

THE SCIENCES AND SOCIETY

POWER AND ABUNDANCE are themes that have often been elaborated upon in these pages. Quite naturally so, for those two words, taken separately or together, symbolize the gifts of science to society. Power: the basic fact of modern technology, expressing itself in man's increasing capacity to produce whatever men stand in need of for the business of life or the pleasures of living. Abundance: the Gargantuan accumulation of things so produced, whose one social justification is to be consumed—whose actual fate, in our persisting 'economy of scarcity,' is to be withheld, sabotaged, obstructed, and criminally destroyed by man, against his own clear knowledge of their usefulness, in violation of his deepest, most elemental convictions as to the true meaning of 'wealth.'

Startling confirmation of these by now hackneyed truisms will be found in the small, compact volume entitled *The Chart of Plenty*, by Harold Loeb and Associates (New York, Viking Press, \$2.50). The author is director of the National Survey of Potential Product Capacity, an organization set up in February, 1934, by the Civil Works Administration to ascertain primarily and on the basis of hard fact (1) the ratio of actual production in the United States to capacity production; (2) the manpower required in each case; (3) the operating characteristics of the various industries, with special reference to 'bottlenecks' existing between production and consumption; and (4) the amount of 'purchasing power'—in terms of dollars at any given price-level—required to command capacity production in existing plants.

To these extraordinarily complex problems upwards of 60 experts, technicians, and engineers—including such men as Walter Polakov, Felix Frazer, Graham Montgomery, and Pomeroy C. Merrill—gave their undivided attention in the

months that followed. The results to date, scheduled for publication through the New York Housing Authority, will run to a score or more of volumes, the contents of which, if widely known and properly interpreted, could bring this country closer to a revolution than all the works of Marx and Lenin put together.

LET US SET down a few of the facts, chosen (more or less at random) from the survey's preliminary report, *The Chart of Plenty*. Remember that the collaborators in this work were interested in one question: what the inhabitants of the United States could have, first of goods and then of services, if limited only by the physical resources and productive capacities of the country:—

Food: In the so-called 'peak year' of 1929 the 'liberal diet' requirements established by the Department of Agriculture were quite needlessly deficient by the following amounts of specified foods (figures in pounds): whole milk, 77,677,428,000; all fresh fruits, 20,831,000,000; certain vegetables, 6,909,612,000; eggs, over 13,000,000,000; lamb and mutton, more than 60,000,000; poultry, nearly 700,000,000. Against this we have to-day an unused capacity (two-shift basis) of 97 per cent in slaughter houses and 74 per cent in flour mills.

Textiles: 'Textile mills, now operating largely on single shift, when a multiple-shift basis is not only practicable but very often used, are capable of more than doubling the 1929 allowance of clothes.'

Steel: 'In 1929 we had sufficient steel to permit building 6.7 times as many homes, 1.23 times as many automobiles, 1.98 times as much machinery, and still carry out a construction programme in other industries as great as in 1929. By 1934 the steel capacity had been increased by about 5 million tons.'

Productive labor: 'It has been roughly

estimated (Brookings Institution) that the man-hours unused during the past five years would have been sufficient to replace the entire industrial equipment of the United States with modern equipment.' In 1932 the monetary value of production was at the rate of \$8,885 (1929 dollars) per worker—but average annual wages were about one-fifth, or less, of that. Over 16,000,000 families in 1929 had incomes of less than \$2,000.

Unquestionably the rich material uncovered by the National Survey of Potential Product Capacity, whatever its statistical inadequacies and possibilities of error, will deserve the closest study by all economists who respect science—and by all scientists and technologists who recognize that economics is an increasingly important part of their job.

ABOUT THIRTY YEARS ago Thorstein Veblen, one of America's greatest and most original economic thinkers, wrote a volume that has become a classic in its field. The main thesis of this book—*The Theory of Business Enterprise*—is to the effect that virtually every activity of modern society, public or private, economic or political, cultural, technical or scientific, is entangled in a complex network of financial and commercial sanctions whose one and unwavering objective is—plunder.

Although Veblen's phraseology is seldom as explicit as that, Veblen's idea—developed in a dozen shrewd volumes—is certainly borne out in the explosive, if confusedly written, pages of *Partners in Plunder, the Cost of Business Dictatorship*, by J. B. Matthews and R. E. Shallcross (New York, Covici Friede, \$2.50).

The authors—who have had the exceptional advantages of access to the rich files of Consumers' Research—conceal few facts and mince no words. 'The most serious and menacing manifestations of Fascism,' they write, 'are to be found in the intensification of the normal and accepted practices of conventional business

and in the sanctification of those practices by charlatans and more sober officials in government service.' How does this 'intensification of the normal' work out in those sectors of the market (and it is characteristic of what James Truslow Adams has called 'our business civilization' that everything is market) that are openly dependent upon the promptings of science and technology?

