel much the same, but logic is not an infallible guide in human affairs.

What kind of a community would I build to increase the count of the hours that live as against the count of the hours that die? The difficulty is that the pluses and the minuses are never clean-cut emotional states, registering faithfully at every exposure to a given condition. When one is in abounding health, even filling-station architecture is tolerable if not positively enjoyable. When one sits, like Mr. Polly, athwart a stile, with civil war in his interior, the sunset becomes a flat and over-estimated spectacle. There are times when the best of friends becomes a bore, when one wishes all printing presses would stop forever. Indeed, the whole concept is in the curved grip of relativity.

Nevertheless, I think that I should be appreciably more alive in a community that deliberately fostered the sorts of things enumerated on the second list, of which good health is probably the most important single factor. If it be objected that the animals are mostly healthy, I would reply that they appear to get more out of life than the majority of human

beings. Fortunately the laws underlying the promotion of health are beginning to be understood. We have the technical knowledge to increase immeasurably physical well-being. Here and there it is being applied, as the declining death-rate and the lengthening age-span show.

Secondly, I would like to live in a community where beauty abounded; where cities were nobly planned, industrial areas segregated; where great stretches of forest, lake, and mountain were left wild and free and close at hand; where houses and their furnishings were spare and fine and colorful, and there was not a single billboard in a day's march. Cities and houses have been so built; nature over great (but distant) areas is still free; advertising is not a century old, despite the pious historical labors of Bruce Barton. Surely a community rich in natural beauty, rich in architecture, is no Utopia. It has been repeatedly achieved, and without the vast potential assistance of mechanical power.

Thirdly, I would like to live, and to have my neighbors live, free from the fear of want. Such communities there have been, but not many of them. Peru under the Incas is said to have achieved this goal; Denmark is not far from it to-day. Not only is the release of the individual desirable, but vastly more important the release of the whole group. As things are in America to-day I never know how far my own actions are ignoble by economic considerations, nor how far my neighbors and

associates regard me on my own merits or as a means to a hopefully profitable end. All human relationships are poisoned with this suspicion; or cut and bruised with the frank brutality of elbowing one's way above the line of economic insecurity. This is the more lamentable in that the industrial arts have already demonstrated how to abolish poverty, to double—aye treble—the standard of living, produce more than enough to go around.

Fourthly, I should like to live in a community where I could do the kind of work that is the most fun. Fun for me is economic research and writing about it. If there should prove a plethora of better men in this field, I should have a lot of fun as an anthropologist, a psychologist, or a biologist. Or I might go back to my boyhood dreams of architecture. In exchange for the fun, the giving of an hour or two on the average a day to the necessary manual work of the world would seem, in anticipation at least, the merest justice. Furthermore, digging ditches, painting walls, simple carpentry would both preserve the sense of reality and serve by contrast to heighten the fun of the chosen occupation.

I should like to be able to dress as I pleased, or indeed not to dress at all when the sun was high and the water blue. I should like to experiment with colors and combinations now rigidly proscribed for males by the folkways—save at fancy-dress balls. I should like to be able to dance more, sing more, let myself go more. Here New England dogs me like

an iron shroud. I should like ampler and less hurried opportunities to play the games I enjoy. I should like to travel more; to visit the lost cities of which I dream; to climb in the Andes and the Himalayas. It does not do to turn one's back for long on the bright face of danger.

I should like to be a less self-conscious lover, but just how a community would proceed to organize great lovers escapes me. (Here we hover at once on absurdity and on what, following health, is probably the most important factor in the good life—a balanced sexual rhythm.)

I should like to live in a world where many good books were being published—fiction, poetry, science, history, philosophy; where good plays and good music were just around the corner—without too much standing in line and too little ventilation; where good pictures were being hung; where the arts and crafts were flourishing on indigenous rather than imitative material; and particularly and especially, where good conversation abounded, together with the leisure to pursue it. Of all the joys which life has to offer, none, for me, can exceed that of keen stimulating talk; and nothing is rarer in America to-day.