Turn first to the chapter genially headed 'A Brisk Trade in Poisons.' Here we learn that 'business as usual' is primarily responsible for such facts as these: cancer of the lungs is definitely on the increase, very largely because of the entirely preventible (but financially costly) exhaust fumes from motor-cars. It is common practice to 'preserve' spoiled hamburger by adulteration with the dangerous chemical, sodium sulphite; many deaths are suspected from this cause—but the owners of the spoiled and adulterated meats are not punished. The highly poisonous gas, methyl chloride, by its leakage from seemingly new and intact electric refrigerators, kills many people—and without warning. Arsenic spraying of fresh fruits, without necessary safeguards against hasty or premature consumption, has led to numerous fatal results. The substitution of fluorine and mercury for lead arsenate has not improved matters. The sale of 'reducing' medicines—including the extremely toxic 'dinitrophenol' compounds—has become a drug salesman's racket, with disastrous effects upon the gullible throughout the country. The effects of radium compounds, whether used in industry (watch dials, etc.) or pharmacy (mouth washes, face powders, bath mixtures, etc.) are equally serious. 'That the vending of such dangerous or fraudulent preparations, with the misinformation accompanying their advertising,' stated Dr. Leonard B. Loeb, of the University of California, 'should be permitted in such an enlightened country as the United States of America is almost unbelievable.'

'SCIENCE LENDS a Hand' is the title of another chapter in the Matthews and Shallcross manual of commercial humbuggery. Nowadays, comment our authors sardonically, instead of fleeing the wrath to come on the say-so of theologians and revivalists, Americans are engaged in a fearsome and never-ending struggle with mundane horrors, to which—at the behest of super-salesmen—our 'scientists' give lugubrious names: 'bromidosis,' 'gingivitis,' 'pyorrhea,' 'psoriasis,' 'athlete's foot,' and so on. For all of these sinister ills (against which not even your best friends will warn you) science has exactly the cure—at so much the dose. Not only that, but in everything from cigarettes and face creams to soft drinks, breakfast foods, and 'ultra-violet lamps,' the 'cure' is attended by an astonishing increase in one's capacity to go out and sin—not less but more. Naturally, for, in order to 'sin' with any real efficiency, it is imperative to consume generous quantities of this, that, and the other: thus science, under orders from business, has changed the direction of the 'primrose path,' which now leads straight to Heaven, according to a nicely graduated scale of prices per mile. True, it is seldom the actual consumer who reaches this destination: in fact, the whole trip may be summed up in Matthew Josephson's description, 'The Consumer Consumed.'

'SOLDIERS HAVE rarely won wars. They more often mop up after epidemics . . . The epidemics get the blame for defeat, the generals the credit for victory.' So declares Dr. Hans Zinsser, one of America's most brilliant bacteriologists, in *Rats, Lice and History* (Little, Brown and Company, \$2.75), a fascinating book, which begins with an erratic and none-too-successful examination of the literary bacilli (from Tennyson to Gertrude Stein), and ends as a scholarly 'autobiography of typhus fever.' To the layman reading this book it must seem that man is, as usual, considerably behind nature in his

destructive ingenuity, particularly in regard to a subject that has acquired of late a macabre popularity—bacteriological warfare. Dr. Zinsser, whose field experience of infectious diseases was obtained during the Great War, pays sardonic tribute to the murderous efficiency of the virus, bacterium, and bacillus in that heroic struggle to make the world safe for democracy and epidemics. A few of the instances that he gives (with a wealth of scientific and historic detail) would be apropos at this time, when sabres are ominously rattling in all the War Offices of the world:—

In Serbia, within a year after the declaration of war (spring of 1915), the typhus epidemic, aided by Austrian prisoners of war, wandering troops, and inadequate medical aid, claimed 2,500 victims per day in the military hospitals alone. In six months more than 150,000, including over half the 60,000 Austrian prisoners, had died of typhus. Russia, in the first year of the war, registered only about 100,000 cases of typhus; from 1917 to 1921, according to the conservative figures of Tarashevitch, at least 25,000,000 cases of typhus alone occurred, resulting in upwards of 2,500,000 deaths.

Only the most rigid control through the 'sanitary cordon' prevented worse disasters on the western front. In the Crimean War, that masterpiece of horror, cholera, typhus, dysentery, and 'lesser' epidemics, 48,000 men were incapacitated by disease in four months—12,000 per month. Of the French detachments, 310,000 strong, 150,000 came down with disease.

Napoleon's ill-fated Russian campaign commenced with an army of close to half a million men. By the time of the retreat from Moscow, typhus, dysentery, and other epidemics had done their full share in reducing this force to something like 80,000 men. In 1792 the French Revolution was endangered by the attack of 42,000 allied Prussian and Austrian troops under Frederick William II. 'Dysentery,

the Red, decided in favor of *Liberté*, *Égalité*, *Fraternité*, and with only 30,000 effectives remaining, the Prussians retreated across the Rhine.' Typhus and scurvy killed 18,000 soldiers in the Thirty Years' War; epidemics destroyed 30,000 at the siege of Metz and some 200,000 of the 300,000 that set out on the First Crusade.

DR. ZINSSER, who is a very widely read scientist, undoubtedly knows his William Blake. In the latter's extraordinary fragment, *Island in the Moon* (written about 1787), occurs a gruesome poem, sung by the Cynic to Suction, the Epicurean. From the following stanzas the reader—and Dr. Zinsser—may judge how appropriate the whole poem would be for reprinting in a later edition of *Rats, Lice and History*:—

When old corruption first begun
Adorn'd in yellow vest,
He committed on flesh a whoredom—
O, what a wicked beast!

From thence a callow babe did spring,
And old corruption smil'd,
To think his race should never end,
For now he had a child.

And as he ran to seek his mother
He met with a dead woman,
He fell in love and married her,
A deed which is not common.

She soon grew pregnant and brought forth
Scurvy and spott'd fever.
The father grinn'd and skipt about,
And said, 'I'm made forever!'

'For now I have procur'd these imps
I'll try experiments.'
With that he tied poor scurvy down
And stopt up all its vents.

He took up fever by the neck
And cut out all its spots,
And thro' the holes which he had made
He first discovered guts.

THE LAND PROBLEM in Mexico has been receiving considerable attention lately. Writing from Mexico City the special correspondent of the *Christian Science Monitor* discusses material presented in a symposium on 'The Agricultural Problem of Mexico,' to which a number of Mexican technicians contributed. Quoting from a careful study made by Dr. A. Lozano, the correspondent, according to the notice in *Science*, states that 'the 35,929,500 acres of arable land cannot be cultivated until the population has reached at least 30,000,000 inhabitants'—that is, about double its present population. This is one of the arguments in favor of lowering the immigration bars. The Mexican Government, through the National Irrigation Commission, is considering a plan for the founding of ten new cities on as many national irrigation systems throughout the country, each project to cost about 500,000 pesos. These cities would be modeled after the agricultural city of Anahuac, which was built last year on Irrigation System No. 4 and which now has a population of about 5,000. The work under way, if and when completed, would add 728,945 acres of land to Mexico's cultivated area; each new city would be provided with all the technical equipment (water and power systems, posts and telegraphs, etc.) necessary to carry on, as well as an adequate network of roads and highways. Those wishing to settle on this new land will be given their choice of short- or long-term contracts, ranging from 25 to 45 years.

—HAROLD WARD

AS OTHERS SEE US

TRIBUTE TO HOLMES

FITTINGLY and properly enough, the *Manchester Guardian*, as the foremost organ of liberalism in the English-speaking world, paid this tribute in its editorial columns to the greatest American since Abraham Lincoln:—

Lord Morley once described the late Mr. Justice Holmes as 'the greatest judge of the English-speaking world,' and it is hard to think of another, let alone a better, claimant to the title. His thirty years of service on the Supreme Court of the United States have molded the course of American history. When he joined the Court in 1902, it was known as the avid and adamant defender of the rights of property against the people—an antithesis usually disguised as the rights of the individual against the government. It was the rock on which one progressive measure after another was wrecked. Sheltering behind a strict and literal interpretation of the written Constitution, it barred from its ears or eyes any recognition of changes in the social structure in the hundred-odd years since the Constitution came into being.

Justice Holmes brought into the Court the fresh and lively breeze of liberal thought. He held that the Constitution must be read in the light of the needs and circumstances of the day; he warned the Court, in a famous dissenting judgment, against imagining that the Constitution was intended to 'enact Mr. Herbert Spencer's "Social Statics."' At first, he was repeatedly in a minority of one. But his dissents were so soundly reasoned, so clearly and forcibly expressed that they moved the country if they failed to move the Court. Then—thanks to President Wilson—'Holmes dissenting' became 'Holmes and Brandeis dis-

senting,' and then a minority of four against five, and lastly a bare majority for causes that would have been deemed hopeless if they had come before the Court in the first decade of Mr. Holmes's service. It is perhaps since his retirement, three years ago, that his work has borne most fruit. His influence was subtle, patient, unimpassioned; he began his life work at the age of sixty, and at no time did he take any part in politics. But one cannot leave his name out of any list of the great democrats of this era.

ARKANSAS THROUGH BRITISH EYES

NAOMI MITCHISON, British novelist and supporter of the Labor Party, has been visiting Arkansas together with several of her fellow countrywomen. She writes as follows in the *Daily Herald* of London concerning what she saw there:—

It needed a Civil War in the United States of America to stop slavery in the cotton-fields of the south. But something worse than slavery is happening now to millions of men and women in these same cotton-fields of the Southern States.

In the old days the slave was at least decently fed; he was looked after when he was sick, he had a sound roof over his head. He was treated as a fairly valuable animal.

I have seen for myself what happens to the successors of the slaves—the men, black and white, who do the work that the slaves used to do—the sharecroppers, the so-called tenant farmers, who cultivate the big plantations.

They are being starved to death, and not so slowly, either. Their main food is cornbread (made from maize), bone gravy, and the kind of molasses ordinarily