Finally, I should like to live in a community that held a genuine sense of its uniqueness; where one could take pride in community achievements; match one's art and craftsmanship and sport against a neighbor group; where one could contribute in per-

son to the local theater, the local schools; help to plan a beautiful region and see that plan grow before one's eyes—and take root in one's own soil, a part of the earth, earthy, as well as a dreamer in the clouds. So the Greeks must have looked back to the plains and hills and cedar trees of Attica and Laconia. Here one might have the leisure to play with children as they should be played with; here one might bring the carnival and the pageant—with color and wine and flowers—back to meaning and to life.

Above all leisure, leisure, a break in the remorseless and meaningless urgencies of the twentieth-century pace.

This Utopia may be cold to you, but it is not cold to me. I can see it, feel it, aye, long for it. How would you change it to include the things for which you long? Anthropologists, you say, have yet to find a people without a well-marked religion; that need is important to you. Good. Let us have a church with a great nave and a great organ and the sound of vespers across the evening fields. You dislike my games and want other games. Again good. The more games the better so long as we play them ourselves. You want to paint or design or build bridges. Each to his own desire, so long as the necessary work is done. You do not want to do anything. There will be a nice forest-circled, psychopathic hospital until sanity returns. You do not want roots, you want to keep on the move. Would you object to

moving through communities which had abolished squalor and striven to individualize and beautify themselves?

Add what you please, so long as it does not make for ugliness or drabness or cruelty; so long as it does not quench life that the lives of a few may burn with a spurious brightness. I do not know what your desires may be, but if they make you happy and others not too unhappy, they are welcome. The question is not what is good for other people but good for you.

The preliminary definition of the good life which I have tried to outline is crude enough, but it can be used. Swing it as a searchlight where you will—on Mr. Calvin Coolidge or Mr. Bernard Shaw; on Miss Jane Addams or Miss Clara Bow; on a soap factory, a department store, an iron mine, an advertising campaign, a prize fight, a laboratory, a best seller; swing it upon Wall Street or Main Street or Downing Street; on Denmark or on Pittsburgh—it can give basis for judgment. Would this person or thing be out of place in such a community? Would it clash, jar, disintegrate; or would it be welcomed and at home? The architecture of Beacon Hill would, the architecture of South Chicago would not; the Lincoln Memorial would, Park Avenue would not; Mr. Chaliapin would, Mr. Shubert would not; the Olympic games would, professional baseball would not; Mr. H. G. Wells would (very much at home he would be), Mr. Edgar Guest

would not. Mark for yourself the quick from the dead.

The question is not primarily what would make you happy but rather what would make you more alive. Perhaps complete Nirvana is the happiest conceivable state, but it remains at the opposite pole from vivid life. Pain, heartache, failure in achievement, failure in love, even envy, must remain so long as we behave like human beings. Only the surplus of pain and confusion induced by stupidity would tend to disappear.

It would seem that the end of human effort upon this planet should be to give a maximum of living and a minimum of existing—the life more abundant. Against such an end, those who regard life as a gateway of mortification to a Utopia beyond the grave make their sincere protest. But it is doubtful how far that protest can continue effective in an era of wide knowledge and unlimited possibilities for technical control over nature.

Even if we can win to life ourselves, the contemplation of those over the brink about us takes, in a sensitive heart, most of the joy out of personal salvation. Even if democracy is not sound doctrine, and biological inferiority must make social inferiority, there is no particular reason why those handicapped from the germ plasm—who will perforce have to do most of the dirty work of the world—should not be given surroundings from which they can take the maximum of what life holds for them. Lafcadio

Hearn has told us of ancient Japanese communities and how extraordinarily high in the sense of beauty and appreciation it has been proved possible for the mass to go.

Granting for the time being—until coal is gone, and the Ice Cap moves south again—granting that a beautiful life here and now should be the major goal of human effort, of what strands shall it be woven? The above is, if you will, a feeble and over-personal beginning. But I offer it as a preface to the work of the engineers that are to come.